Establishing an online community for special education in Bulgaria

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Abstract

The purpose of this study was to apply existing design principles for the creation of successful communities of practice (CoPs) to the development of a new online community with the aim of (1) exploring the practice of special education in Bulgaria and (2) evaluating the extent and ways in which the online community supports the practice. Research and development was framed by the *design-based research* approach. The study was organized into three phases: *needs assessment*, *formative evaluation*, and *effectiveness evaluation*. Four versions of the online community were created: *prototype*, *alpha*, *beta*, and *final*.

Qualitative data were collected from personal interviews and discussions held on the online community website. Quantitative data were collected from website usage logs. Mixed data were collected from web-based questionnaires and surveys and expert consultation and usability evaluation sessions. Mixed-method studies of this nature are often described as following an *exploratory research design*. Such studies begin with the collection and analysis of qualitative data, which can then be used for the creation of instruments designed to collect quantitative data. In this case, the instrument was a website created to support an online community.

Findings indicate that the main issues affecting the practice of special education in Bulgaria relate to the integration of special needs and Roma minority students into mainstream schools. Findings also indicate that the online community, called Special Education Bulgaria (SEB), must further evolve to adequately address issues related to integration. SEB was found to be an effective online community but only partially effective as a CoP. It is argued that future iterations of SEB be designed to facilitate an *innovative knowledge community* on the topic of integration. Such a community would be designed to foster the development of new practices among special and general educators and other stakeholders of the integration process. It is suggested that the results of this study may apply to countries with *cultural dimensions* similar to Bulgaria. Macedonia, Romania, and Croatia are recommended for further investigation.

Preface

For most, it takes a stretch of the imagination to comprehend how a study involving the development of an online community for special education in Bulgaria could be carried out by an American graduate student at the University of Wollongong in Australia. The likeliness of such a project occurring ten years ago would have been low. But today, international cooperation and exchange at this level is more common than ever, and we can blame the Internet.

I like to think that this study is an example of good karma. The pieces just seemed to fit as the exploration into the practice of special education in Bulgaria unfolded. During my first visit to Bulgaria in September 2005, I was still very much uncertain that the project could work. Though I had spent one session at the University of Wollongong and several years prior preparing, when I actually set foot in Bulgaria, I was a little lost. It was overwhelming, for example, to arrive and see all of the billboards, store names, street signs, practically everything in the Cyrillic alphabet.

By the time I returned to Australia, however, everything was coming together. From a research standpoint, I found that Bulgarian special educators were familiar enough with using the Internet to benefit from an online community. There was also sufficient Internet access and interest in the study. From a cultural standpoint, I was also at ease. I took the opportunity to travel across the country, from Sofia to the Black Sea. I had experienced a country with a history far deeper than that of Australia or the US. It is the land where the first Europeans settled as they crossed over from the Middle East. In later visits to Bulgaria, I also visited Istanbul and Macedonia.

My favorite excursions in Bulgaria were to Rila Monastery, Melnik, Veliko Tarnovo, the Southern Black Sea Coast, and the Pirin Mountains, but there were many other locations, such as Koprivshtitsa, Velingrad, and the Old Town in Plovdiv, that I would recommend. Down south, Ohrid, Macedonia was also a highlight.

One of the more unexpected aspects of travel in Bulgaria was the discovery of so many foreigners, not Bulgarians, but Aussies and Kiwis. It seemed like I met more people from down under than anywhere else in the world. One of the worst moments was a serious bout of food poisoning from an Americanized restaurant in Sofia. It was the chicken. I learned my lesson about sticking to Bulgarian cuisine when in Bulgaria. The most disheartening aspect of travel in Bulgaria was the highly visible gap between the rich

and the poor. In Sofia, the nation's largest city and capital, the areas visited by tourists are relatively clean and modern, but it does not take long to discover that these areas are a screen behind which the majority of Bulgarians actually live.

I began the study thinking that learning Bulgarian would not be necessary. For the most part, this was true, but learning the language to an intermediate level was one of my greatest personal achievements during the project. It was tremendously helpful for travel and for qualitative data analysis. Microsoft Word's Bulgarian spellchecker and a free downloadable Bulgarian dictionary (Angelov, 2005) were essential to my success with communicating electronically.

The study was conceptualized in San Francisco, where I worked for a Bulgarian robotics company as a trainer and technical writer. I had an interest in special education as I had grown up hearing stories about my mother's career as a special educator. My colleagues at the robotics company indicated that the special education profession was practically invisible in Bulgaria. Based on their comments, it appeared that children with special educational needs were either not identified for accommodations or, in more severe cases, completely excluded from the education system. This was an eye-opening discovery and a catalyst for the study's proposal.

The connection to Australia came from a contract position in which I worked with an Australian website developer at Edith Cowan University in Perth. The developer introduced me, by email, to Associate Professor Jan Herrington, who would later become the study's lead supervisor. A contact was made in the Department of Special Education at Sofia University when I applied for a Fulbright grant to fund initial stages of the project.

For me, this project has always made sense. It combines many of my interests including travel, instructional design, website development, foreign languages, technical writing, and special education, and was travel mentioned? Clearly, anyone interested in taking on such a study also has a passion for travel, but how is the research significant to both special education stakeholders in Bulgaria and the body of knowledge regarding the development of online communities? This is the question addressed in Chapter 1 and that culminates in the study's research questions and goals.

Declaration

I, Robert Raley Peterson, declare that this thesis, submitted in partial fulfilment of the requirements for the award of Doctor of Philosophy, in the Faculty of Education, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any other academic institution.

Robert Raley Peterson

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This project would not have been possible without assistance from my personal contacts from Bulgaria. The language, travel, and housing assistance provided through these contacts made the project affordable. Moreover, the contacts provided great insight into Bulgarian culture, history, and politics as well as the Bulgarian education system. Thank you very much to the Mladenovs: Lucho, Vania, and Dancho. This research would never have begun without the wonderful translation assistance and Bulgarian language tutoring from Antoaneta Andreeva and cultural and travel guidance from Ivan Andreev, Dushko Kesiakov, and Svilen Stoyanov. Finally, thank you to my university research subjects as well as the staff at special schools and non-profit organizations visited while in Bulgaria as well as the EU's TENCompetence project for partial sponsorship of the study.

For the Kyrks, Petersons, Roudas, and Svetichs …

> "The whole object of travel is not to set foot on foreign land; it is at last to set foot on one's own country as a foreign land." — Gilbert Keith Chesterton (1920).
> The riddle of the ivy. *Tremendous trifles.*

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DEFINITION OF TERMS

CoPs: Communities of practice are groups of professionals and other stakeholders "who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, McDermott, & Snyder, 2002, p. 4). Also fundamental to the CoP concept is the notion that in a shared field of practice, novices steadily develop into experts due to interaction in the community (Lave & Wenger, 1991).

DBR: Design-based research is an approach to researching, developing, and evaluating technologically-based educational interventions. The critical characteristics of design-based research are "addressing complex problems in real contexts in collaboration with practitioners; integrating known and hypothetical design principles with technological affordances to render plausible solutions to these complex problems; and conducting rigorous and reflective inquiry to test and refine innovative learning environments as well as to define new design principles" (Reeves, 2000, p. 26).

IKCs: Innovative knowledge communities are deliberately designed to facilitate innovation and knowledge advancements. "One of the central differences between CoPs and IKCs is that people who work in the latter ones are 'forced' to create new forms of acting, working and learning in order to deal with the challenges of turbulent work environments" (Hakkarainen, Paavola, & Lipponen, 2004a, p. 80).

Research participant: A participant who was interviewed or responded to an email questionnaire.

SEB: Special Education Bulgaria is an online community developed according to CoP design principles for special education stakeholders in Bulgaria (see www.specialeducationbulgaria.com).

TENCompetence: The European network for lifelong learning and competence development is an integrated project of the European Commission's 6th Framework Programme, priority IST/Technology Enhanced Learning, contract 027087 (see www.tencompetence.org).

Website participant: A participant who registered for the SEB website but was not otherwise in communication with the researcher.

Chapter 1

1. Introduction

Preliminary qualitative inquiry with the researcher's Bulgarian contacts indicated that many children with special educational needs were excluded from the Bulgarian education system. This preliminary finding was supported by Cholakova and Georgieva (1996), but the availability of literature, in English, about Bulgaria's special education system is particularly thin. It was known that the Bulgarian infrastructure to support information and communication technologies was quickly advancing, but the actual state of progress was largely unknown to researchers in Western countries.

In this chapter, information gathered prior to the researcher's first visit to Bulgaria in 2005 is presented to establish the study's significance as understood prior to the collection of data. This approach helps to illustrate how the project's research questions and goals were initially formulated. First, the significance of the study is explained in terms of Bulgaria, the European Union (EU), and prior research on communities of practice (CoPs). The study's research questions and goals are then presented, and the chapter concludes with a section that outlines the organization of this thesis.

1.1 Significance of the study

Early on, the study was thought to be significant in two fundamental ways. In one respect, it was an exploration into the practice of special education in Bulgaria. For qualitative explorations of this nature, an ethnographic approach is often taken (Mertens, 2005). The innovative approach taken for this study, however, added a significant new dimension to the research. An online community was developed and then accessed as a source for much of the qualitative data needed to describe the practice. It follows, that in a second respect the study was an investigation into how to design and develop online communities for use by special education stakeholders in developing countries.[1]

It was anticipated, prior to selecting Bulgaria for research, that an online community would be built as part of the study. It was also postulated that if an online community could be of use to a group of professionals, then that online community would best serve the group if its characteristics resembled a CoP. This assumption was based, in part, on a 2003 article published in *Exceptional Children* that examined the CoP model as a framework for integrating education research with practice (Buysse, Sparkman, & Wesley, 2003). The authors argue, "We are convinced that communities of practice offer the intellectual resources to solve even the most complex educational problems by adopting an approach to scientific inquiry that views research production and research understanding [research and practice] as part of the same process, rather than separate endeavors" (Buysse et al., 2003, p. 275). Buysse et al. (2003) define CoPs as groups of professionals and other stakeholders in pursuit of a shared learning enterprise commonly focused on a particular topic such as methods to promote early literacy. They conclude their article with a call to action for researchers to incorporate a CoP perspective into current research. Throughout the article, they maintain that special education is a good example of a professional field that could benefit from the CoP perspective.

In many ways, this study was a response to their call to action. A central outcome from this study was a website called Special Education Bulgaria (SEB)[2] that hosted an online community built according to CoP design principles. From within the context of

1. Bulgaria is considered to have an "emerging and developing economy" by the International Monetary Fund (2008). Romania, the Republic of Macedonia, Turkey, Croatia, and several other countries on or neighboring the Balkan Peninsula are also considered to have emerging and developing economies.
2. The prototype website is still available at www.specialeducationbulgaria.com/backupoldseb (Peterson, 2005b). The latest iteration of the website is available at www.specialeducationbulgaria.com (Peterson, 2006c).

this study, connecting research with practice meant providing professional development opportunities to Bulgarian educators that will, in turn, improve teaching and special education outcomes. Improvement of the practice meant promoting adherence to the latest university teachings and research or legislative requirements in Bulgaria and the EU. Such outcomes from the use of an online community are supported by a large body of research that indicates online discussion groups and electronically-supported instruction can be viable options for the professional development of teachers (Barab, MaKinster, Moore, Cunningham, & the ILF Design Team, 2001; Bodzin & Park, 2002; Cheng, Clift, & Klecka, 2003; Conceição, Sherry, & Gibson, 2004; Crawford, 2001; Davis & Resta, 2002; Hough, Smithey, & Evertson, 2004; Pennington & Graham, 2002; Sujo De Montes & Gonzales, 2000; Wood, Cumpson, & French, 2003).

After choosing the practice of special education in Bulgaria as the subject for research, the next step was to conduct a needs assessment and feasibility analysis. There was always the risk that needs assessment results would indicate that research participants had no interest in SEB or that SEB was not feasible to establish for technical reasons such as the lack of sufficient Internet access. To ensure that the research was of value regardless of needs assessment findings, key aspects of the practice of special education in Bulgaria were thoroughly documented. The practice chosen was previously undocumented by researchers in Western countries.

The selection of this practice as the subject of research also reflected the need for CoP researchers to further "examine the nature of communities of practice of various sizes, in different sectors, and in a variety of sociocultural contexts" (Roberts, 2006, p. 636). Additionally, the point of the needs assessment was to focus on the practice rather than the development of a community, at least initially. As argued by Brown and Duguid (2001) "often too much attention is paid to the idea of community, too little to the implications of practice" (p. 198).

It was known, prior to conducting the needs assessment, that Internet use was rapidly increasing throughout Bulgaria. According to the United Nations (2005), from 1992 to 2003 the number of Internet users in Bulgaria increased from only 200 to more than 1.5 million—20% of the country's population of 7.5 million in 2003 (U.S. Census Bureau, 2008). Neil Buhne, Resident Representative of the United Nations Development Programme for Bulgaria, noted, "Bulgarian municipalities are going through many rapid

changes as they become increasingly responsive to citizen's needs. To do this, they need to use information and communications technologies to both improve services as well as to foster citizen participation" (Internet Society Bulgaria, 2004, p. 1). The Anglo-American School of Sofia, for example, requires all students to use the Internet at school and encourages its use at home (2005).

Preliminary investigation also indicated that in Bulgaria, funding to provide in-school experts or train teachers about learning disabilities is generally not available. For this reason, the diagnosis of students with less-severe learning disabilities such as dyslexia or mild forms of autism is not usually possible (M. Tzvetkova-Arsova, personal communication, August 2004). Research by Cholakova and Georgieva (1996) supported Tzvetkova-Arsova's statement, reporting that only students with noticeable intellectual disabilities are engaged by the Bulgarian special education system. The education system, in 1996, sent such students to special schools. Students with more severe intellectual disabilities were totally excluded from the education system (Cholakova & Georgieva, 1996). The report by Cholakova and Georgieva (1996) implied that students with mild forms of learning disabilities were integrated into classrooms and never identified for additional support.

Though this implication is further supported by findings discussed in the results chapters of this thesis, learning disabilities did not play as large a role in the design of SEB as initially anticipated due to findings from the needs assessment. Prior to conducting the needs assessment, however, it was thought that SEB might be designed to give teachers access to information about learning disabilities and special education techniques. This would have helped Bulgarian teachers to diagnose students with mild learning disabilities earlier, increasing the opportunities for parents and educational services to provide support.

It was also predicted that the CoP concept had not been applied to many practices in Bulgaria and especially not to the practice of special education. The term *CoP*, for example, does not translate well into the Bulgarian language. The closest possible translation found was the term *professional community*. While the development of CoPs, and especially virtual CoPs, would be pioneering in Bulgaria, in Australia and the US, CoPs and supporting technologies were already being researched for use by many different professions. It was hoped that initial participation in the online community would be higher,

in part, due to the novelty of the concept. Research by Reeves, Harmon, and Jones (1993) indicated that "Bulgaria possesses a strong educational tradition and a cultural openness to innovation and technology. It has a wealth of available technology in comparison with many developing countries" (p. 63).

The work of Reeves et al. (1993) was a surprising discovery during the planning stages of this study. They introduced "a model for analysis of the potential for CBI [computer-based instruction] in the education and training systems of third world countries" (1993, p. 59). Reeves et al. applied the model to Bulgaria to explain how to use it. They found that "Bulgarian economic conditions cannot support major investment in new instructional technologies" (Reeves et al., 1993, p. 61). Their critique of Bulgaria's readiness to support computer-based instruction could be taken in two ways. On the one hand, the country's "immediate economic prospects are dim" … and "their aspirations are higher than their available technology" reported Reeves et al. (1993, p. 63). On the other hand, their aspirations in the area of instructional technology were high. Reeves et al. (1993) found that despite the lower quality of technology available in Bulgaria at that time:

> Bulgaria probably leads the Eastern Bloc nations in instructional innovation as evidenced by many things, e.g., the colorful interdisciplinary textbooks used in its elementary schools and its experiments with constructionist learning environments in the form of computerized Lego bricks. Bulgaria has a number of recognized leaders in the field of instructional technology. The work force retraining needs and the national aspirations support innovative approaches to instruction. (p. 63)

Hence, despite the findings of Reeves et al. (1993) regarding the availability of technology in Bulgaria, a decade had passed since their research was published. According to a representative of the Internet Society Bulgaria, the average computer at K-12 institutions with Internet access in Bulgaria had a Pentium II, 433MHz processor, 64MB of RAM, and 33.6K dial-up modem and ran Windows 98 (J. Velkova, personal communication, August 2004). Such computers are sufficient for accessing most websites. The researcher's Bulgarian colleagues, however, indicated that Internet access was rapidly improving in Bulgaria, and it was likely even better computers were available in many schools, particularly those in larger cities. It appeared that the time had come to update the findings of Reeves et al. (1993).

1.1.1 Bulgaria and the European Union

Bulgaria, along with Romania, entered the EU in 2007, which is convincing evidence that much has changed in the Balkans since the fall of communism in Eastern Europe in the late 1980s and early 1990s. Despite immense progress, however, many critical issues continue to persist. At the forefront are political and judicial corruption and organized crime. Receiving less attention on an international level are Bulgaria's public health concerns and faltering university system as well as the social inclusion and human rights of *Roma*[3] minorities and children with *special needs*[4] (Blewett, 2007, November 18; Commission of the European communities, 2006; Lorton & Béquet, 2008, June 6; Popkostadinova, 2007; Rowling, 2006; Smith, 2006a, 2006b; Tzvetkova-Arsova, 2004a, 2004b).

The Bulgarian Ministry of Education and Science has published official strategies for *integration*[5] as well as several educational regulations, but these are only the first of many steps that are required (Bulgarian Ministry of Education and Science, 2002, 2004a, 2004b). Integration in any country is a difficult commitment. Moreover, integration is only the first step toward *inclusion*.[5]

Among the challenges Bulgaria faces as it transitions to a system of integration are the restructuring of hundreds of special schools and institutions and the retraining of special and general educators nationwide (Cholakova & Georgieva, 1996; Konza, 2008; Tzvetkova-Arsova, 2004a, 2004b). The use of computer technologies for retraining suits Bulgarian and EU plans to implement lifelong learning solutions facilitated by information technology (Bulgarian National Assembly, 2001; Commission of the European communities, 2005). It also closely relates to the objectives of the EU-commissioned

3. The Roma are a people believed to have originated in India but now live in countries throughout the world. The term *gypsy* is often used with reference to the Roma because of close cultural and physical similarities. There are 800,000 Roma living in Bulgaria, which makes up about 10% of the total population ("Europe's Roma," 2008; Kolev, Krumova, Metodieva, Bogdanov, & Zahariev, 2007).
4. In Bulgaria, the term *special needs* is used for students with significant intellectual and physical disabilities as well as those with speech impairments. Students with learning disabilities or borderline IQs are generally not considered to have special needs. Bulgaria is reported to have the highest number of children with disabilities in institutions anywhere in Europe (Blewett, 2007, November 18; UNICEF Innocenti Research Centre, 2005).
5. Integration is the accommodation of students with special needs in a "normal" education system. Inclusion seeks to completely remove the distinction between special and regular education and to provide an appropriate education for all students, despite their level of disability, in their local school. It is a philosophical move away from the accommodation of students with special needs into a normal system, towards a full inclusion model where everyone is considered normal (Konza, 2008).

TENCompetence project. TENCompetence is a large-scale project that seeks to research and develop innovative methods and technologies for lifelong learning and competence tracking, development, and assessment that will be applicable to a wide range, if not all, professions in the EU (Koper & Specht, 2007; TENCompetence, 2005).

While writing this section, it was difficult not to mention some of the information that was gathered during the needs assessment phase of the study. Researchers in Western countries knew very little about Bulgaria's level of progress toward integrating special needs and minority populations into mainstream schools. Very little had been documented, in English, about any aspect of the practice of special education in Bulgaria. It was known that Bulgaria had been one of the leading manufacturers of computer hardware for the former Soviet Union and had a reputation for technological innovation (Reeves et al., 1993). It was also known that Bulgaria had been experiencing a period of rapid economic and social change as it prepared to enter the EU and that the change process was likely to accelerate when it officially entered in January 2007. The conditions of special schools and institutions in Bulgaria were not well understood until they were visited by the researcher during the needs assessment in 2005.

It follows that the study's research questions, which are presented in the next section, were not in final form until after the needs assessment was completed. It was always understood, however, that the SEB study would be significant in providing an inside look at the practice of special education in Bulgaria and revealing the potential for the development of online communities to support the nation's education system. It was also predicted that outcomes from the study might be applicable to professional development initiatives for educators in neighboring Balkan countries, especially those new to or soon to enter the EU.

1.2 Research questions and goals

The purpose of the study was to apply existing design principles for the creation of successful CoPs to the development of a new online community with the aim of (1) exploring the practice of special education in Bulgaria and (2) evaluating the extent and ways in which the online community supports the practice. Research and development was organized into three phases: needs assessment, formative evaluation, and effectiveness evaluation. An overarching research question linked all three phases of research, and each phase was guided by a subquestion. The research question and three subquestions read as follows:

- Research Question: In what ways and to what extent does an online community developed according to CoP design principles support the practice of special education in Bulgaria?
  - Subquestion 1: In what ways and to what extent is an online community needed by Bulgarian special education stakeholders?
  - Subquestion 2: In what ways and to what extent does the community website facilitate usability, support sociability, and provide the features required for successful CoPs?
  - Subquestion 3: In what ways and to what extent was the online community an effective CoP?

Research activities for each of the three phases were also guided by a set of goals. Table 1-1 lists each of the project's seven goals and organizes the three subquestions by research phase.

From the beginning of the study, Subquestion 1 was clear. It was necessary to determine if there was a need for an online community by the stakeholder group. If Phase 1 results were negative, subsequent research phases could not have been conducted. Even if data collection concluded after the needs assessment, however, sufficient data would still have been collected for the completion of a MEd. This was a legitimate possibility. The study began as the basis for a MEd (Research) rather than a PhD (Education). Instead of upgrading to PhD, a proposal would have been made for reconceptualizing the project, perhaps for another socio-cultural group. Since Phase 1 results were positive, plans for Phases 2 and 3 could be carried out.

Table 1-1. Research question, subquestions, and goals

RQ: In what ways and to what extent does an online community developed according to CoP design principles support the practice of special education in Bulgaria?	
Phase 1: Needs assessment	
SQ1	In what ways and to what extent is an online community needed by Bulgarian special education stakeholders?
G1	Document the practice of special education in Bulgaria including major areas of the practice and historical, political, and cultural contexts.
G2	Report on the need for an online community and professional development opportunities for special education stakeholders in Bulgaria.
G3	Report on the feasibility of developing an online community and providing online professional development opportunities for special education stakeholders in Bulgaria.
Phase 2: Formative evaluation	
SQ2	In what ways and to what extent does the community website facilitate usability, support sociability, and provide the features required for successful CoPs?
G4	Develop and evaluate a community website for special education stakeholders in Bulgaria.
Phase 3: Effectiveness evaluation	
SQ3	In what ways and to what extent was the online community an effective CoP?
G5	Evaluate the effectiveness of the online community in terms of existing theoretical and design principles for CoPs.
G6	Define design principles for the establishment of online communities for special education in countries or regions with cultural dimensions similar to those found in Bulgaria.
G7	Define paths for future research based on effectiveness evaluation results and lay the foundation for long-term success of the online community.

Research activities for Phase 1 were directed by Goals 1, 2, and 3. The first goal was to document key aspects of the practice of special education in Bulgaria and historical, political, and cultural contexts. This step was necessary to define central themes for a potential online community as well as to help determine if an online community was needed. The second goal was to analyze needs assessment data and come to a conclusion about the overall need for an online community by special education stakeholders in Bulgaria. The third goal was to determine if it was feasible to develop an online community. The extent of Internet and computer access as well as interest by stakeholders required investigation.

Phase 2 was highly practical. Research activities were organized under Subquestion 2 and directed by Goal 4. The goal was to develop and evaluate a community website for special education stakeholders in Bulgaria. The principles of usability and sociability, argued by Preece (2000) to be of value to all online communities, were used as guides.

Existing design principles for the creation of successful CoPs directed website and online community development.

The final phase required the researcher to evaluate to what extent the online community was an effective CoP. Research activities were organized under Subquestion 3 and directed by Goals 5, 6, and 7. Goal 5 was to evaluate the online community in terms of existing theoretical and design principles for CoPs. Goal 6 was to define design principles for the establishment of online communities for special education in countries or regions with *cultural dimensions* (Hofstede, 2001) similar to those in Bulgaria. Goal 7 was to define paths for future research.

1.3 Summary and organization of this thesis

In this chapter, the significance of the study was established and the research questions and goals were presented. In the next chapter, a literature review is provided that describes existing theoretical and design principles for online communities and CoPs. A benchmark analysis of existing online communities and related research is also presented.

In Chapter 3, the elements of the design-based research approach are described and justified for use by this study. A unique model of design-based research is presented that specifically describes the multiphase approach taken for research and development of SEB. The methodology described in Chapter 4 explains how both qualitative and quantitative data were collected throughout each phase of research. In Chapter 5, the website development process is described. The prototype, alpha, beta, and final website versions are reviewed and their development directly linked to the three phases of research.

The presentation of results is organized into three chapters. In Chapter 6, participant sampling and quantitative results and analysis are presented. Quantitative data was collected that describes the background of participants involved in the study and from website usage logs, questionnaires, and surveys. In Chapter 7, qualitative results and analysis are presented. Qualitative data was collected from personal interviews and short-answer questions on web-based and email questionnaires. Expert consultation and website usability results are presented in Chapter 8.

In Chapter 9, a synthesis of all forms of collected data is provided. Findings regarding the practice of special education in Bulgaria and the SEB online community are discussed. In Chapter 10, directions for future research and a brief conclusion are pre-

sented. The conclusion summarizes findings in terms of each of the study's research questions and goals and provides reflective comments about the researcher's experience on this project.

A complete research timeline as well as copies of the research instruments and participant information packets are available as appendices. The research timeline is especially useful for tracking, chronologically, which aspects of the study were completed during each phase of research. A listing of the ways in which portions of the study have been peer reviewed or made publicly available for scrutiny is also provided.

Referencing follows the *Concise rules of APA style* (American Psychological Association, 2005). A Definition of Terms section is provided after the Table of Contents that includes only the most frequently used phrases and abbreviations. Care is taken not to burden the reader with too many acronyms in this thesis. Acronyms are spelled out on their first use in each chapter regardless of whether they were used in the previous chapter.

Chapter 2

2. Literature review

The community of practice (CoP) concept, first published by Lave and Wenger (1991) to describe learning in apprenticeship environments, has evolved to the point where it has been used to describe social learning in modern businesses and organizations. The participants in contemporary CoPs have been defined as *experts* and *novices* or *old-timers* and *newcomers* rather than *masters* and *apprentices*. The CoP concept has also been argued to apply to certain online communities. In this context, the term *virtual CoP* has been applied.

In this chapter, a review of the literature is presented that describes the theoretical and design principles for modern examples of CoPs, virtual CoPs, and online communities. The publications of leading researchers, theorists, and critics from the fields of education and organizational management are reviewed. In the first section, theoretical and design principles for CoPs and virtual CoPs are presented. The principles guided the design of the Special Education Bulgaria (SEB) online community. In the second section, a clear distinction is made between online communities and virtual CoPs. The distinction is required to determine to what extent SEB was an effective CoP. In the third section, the theoretical framework for CoPs is reviewed. The results of a benchmark analysis of existing online communities and related research is provided in the fourth section.

2.1 CoPs and virtual CoPs

It is often assumed "that learning is an individual process, that it has a beginning and an end, that it is best separated from the rest of our activities, and that it is the result of teaching" (cf., Wenger, 1998, p. 3). It has also been argued, that learning is a social phenomenon resulting from regular interaction with others throughout our daily lives. Based largely on this argument, Lave and Wenger (1991) proposed a social learning model that

involved habitual interaction with what they termed a *community of practice*. In one sentence, CoPs can be defined as "groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger, McDermott, & Snyder, 2002, p. 4). Also fundamental to the CoP concept is the notion that in a shared field of practice, novices steadily develop into experts due to interaction in the community (Lave & Wenger, 1991).

This definition makes CoPs sound much less common than argued by Wenger et al. (2002). Professionals that regularly meet after work on Fridays for dinner can be considered part of a CoP. The parents of children involved in sport who watch on the sideline and share tips and insights about parenting are part of a CoP. With regard to special education in Bulgaria, however, where educators are separated across busy cities or geographically divided due to distance and regional boundaries, the definition of a different kind of CoP better applies, a *distributed CoP*.

A distributed CoP "cannot rely on face-to-face meetings and interactions as its primary vehicle for connecting members" (Wenger et al., 2002, p. 115). "'Distributed' is the preferred term over 'virtual' or 'online' because, as is the case for 'distance education' initiatives, these communities generally connect in may ways—including face-to-face—although they may rely primarily on 'virtual' communications" (Wenger et al., 2002, p. 249). But even the term *distributed CoP* does not quite define the concept underlying SEB.

Other researchers have chosen the term *Internet-mediated CoP*, to describe their online communities, but the word *mediate* implies that the purpose of the CoP is to resolve or settle conflict. The term *virtual CoP* has also been applied, but it also has a weakness. It implies that a CoP facilitated by the Internet is only a simulation or approximation of a real CoP. The term *Internet-facilitated CoP*, though not found in the research literature to date, is believed to be a better choice than virtual CoP or Internet-mediated CoP for distributed CoPs in which the majority of communication between members occurs electronically.

SEB is an Internet-based tool, a website, designed to facilitate communication among special education stakeholders in Bulgaria that are geographically dispersed or otherwise unable to coalesce into a CoP. For the purpose of this paper, however, the term

virtual CoP will be used because it is already in use in published research. Hence, SEB can be defined as an online community that was designed according to the characteristics argued to describe successful virtual CoPs.

According to Wenger et al. (2002), using an online meeting place to facilitate a CoP is beneficial:

- For establishing and maintaining contacts across the country;
- For reducing the sense of isolation felt by stakeholders in rural areas or across cities;
- For immediate assistance with problems and access to expert advice;
- As an inexpensive tool for professional development; and
- For archiving information and retrieving it for later use.

2.1.1 Design principles for virtual CoPs

Wenger et al. (2002) assert that virtual CoPs are increasingly the norm in today's era of globalization, but distance can make it difficult to remember that a CoP exists. With virtual CoPs, "it takes more intentional effort for members to consult the community for help, spontaneously share ideas, or network with other members" (Wenger et al., 2002, p. 117). It is also more difficult to build trust and personal relationships. Wenger et al. (2002) offer the following design principles for virtual CoPs:

- Achieve stakeholder alignment by developing a common understanding of the potential value of the community.
- Divide the community into cells. Maintain a central cell for everyone with a global facilitator but have local coordinators for the other cells.
- Build a rhythm of activity with regular events such as synchronous online meetings, email reminders of events, and active coordination of forum discussions.
- Develop the private space of the community by providing the ability to make detailed member profiles with photos and organizing small group activities to foster personal relationships in the community.
- Focus on emergent values rather than early values that were predicted to apply to the new community.

All of these principles were followed in the design of the SEB online community.

Others reason, however, that it is not possible to create a CoP online. Hung and Nichani (2002) refer to virtual CoPs as "quasi-communities" where most members are unknown to each other and are weakly bound as a group by an indirect flow of information. Nevertheless, the virtual CoP examples that Hung and Nichani list appeared to be broad in focus and without a central theme to anchor the communities. The lack of an anchoring question in computer-mediated communication results in a "lack of focus and role confusion for participants" (Hough, Smithey, & Evertson, 2004, p. 364). Design principles offered by Hough et al. (2004) indicate that important to virtual CoP success are to:

- Provide a clear frame of purpose for the community.
- Ensure that there are preexisting relationships among some of the members.

In line with these findings, SEB has a specific central theme, special education in Bulgaria. This theme is broken down into special education subtopics in the discussion forums. Existing groups of teachers in training, practitioners, and university experts provide the underlying community of members that already know each other.

It is important to note that virtual CoPs are not necessarily meant to reduce face-to-face interaction. Instead, they are tools for enhancing the quality of face-to-face meetings. Many successful CoPs use a blend of online and face-to-face interaction. Wenger et al. (2002) find that subgroups of larger virtual CoPs generally have face-to-face meetings one to three times a year. These meetings are important because, according to Cohen and Prusak (2001, as cited in Hung & Nichani, 2002), "there are just too many nuances of a social meeting that cannot be replicated online" (p. 28). Gestures and tones are lost, online connections are intermittent and brief, and it is difficult to build trusting personal relationships. Hence, another design principle for virtual CoPs is to:

- Maintain group cohesion by scheduling regular face-to-face meetings with the entire group or its subgroups.

The facilitation of certain components of a Bulgarian special education conference by the SEB website was considered for Phase 3, the effectiveness evaluation, but preparations were not completed. Instead, a blended—part online, part face-to-face—course was completed in cooperation with the TENCompetence project as described in Chapter 9. Other blended approaches to facilitating productive online community activity are also described in that chapter.

Additional theoretical and design principles have been proposed for the development of traditional CoPs. McDermott (2000), like Wenger et al. (2002), says there are five stages to CoP development:

- Stage 1: Planning/potential
- Stage 2: Start-up/coalescing
- Stage 3: Growing/maturing
- Stage 4: Sustaining/stewardship
- Stage 5: Closing/transformation

During Stage 1, McDermott (2000) recommends:

- Identifying the purpose;
- Assigning a community coordinator and moderators or thought leaders;
- Interviewing potential members and engaging stakeholders in the design process;
- Making a proposal.
- Creating a prototype design; and
- Deciding on what technology to employ.

All of these recommendations were followed during Phase 1, the needs assessment phase. In a study by Stephens and Hartmann (2004), it was found that for increased participation in online discussions, participants should be from a mix of different schools. For this reason, efforts were made during all phases of the study to interview potential SEB participants from schools in different cities across Bulgaria.

During Stage 2, the start-up stage of CoP development, McDermott (2000) recommends:

- Legitimating the community's core leader;
- Building a core group;
- Identifying the knowledge that is worth sharing;
- Creating artifacts of community activity; and
- Making clear the immediate value of membership in the community.

Again, all of these recommendations were followed during the SEB study. Identifying the knowledge that is worth sharing was a step completed during Phase 1, the needs assessment. The other recommendations were also taken into consideration but not until after the needs assessment. Discussion forum moderators needed to be secured and the central themes of the online community identified.

It was unknown if there would be enough time for SEB to progress through the later stages of CoP development during the data collection period for this project, but the recommendations made by McDermott (2000; 2001) were still taken into consideration. During Stage 3, growth can be anticipated in terms increased membership size. Some CoPs have a fixed membership up front, which can help to keep the community's dynamics from changing due to an new influx of people. One way to protect the community from an influx of "basic" newcomer questions is to develop a mentorship program. For virtual CoPs, a special forum for newcomers or a frequently asked questions section can be provided. Additionally, Wenger et al. (2000), suggest that a support team be established to champion the community. Support teams directly educate community members and stakeholders about the benefits of virtual CoPs and how best to achieve desired outcomes.

As the community progresses through Stage 4, levels of activity can be expected to fluctuate. The key to sustaining momentum is to continue to bring up new issues in the practice and to get creative about the types of events and activities that the community offers. During Stage 5, the closing and transformation stage, it is important to "articulate its legacy" McDermott (2000, p. 19). For virtual CoPs, keeping the website online for an extended period and identifying someone to maintain the site is important. Documenting key insights from the community, in a thesis for example, is also recommended.

For new online communities of any kind, Preece (2000) argues that you must design for usability and plan for sociability. Publicizing the website is an important initial step, but to keep people coming back requires strategic planning and action in an area that Preece terms *sociability* (2000). For SEB, the usability and sociability considerations made are summarized in Table 2-1.

Table 2-1. Features that facilitate usability and support sociability
Adapted from Preece (2000), "Usability and sociability" (p. 209)

Please see print copy for table 2.1

One of the research questions was: *In what ways and to what extent can the process of establishing a website drive the formation of a sustainable nation-wide community for special education in Bulgaria?* This question focuses on how the development process of a website as well as its design can be used to attract users. The design of the software supporting an online community is crucial because, as explained by Preece (2000):

> How software is designed affects community development just as the architecture of a house affects those who live in it (p. 8). The architecture of a house is intimately related to the way its inhabitants live. Cooking, serving meals to a family, or supervising children can be pleasurable or difficult, depending on the facilities available. Similarly, the functionality provided by software and its ease of use—that is, its usability, as we've previously said, strongly affects users' lives online. (p. 110)

The preliminary research question listed could not support the entire SEB study because attracting users and the usability of a design are only part of the development process. The site must also meet user needs and be flexible as their needs change over time. It was clear that ways of attracting users had to be actively planned and that involving them in website development was crucial to encourage participation. These considerations relate to sociability, which is just as important as the usability of a design. Preece (2000) explains:

> The role of a community developer is analogous to that of the mayor of a new town, who works with town planners to set up suitable housing, roads, public buildings, and parks, and with governors and lawyers to determine local policies. Community developers work with community members to plan and guide the community's social evolution. (p. 26)

All of the design principles discussed in this section were considered in the design of SEB. An attempt is made in Tables 2-2 and 2-3 to organize the principles into eleven concise terms. The principles are organized under the first two stages of virtual CoP development proposed by McDermott (2000) and Wenger et al. (2002). Principles for the subsequent three stages are further discussed in Chapter 10.

Table 2-2. Design principles for virtual CoPs in the planning/potential stage

Design principle		Citations
1. Purpose	• Provide a clear frame of purpose for the community. - Ensure that the purpose is clearly and centrally stated on the website.	(Hough et al., 2004; Hung & Chen, 2001; McDermott, 2000; Palloff & Pratt, 1999; Preece, 2000)
2. Prototype	• Create a prototype design. - Decide on what technology to employ. o The technology should already have a record of being used in the way that the community will use it. - Facilitate usability and design for sociability. - Design for evolution and sustainability.	(Gottlieb, 2006; McDermott, 2000; Preece, 2000; Schwen & Hara, 2003; Wenger et al., 2002)
3. Stakeholder alignment	• Seek stakeholder alignment by negotiating a common understanding of the potential value of the community. - Interview potential members and engage stakeholders in the design process. - Identify the knowledge that is worth sharing. - Cultivate stakeholder support and executive sponsorship by inviting participation from across multiple structures.	(Hung & Chen, 2001; McDermott, 2000; Schwen & Hara, 2003; Wenger et al., 2002)
4. Varied participation levels	• Invite different levels of participation from peripheral to active and core group members.	(Haythornthwaite, Kazmer, Robins & Shoemaker, 2000; Johnson, 2001; Wenger et al., 2002)
5. Preexisting relationships	• Ensure that there are a number of preexisting relationships among members, but not all participants should be from the same school or workplace. - A blend of online and face-to-face communication is crucial, especially in the early stages of community development.	(Borthick & Jones, 2000; Hough et al., 2004; Hammond, 1998; Stephens & Hartmann 2004; Wenger et al., 2002)
6. Assigned leadership	• Divide the community into cells and assign leadership roles. - Conduct a training session with the leadership team to ensure that everyone understands their role. - Stimulate productive asynchronous communication with active facilitation.	(Cox, 2008; Johnson, 2001; McDermott, 2000; Oliver & Herrington, 2000; Preece, 2000; Wenger et al., 2002)

Table 2-3. Design principles for virtual CoPs in the start-up/coalescing stage

Design principle		Citations
7. Website marketing	• Advertise and market the community website as appropriate to achieve desired membership numbers and levels of participation.	(Preece, 2000; Weber, 2007)
8. Personal space	• Develop personal space in the community by providing the ability to make detailed member profiles with photos. - Provide tools for both public and one-on-one communication. - Organize small group activities to foster personal relationships in the community.	(Hung & Chen, 2001; Johnson, 2001; Wenger et al., 2002)
9. Membership value	• Make clear the immediate value of membership in the community. - Create artifacts of community activity. - Focus on emergent values rather than early values that were predicted to apply to the new community.	(McDermott, 2000; Schwen & Hara, 2003; Wenger et al., 2002)
10. Central and satellite groups	• Maintain a central cell for everyone with a global facilitator but have local coordinators for the other cells. - Legitimate the community's core leader. - Build a core group of active participants.	(McDermott, 2000; Palloff & Pratt, 1999; Wenger et al., 2002)
11. Rhythm of activity	• Build a rhythm of activity with regular events such as synchronous online meetings and email reminders of events. - Maintain group cohesion by scheduling regular face-to-face meetings with the entire group or its subgroups.	(Borthick & Jones, 2000; Hammond, 1998; Haythornthwaite et al., 2000; Wenger et al., 2002)

2.2 Online communities versus virtual CoPs

Due to the challenges involved with creating effective virtual CoPs, some researchers suggest that virtual CoPs are more likely to resemble *networks of practice* (Cox, 2008). The term *networks of practice* was coined by Brown and Duguid in 2000. Brown and Duguid (2000) establish that members of networks of practice may never meet, but that they share similar interests and primarily interact electronically by asking for and sharing information about their work. The key distinction between networks of practice and CoPs is the degree to which members get to know each other. In other words, the ties between members of a CoP are stronger than the ties between members of a network of practice.

In many respects, CoPs can be seen as subgroups of larger, broader networks of practice (Brown & Duguid, 2000) or as communities of communities of practice (Brown & Duguid, 1991; Roberts, 2006). Wenger defines networks of practice as "constellations of practice" (p. 126) that are, roughly, less focused versions of CoPs or groupings of multiple CoPs.

Networks of practice have also be referred to as *electronic networks of practice* and *virtual communities*. Wasko and Faraj (2005) define electronic networks of practice as "computer-mediated discussion forums focused on problems of practice that enable individuals to exchange advice and ideas with others based on common interests" (p. 35). Wasko and Faraj (2005) add that electronic networks of practice differ from the broader concept of networks of practice in that knowledge sharing occurs primarily through computer technologies and participation is typically voluntary.

Nonetheless, "a network of practice is quite likely to be a type of online community" (Cox, 2008, p. 330). Chiu, Hsu, and Wang (2006) define *online communities* as "online social networks in which people with common interests, goals, or practices interact to share information and knowledge, and engage in social interactions" (Chiu, Hsu, & Wang, 2006, p. 1880). For the purpose of this paper, networks of practice will be referred to as *online communities*. SEB is an online community.

Cox (2008) used the characteristics of an online community defined by Herring (2004) to determine if a listserv-type discussion forum for website designers could be considered an online community. According to Herring (2004, p. 355), online communities have the following characteristics:

1. Active, self-sustaining participation; a core of regular participants
2. Shared history, purpose, culture, norms, and values
3. Support, reciprocity
4. Criticism, conflict, means of conflict resolution
5. Self-awareness of the group as an entity distinct from other groups
6. Emergence of roles, hierarchy, governance, and rituals

Cox (2008) determined that the listserv could not be considered an online community because there was little to no conflict in discussions, means of conflict resolution, or emergence of roles or governance. The listserv was mostly question-answer based and without critical discussion about issues affecting the practice. Cox (2008) concluded that the listserv had characteristics of a CoP but more closely resembled a network of practice. Unlike SEB, the listserv had no moderators assigned to discussion groups, repositories, or documented policies.

The terms that the remainder of this section will concentrate on are *online community* and *virtual CoP*. To answer Research Subquestion 3, the difference between

online communities and virtual CoPs must clearly be defined. Wenger (1998) defines CoPs from within a framework with three dimensions: "mutual engagement," "joint enterprise," and "shared repertoire" (p. 73). Framed by these dimensions, Wenger and other researchers have argued that there are a variety of defining characteristics of CoPs.

Similarly, Preece (2000; 2003, July), contends that there are three defining properties of online communities. All online communities have *people who interact socially* for a *shared purpose* guided by a set of *norms or policies* (2000, p. 10; 2003, July, p. 77). She also reasons that there is a fourth property of online communities that can be termed *computer systems* (2000, p. 10). These properties are compared to Wenger's (1998) dimensions of CoPs in Figure 2-1.

Please see print copy for figure 2.1

Figure 2-1. Dimensions of online communities and communities of practice
Adapted from "Dimensions of practice" (Wenger, 1998, p. 73) and
"Key features of an online community" (Harris & Niven, 2002, p. 244)

The argument illustrated by Figure 2-1 is that both online communities and virtual CoPs can be considered to have three dimensions. The dimensions of an online community may simply be weaker forms of the dimensions of virtual CoPs. For online communities, the dimension *shared purpose* may be applied instead of *joint enterprise*. *Social interaction* may apply instead of *mutual engagement*, and *history of actions and artifacts* may apply instead of *shared repertoire*. If the CoP depicted in Figure 2-1 were a virtual CoP, the additional dimension of computer systems could be added.

Both online communities and virtual CoPs have been argued to have a variety of characteristics. From within the framework shown in Figure 2-1, the characteristics of online communities and virtual CoPs can be directly compared as shown in Table 2-4. For

the purpose of this study, it is argued that the characteristics of CoPs may all be present in an online community but in a weaker form. It follows that the *outcomes* from online communities would also be weaker than the outcomes from CoPs.

Table 2-4. Characteristics of online communities and virtual communities of practice

Online community		Virtual community of practice	
Social interaction	• Mostly explicit flows of talk	Mutual engagement	• Explicit and implicit flows of talk
	• Lower intensity of social engagement		• Higher intensity of social engagement
	• Weaker facilitator / coordinator activity		• Higher facilitator / coordinator activity
	• Less volunteerism and reciprocity		• Higher volunteerism and reciprocity
Shared purpose	• Wider spread of network	Joint enterprise	• Narrower spread of network
	• Less practice and knowledge in common		• More practice and knowledge in common
History of actions & artifacts	• Fewer shared ways of interacting	Shared repertoire	• More shared ways of interacting
	• Fewer shared resources		• More shared resources
Outcomes	• Less identify formation from participation	Outcomes	• More identify formation from participation
	• Less learning		• More learning
	• Less knowledge creation		• More knowledge creation

The following four sections describe the differences between online communities and virtual CoPs in terms of the three dimensions shown in Figure 2-1 and characteristics listed in Table 2-4.

2.2.1 Social interaction versus mutual engagement

The first two dimensions compared in Table 2-4 are social interaction and mutual engagement. In this section, each of the four characteristics listed below these two dimensions are briefly examined. The first characteristic has to do with implicit and explicit forms of knowledge. In CoPs, Wenger et al. (2002, p. 9) explain how "tacit knowledge"—*implicit knowledge*—can be successfully transferred. Duguid (2005) clarifies that "tacit knowledge is displayed or exemplified, not transmitted" (p. 113) and that *explicit knowledge* is or can be "codified" or documented.

In online communities, explicit knowledge can be transferred, but the transfer of implicit knowledge is much more difficult. Wasko and Faraj (2005) contend that "electronic networks cannot support significant knowledge outcomes because knowledge is often tacit and highly embedded, requiring high-bandwidth communication that is difficult to sustain through technology" (p. 38). Their comments are supported by Brown

and Duguid (2000) and Duguid (2005), who says, "In most circumstances, a CoP is likely to involve face-to-face interaction" because context is needed to produce meaning (p. 113). It can also be argued that in online communities there is less "situatedness" (Lave & Wenger, 1991) of participation and learning, which makes it more difficult for implicit knowledge to be the transferred.

In online communities, there is generally a lower intensity of social interaction than in virtual CoPs (characteristic two in Table 2-4). One indicator of a successful CoP is that participants interact intensely with each other (Iverson & McPhee, 2002). Another indicator is that participants are held accountable by other group members (Cox, 2005). It is difficult to be held accountable when most members of a group are unknown to each other, contend Wasko and Faraj (2005). It is often the case in online communities, especially large ones, that participants are highly anonymous.

When participants in a community are unknown to each other, Wasko and Faraj (2005) find that the community is less sustainable over time. In addition, there is a smaller core of regular members and participation is less self-sustaining (Cox, 2008). McDermott (2002) says, "When people participate in a community, they get to know who knows what, and often develop trusting and comfortable relationships because of their interactions" (p. 27). When people are unknown to each other, as in many online communities, the strength of relationships is diminished and the following indicators of successful CoPs are less evident: "local lore, shared stories, inside jokes, knowing laughter," "sustained mutual relationships," and "substantial overlap in participants' descriptions of who belongs" (Wenger, 1998, p. 127).

The principal theorists of the CoP concept find that while low facilitator activity may be common in online communities, successful CoPs require active facilitation (characteristic three in Table 2-4). Wenger et al. (2002) use the terms *community coordinators* and *thought leaders* while Johnson (2001) uses the term *facilitator*. Johnson (2001) argues that "facilitation allows two aspects of collaboration to develop: peer interaction and expert-to-apprentice interaction." … "A group leader should act as a 'gentle guide,' or facilitator, who fine-tunes and nudges discussion and learning in the right direction" (p. 49). Without facilitators, there is no means of conflict resolution (Cox, 2008). Wenger et al. (2002) and Johnson (2001) avoid using the terms *moderator* or *instructor* because they imply too great a shift in power from community participants to community leadership.

In online communities, however, moderators are common. The term *moderator* was used to describe the leaders of the discussion forums hosted by SEB because it translates well into Bulgarian. Regardless of the term used, the role of the facilitator is "critical" to the success of CoPs (Wenger et al, 2002, p. 80) while in online communities there is generally a lower degree of coordination. Similarly, Duguid (2005) says, "Practice is not coordinated within a NoP [network of practice] as it is in a CoP" (p. 113).

The issue of power is often mentioned in the literature regarding CoPs. Power in CoPs has been considered at the level of apprentice-expert as suggested by Lave and Wenger (1991). In this case, "novices are subject to both the power and knowledge of their more experienced colleagues" (Fox, 2000, p. 859). Power may also be more egalitarian in CoPs as suggested by Brown and Duguid (1991), but egalitarian power relationships are more common in networks of practice (Brown & Duguid, 2000). In CoPs, it can be argued that experts provide a leadership role and wield greater power than novices (Contu & Willmott, 2003) while in online communities or networks of practice, the role of the expert or thought leader is less well defined and power relationships are more egalitarian.

Other leadership roles found in successful CoPs include *champions* and *sponsors* (Wenger et al., 2002, p. 214). Champions are a part of senior management in an organization and believe strongly in the concept and practicality of CoPs. Sponsors are the funding agents who add an additional level of legitimacy to CoPs in an organization. Neither of these roles are likely to be found in a typical online community such as BG Mamma (Kuzmanova, 2005) for new mothers in Bulgaria.

The final characteristic under the social interaction and mutual engagement dimensions relates to the amount of volunteerism and reciprocity in online communities and virtual CoPs. Wasko and Faraj (2005) contend that there is a lower degree of trust among members of an online community than a CoP. Less trust leads to less commitment to the community, reluctance to share knowledge (Roberts, 2006) and less *social capital*. "Social capital refers to features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1995, p. 66). Online communities or electronic networks of practice "sharply contrast with traditional communities of practice and face-to-face knowledge exchanges where people typically know one another and interact over time, creating expectations of obligation and

reciprocity that are enforceable through social sanctions" (Wasko & Faraj, 2005, p. 37). Wasko and Faraj (2005) assert that "social capital is more likely to develop in collectives characterized by a shared history, high interdependence, frequent interaction, and closed structures" (p. 38). These characteristics describe successful virtual CoPs but may not be fully present in online communities.

2.2.2 Shared purpose versus joint enterprise

The second two dimensions compared in Table 2-4 are shared purpose and joint enterprise. The two characteristics listed under these dimensions, 'spread of network,' and 'practice and knowledge in common,' are discussed in this section. With many online communities, the scope of engagement of participants is "too broad, too diverse, or too diffuse to be usefully treated as" a single CoP (Wenger, 1998, pp. 126-127). Access is open with "no limitations other than access to technology" while in CoPs, access is generally restricted and locally bounded; participation is "jointly determined" rather than "individually determined" (Wasko & Teigland, 2006, p. 139). Online communities characteristically support a wider spread of the network than CoPs wherein the joint enterprise is more tightly bound (Roberts, 2006).

With a wider spread of the network, it follows that participants will have less practice and knowledge in common. With less shared purpose, there is less awareness of a group as being distinct from other groups (Cox, 2008). The indicators of successful CoPs, which include "a shared discourse reflecting a certain perspective on the world," "absences of introductory preambles," and "very quick setup of a problem to be discussed," and "mutually defining identities" (Wenger, 1998, p. 125), are less prevalent in online communities. From within this dimension, online communities can be closely compared to Wenger's concept of constellations of practice. Some of the indicators of constellations of practice include "having overlapping styles or discourse," "facing similar conditions," "serving a cause or belonging to an institution," "sharing historical roots," "having geographical relations of proximity or interaction," "having related enterprises," and "competing for the same resources" (Wenger, 1998, p. 127).

2.2.3 History of actions and artifacts versus shared repertoire

The final two dimensions compared in Table 2-4 are history of actions and artifacts and shared repertoire. The two characteristics listed under these dimensions are 'shared ways of interacting,' and 'shared resources.' Online communities can be charac-

terized as having fewer shared ways of interacting than virtual CoPs. Some of the indicators of effective CoPs include the accepted use of "jargon and shortcuts to communication," "shared ways of engaging in doing things together" (Wenger, 1998, p. 125), and "certain styles recognized as displaying membership" (Wenger, 1998, p. 126). In CoPs, a shared repertoire includes "routines, words, tools, ways of doing things, stories, gestures, symbols, actions, or concepts" (Wenger, 1998, p. 83). In online communities, similar actions and ways of doing things may be shared, and a historical record of such similarities may be stored on the online community's computer network, but this record or history may not be as obvious in the minds of the participants. While "policies, in the form of tacit assumptions, rituals, protocols, and laws that guide people's interactions" (Preece, 2000, p. 10) may be present, they may not be widely understood, known, or acknowledged by members of online communities.

Another aspect of a shared repertoire is the sharing of resources. While the sharing of artifacts is characteristic to constellations of practice and online communities, the number of shared resources is often less than in virtual CoPs. Moreover, there is a shallower negotiation of meaning of the artifacts shared (Wenger, 1998, p. 52), and less of the shared repertoire is invented (Cox, 2005) or "reified" (Wenger, 1998, Chapter 1) locally. McDermott (2002, p. 27) finds that CoPs "frequently commission members to create tools, guidelines, procedures or databases and increase members' access to the documents and information already created by other members."

2.2.4 Outcomes from online communities versus CoPs

The outcomes of online communities and virtual CoPs are also compared in Table 2-4. Wenger (1998; Lave & Wenger, 1991) contends that successful CoPs result in affecting member identity formation. An indicator that an online community has formed is when participants begin to "think and act as part of a community rather than as individuals" (Preece, 2003, July, p. 77). An indicator that a CoP has formed is when participant identities are mutually defining (Wenger, 1998, p. 125). In other words, more than just acting like part of the CoP, the CoP begins to play a significant role in defining each participant's sense of self.

CoP theorists assert that learning is closely related to identity change. "Learning," says Handley, Sturdy, Fincham, and Clark (2006), "is not simply about developing one's knowledge and practice, it also involves a process of understanding who we are and in

which communities of practice we belong and are accepted" (p. 644). Similarly, Cox (2005) says, "It is a central proposition that learning is more than simply acquiring knowledge, it is about an identity change" (p. 528). Their arguments are based on the works of Lave and Wenger (1991), Wenger (1998), and Brown and Duguid (1991; 2000; 2001). As novices progress from newcomers in a CoP to experts or old-timers, say Lave and Wenger (1991), their identify changes and their level of "personal knowledge" increases (McDermott, 2002, p. 27). This progression from novice to expert, the outcome of legitimate peripheral participation, is common in CoPs (Lave and Wenger, 1991) but not so common in online communities. Rather, in online communities, the outcome of legitimate peripheral participation is a progression from peripheral to full participation wherein the participant is brought up to speed, so to speak, or "enculturated" (Brown & Duguid, 1991, p. 48). Learners acquire the "embodied ability to behave as community members" (Brown & Duguid, 1991, p. 48). Hence, the level of learning in online communities is argued to be less than in virtual CoPs wherein participants may be afforded the opportunity to gain a full level of expertise.

Some theorists also claim that successful CoPs result not only in knowledge transfer or learning but in the creation of new knowledge (Wenger, 1998). Regardless of the validity of such claims for virtual CoPs, online communities seldom result in the creation of new knowledge. "Collectively, such social systems don't take action and produce little knowledge. They can, though, share information relating to the members' common practices quite efficiently" (Brown & Duguid, 2000, p. 142). Characteristic of CoPs, says Wenger (1998), is the "rapid flow of information and propagation of innovation" (p. 125). The flow of information in online communities may be fast but the information is generally not negotiated to the degree necessary to substantiate the creation of new knowledge.

The differences between online communities and virtual CoPs have now been defined. This distinction was necessary to determine to what degree SEB is an effective CoP. Müeller-Prothmann (2006) reports similar findings in his comparison of CoPs and *knowledge networks*. His concept of a knowledge network aligns with the concept of an online community defined here. Müeller-Prothmann (2006) interviewed senior academics about the defining characteristics of CoPs, knowledge networks, and *knowledge communities* in an exploratory study. He found that knowledge communities "are difficult to distinguish precisely from communities of practice" (Müeller-Prothmann, 2006, p. 268). In

the next section, attention is paid to the literature that seeks to define a theoretical framework for CoPs.

2.3 Theoretical constructs

The CoP concept was developed to explain the process by which a novice builds an understanding of an expertise in a given field. According to Lave and Wenger (1991), this process is often observed when "old-timer" community members sponsor "newcomers" and gradually induct them into the community through an apprenticeship-master-like progression. Participation in the community is described as, at first, being legitimately peripheral but increasing in engagement and complexity over time. The meaning of the knowledge that exists in the community is understood within the context—or situation—created by that community. This abstraction of the term *situated learning* is the main theoretical underpinning of the CoP concept.

2.3.1 Historical context

Lave and Wenger's (1991) situated learning theory was derived in the last decade, at the end of a century of struggle between two distinct theoretical groups: the *behaviorists* and *humanists*. Behaviorist theory centers on the study of behaviors that can be observed and measured. The theory views the mind as an empty box in the sense that response to stimulus can be quantitatively observed, ignoring the possibility of additional mental thought processes. Some key players in the development of behaviorist theory were Ivan Pavlov, Edward Thorndike, John B. Watson, and B. F. Skinner. Behaviorist educators break down learning into manageable and measurable tasks. They provide clear goals for learning and negative or positive feedback depending on the learner's responses. The mastery-learning concept stems from behaviorist principles. This formula calls for a pretest, teach, and test procedure and has been proven effective at lower levels of learning but not at higher levels (Saettler, 1990).

In terms of the proposed research, however, behaviorist principles are too basic. Humanist theories better address the needs of skilled professional learners. Among the major assumptions underlying humanism are that individuals are free and autonomous, self-concept plays an important role in human development, and everyone defines their own reality (Elias & Merriam, 1980). Some key players in the development of humanist theories were Abraham Maslow and Carl Rogers.

The theories of *andragogy*, *experiential learning*, and *constructivism* all stem from humanism. Malcolm Knowles theory of andragogy emphasizes that adults are self-directed. To accommodate this fundamental aspect, andragogy-guided education assumes that adults need to know why they are learning something, need to learn by experience, and learn best when the subject is of immediate value (Kearsley, 2004a). The self-directedness promoted by the theory of andragogy is key. Visitors to SEB must be self-motivated to maintain interest in the website. Further, it is assumed that introductory SEB content must clearly define why the subject matter is important.

According to David Kolb's experiential learning theory, there are four adult learning stages. Concrete experience, the first stage, is followed by reflection on that experience, the second stage. In the third stage, reflection is conceptualized, and in the fourth stage, conceptualization is tested in a new situation through active experimentation (Atherton, 2004). To align with experiential learning theory, SEB discussion topics must relate to hands-on practice in the classroom.

Constructivism, a humanist theory that stems from Jean Piaget's work and was later modernized by such theorists as Jerome Bruner, argues that learners construct new ideas or concepts based on prior experiences. Constructivist educators encourage students to discover things on their own and assume that the student has a predisposition toward learning. Further, constructivist educators ascertain the learner's current state of understanding and attempt to translate information accordingly (Kearsley, 2004b).

One thing to note about the above-mentioned learning theories is that they all focus on the individual. This was common to humanist thinking. About the time that the works of Lev Vygotsky were translated into English, the 1970s and 1980s, theorists began to focus on groups rather than individuals. Vygotsky's works were extremely influential, especially his theories on *social constructivism*. Like the humanist constructivists, Vygotsky felt that learners construct knowledge based on prior experiences. Unlike humanists, he argued that construction of knowledge is based on social negotiation. It is a process of sharing a reality with others using the same or similar models to explain and predict experiences (Goldfarb, 2000). Jonassen, Mayes, & McAleese (1993) explain that teachers working under Vygotskian principles act more as coaches or mentors than "purveyors of knowledge." Further, the teachers facilitate learning with case-studies situated in authentic real-life environments (Jonassen et al., 1993). This line of thinking led to the

development of the CoP concept, which is based on Lave and Wenger's (1991) perspective on situated learning and theory of legitimate peripheral participation.

2.3.2 Master-apprentice and egalitarian CoPs: Theoretical complications

Lave and Wenger's (1991) theory of legitimate peripheral participation in situated learning settings is substantial. Apprenticeship settings that engage multiple mentors and novices can be appropriately called CoPs. In apprenticeship-type CoPs, there is a difference in power between experts and novices. According to Fox (2000) and Contu and Willmont (2003), the legitimization of learning in such CoPs is the results of a power struggle. Fox argues that the power struggle can be interpreted using *actor network theory*. According to actor network theory, the concepts of power and knowledge are indivisible. Power can be interpreted in two ways: the "power to" and "power over" (Law, 1991, p. 170). Citing Foucault's (1990) concept of power, Fox (2000) says, "Without power, nothing can be achieved" (p. 858).

The more recent concept of egalitarian CoPs in the modern workforce is much more complex and no single theoretical framework has been successfully applied. As demonstrated in Section 2.1, however, commentary on CoPs has led to the development of many design principles for successful CoPs. Storberg-Walker (2008) contends that the only work that has made significant progress toward advancing a theory of CoPs is Wenger's 1998 book, *Communities of practice: Learning, meaning, and identity*.

Since Wenger's 1998 work, CoPs have been used as a label for a type of social learning, but researchers and theorists have avoided calling it a theory. At best, Schwen and Hara (2003) contend that Lave and Wenger's (1991) situated learning theory is a "middle-level social theory" and is not amenable to the design of new CoPs (p. 262). CoPs have been called a "notion," "perspective," "concept," "approach," (Storberg-Walker, 2008, p. 559) framework, view, and a type of social learning system, but never, officially, a theory. For the purpose of this study, a CoP is referred to as a concept. Though it is not a theory, it is argued that it can still be used, and has been used, as a basis for generating research questions and guiding practice (Storberg-Walker, 2008).

2.3.3 Support from the social sciences

Further theoretical support can be drawn from the social sciences. In this section, the theories of *critical mass* and *social capital* are described with reference to the SEB study. The technique of s*ocial network analysis* is also discussed with regard to the notion of *strong* and *weak ties* that bond people involved in both traditional and online communities.

Critical mass

The idea of *critical mass* is central to Marwell and Oliver's (1993) notion of *collective action*. They explain that "it takes some minimum number of people or some minimum accumulation of seed money [a critical mass] to draw in the participation and contributions of others [collective action]" (p. 1). Marwell, Oliver, and Teixeira's (1985; Marwell & Oliver, 1993) theory of critical mass as a catalyst for collective action has been applied to the study of online communities (Preece, 2000). Essentially, an online community is "perceived as worth joining only if there are sufficient people and enough activity to make it interesting and worthwhile" (Preece, 2000, p. 171).

The theory has been used to explain the success and failure of online communities and is expected to be applicable to how well SEB is accessed and used. Its value as a theoretical framework for online community and CoP development is limited, however, "because it is difficult to quantify" (Preece, 2000, p. 172). It is more of a common-sense label that can be applied to communities with either low or high levels of activity. When SEB discussion forums appear to be progressing without much intervention, it may be assumed that the critical mass has been reached for at least one discussion topic.

Critical mass is affected by the role of "lurkers" in online communities (Preece, 2000, p. 87) or "free-riders" in traditional communities (Marwell, Oliver, & Prahl, 1988, p. 502). A lurker is "someone who does not participate; he [or she] observes what is going on but remains silent" (Preece, 2000, p. 87). A question still unanswered by researchers is in what ways and to what extent lurkers affect the critical mass of online communities? According to Handley, Sturdy, and Fincham (2006), one of the main challenges with existing theoretical foundations for CoPs relates to defining who is or is not participating. They assert:

> At the heart of this ambiguity is the difficulty of knowing when an individual is or is not 'participating.' How does participation differ from what Wenger calls 'mere engage-

> ment in practice' (Wenger, 1998, p. 57)? Can an individual be 'going through the motions'—appearing as a full participant—yet not participating in the sense of experiencing a feeling of belonging and, perhaps, of mutual commitment and responsibility? (p. 649)

The SEB study addresses this question through the analysis of quantitative results regarding the levels of activity of lurkers and participants who actually post information to the website.

Social capital

What can be inferred from the comparison of online communities and virtual CoPs presented in Section 2.2, is that there are higher levels of *social capital* in CoPs. Based on the definition of social capital provided in that section, it can be argued that though both types of communities are important, CoPs are more ideal for completing work. The greater the social capital, asserts Adler and Kwon (2002), the easier it is for people to learn and construct knowledge and cooperatively work for common purposes.

Social capital can be broken down into additional dimensions such as *cognitive capital*, *relational capital*, and *structural capital* (Nahapiet & Ghoshal, 1998). Cognitive capital has to do with the ability of individuals to understand and apply knowledge. Relational capital refers to the strength of collectivist mentality among group members, which includes the concepts of *commitment*, *reciprocity*, and *trust*. Structural capital has to do with the strength and number, or density, of social ties that link members of a group. Wasko and Faraj (2005) add one more dimension to the list, "individual motivation," which could perhaps be termed, *motivational capital*. Wasko and Faraj hypothesize that motivational capital could be derived from the perception that participation in an online community will enhance their reputation or simply be enjoyable.

The notion of social capital can be used to explain why people choose to participate in online communities. Wasko and Faraj (2005) reason that "if everyone chose to free-ride, the electronic network of practice would cease to exist" (p. 38). It is the influence of social capital that helps explain why individuals choose to participate. Results of the study conducted by Wasko and Faraj (2005) indicate that the perception of enhancing ones reputation is a significant predictor of participation. In addition, they found that those with the most social links in a group, in other words, those with high structural capital, are most apt to participate. Also apt to participate were those with more

expertise in the practice—high cognitive capital. The notion of social capital as well as the findings from the study by Wasko and Faraj (2005) relates to the analysis of factors affecting participation in SEB. For example, qualitative codes were defined for application to data that indicated SEB members participated in the discussion forums because they had preexisting relationships, wanted to share their expertise, or wanted to enhance their reputation.

Social network analysis

Related to the concept of social capital and especially structural capital, is the method of *social network analysis*. Social network analysis is used "to describe why people communicate individually or in groups" by focusing on relations between people and the strength of and number of ties between people (Preece, 2000, p. 183). People with strong ties, such as family members, share many resources and depend on each other. People who share weak ties, such as one-time acquaintances, tend to share fewer resources and depend less on each other.

With respect to the comparison between online communities and virtual CoPs presented in Section 2.2, it may be inferred that in virtual CoPs, the strength of ties between participants is greater than in online communities. If an online community exists purely for the purpose of information exchange, weak ties may be good enough (Preece, 2000). While some may question whether strong ties can be formed by way of electronic communication at all, Preece (2000) clearly establishes that it is possible for strong ties to exist among members of both online communities and virtual CoPs. A stronger tie is exhibited by characteristics such as "frequency, companionable contact, mutual reciprocity, supportiveness, and longevity" (Preece, 2000, p. 177). Longevity and frequency may be the most measurable characteristics regarding the strength of ties. Walther, Anderson, and Park (1994) argue that the longer that people stay in contact electronically, the stronger the tie between them tends to become. The concept of strong and weak ties played a role in the analysis of the effectiveness of SEB as a CoP.

2.4 Benchmark analysis

In the website design field, a *benchmark analysis* can be defined as a review of the websites currently available on the Internet for the purpose of defining reference points against which the development of a new website can be evaluated. The websites selected for review in a benchmark analysis are generally designed for a purpose similar to that of

the new website to be developed. In this case, a website was developed to host an online educational community developed according to the design principles for effective CoPs. The first part of this section is a review of online communities and related published research available at the time that the SEB study began in February 2005. The second part of this section presents a review of the latest research on online communities and electronically-enhanced instruction specifically for the field of special education.

The purpose of the benchmark analysis is to demonstrate that SEB is unique and will help to advance research and development on online communities for the field of special education. Though a thorough review of websites published in the Bulgarian language was not conducted, it was predicted, based on conversations with the researcher's associate supervisor in Bulgaria and the fact that there are relatively few websites of any kind that are available in Bulgarian, that an online community for special education in Bulgaria did not exist at the time that this project began.

2.4.1 Existing websites, online communities, and related research in education

There are many websites available in English that provide access to relatively large databases of electronic resources for teachers. These sites can be defined as education *web portals*—website gateways to a broad array of online resources and services. Examples include *A to Z Teacher Stuff* (1997), *Education World* (1996), *Pro-Teacher* (1998), and the *Teacher's Guide* (Kelley, 2001). Though these websites provide discussion forums for teachers and general opportunities for professional development, their target audience is too broad for them to be considered virtual CoPs. Though such sites can be very useful, by attempting to reach large audiences made up of educators for all subjects, the sites do not make clear their *anchoring themes*, a key criteria for successful CoPs (Hough et al., 2004).

The *Teacher's Info-Port to Technology* (Teclehaimanot, 2003) website has an anchoring theme—teaching with technology—but does not provide discussion forums or any way for users to discuss as they learn. The ability to interact with peers and mentors is a requirement for the existence of virtual CoPs (Bodzin & Park, 2002; Crawford, 2001; Davis & Resta, 2002; Herrmann, 1998; Hough et al., 2004; MaKinster, Barab, & Keating, 2001; Moore, Treahy, Chao, & Barab, 2000; Owston & Wideman, 2002; Pennington & Graham, 2002; Schlager & Schank, 1997).

An example of a website that was specifically designed to be an online repository is the *Gateway to Educational Materials* (Morgan & GEM project team, 1999). One issue with this and similar repository websites is that users, especially those that are relatively new to using the Internet, get lost. A study of the Gateway found that "participants tended to lack sufficient searching skills, and that novice Internet users among the teachers had particularly pronounced difficulties" (Fitzgerald, Lovin, & Branch, 2003, p. 21). Examples of website databases similar to the Gateway include the *Education Index* (Bisca International Investments, 1996), *EduHound* (Major Productions, 1999), *Dimensions of Preservice Technology Infusion* (Obermeyer, 2003), *Learn NC: The North Carolina Teachers' Network* (University of North Carolina at Chapel Hill School of Education, 1997), and *Urban Teacher Education* (Amenta-Shin, 2003; Conceição, Sherry, & Gibson, 2004). Examples that focus on special education include the *Curry School of Education Special Education Resources* website (Office of Special Education, 1994), the *National Center for Learning Disabilities* website (National Center for Learning Disabilities, 1999), and the *National Dissemination Center for Children with Disabilities* website (Academy for Educational Development, 2002). Though some of these sites are relatively easy to navigate, none provide users with the ability to interact with peers and mentors.

In addition to discussion forums, email listservs and online conferences can provide the social interaction required for the existence of virtual CoPs. Research by Pennington and Graham (2002) found that an email listserv for physical educators was "a valued resource leading subscribers to new teaching activities and curricular materials" (p. 383). A five-year ethnographic study of an international, academic CoP supported by a list server reported similar findings (Herrmann, 1998). A finding from the Pennington and Graham (2002) study, however, maintains that participation in a listserv is not enough to be considered professional development.

> It appears that listservs may best be described as a 'tool' to assist teachers in their professional development goals and/or activities, but subscribing to [and participating in] a listserv, in and of itself, may not be considered professional development. (p. 401)

In response to this finding, SEB would not only provide online discussion forums but also access to general and in-depth information about the practice of special education through overview articles, research articles, website links, lesson plans, and a glossary of

special education terms. Evaluation of SEB would seek to determine if the additional resources create a more complete professional development experience.

Online conferencing research findings are similar. Research on an online conference intended to promote discussion about good practice in education leadership reports that the conference:

> Was not, in the end, to do with discussions of models of leadership effectiveness, as may have been envisaged by the programme's originators. Instead, the climate created was one that enabled leaders to begin to explore some of the personal and emotional issues that impacted on their leadership. (Crawford, 2001, p. 16)

Research on using online conferences to facilitate teacher reflective thinking suggests that successful online communication has a focused purpose or problem base for discussions, frames discussion direction, suggests what kinds of discussions are expected, and encourages feelings of ownership and trust among participants (Hough et al., 2004). It has also been found that more successful online discussions directly relate to the day-to-day realities of teaching (Stephens & Hartmann, 2004). One of the online conference website's reviewed for this benchmark analysis was *Survive and Thrive* (Ontario Teachers' Federation, 2005), which is available in both English and French. Based on findings from online conference research, it is proposed that experts in the field of special education moderate SEB discussion forums and multiple discussion forums be available that are focused on different topics (e.g., separate forums for reading difficulties, writing difficulties, and parental involvement).

The *Inquiry Learning Forum* (Indiana University Center for Research on Learning and Technology, 1999) website specifically targets science and math teachers interested in employing inquiry-based teaching strategies in the classroom (Barab et al., 2001; MaKinster et al., 2001; Moore et al., 2000). Research on the *Inquiry Learning Forum* reports difficulty in facilitating online discussion. Barab et al. (2001) list the following questions: "How can we help teachers break down the walls of isolation, how do we get teachers to critically reflect on each other's teaching, and how do we do this in an on-line environment?" (p. 4). To address these questions, the researchers set out to redesign the *Inquiry Learning Forum* and then reevaluate the success of online discussions and overall sociability. A more attractive home page was created and personal, welcome messages are now sent to new users with information about how to get started using the site. Staff now

proactively track discussion forum conversations and suggest other conversations to visit as well as discussion themes. A link to a concise text-based overview of how to use the site was also added. All of these recommendations were taken into consideration in the design of SEB.

Another website reviewed was *Tapped In* (SRI International, 1995; Schlager & Schank, 1997). This and several other websites are included in a more technical benchmark analysis regarding the usability and accessibility of websites that were available in 2005 and similar in purpose to SEB. This analysis is discussed in Section 5.2.1, Prototype site features, on page 104.

2.4.2 CoPs, online communities, and related research in special education

Wenger, in his *Learning for a Small Planet* research agenda (2005), makes a case for applying the CoP concept to the practice of special education. He was contracted by the National Association of State Directors for Special Education to help develop a national learning system for special education in the US that would target concerns about the transition of special education students into work.

Prior to Wenger's work in special education, special educators were already picking up on the concept of CoPs. Jones (2003) researched a framework to support the development and implementation of a knowledge management system for special education. Results support the need for further research regarding CoPs and knowledge communities for the practice of special education. Researchers have also been looking into applying the CoP concept to groups of special needs students (Kraayenoord, Moni, & Jobling, 2001; Rossow, 2004), but most commonly, it has been applied to groups of special educators. Recently, CoPs have been considered for fostering social inclusion in mainstream schools (Ainscow, 2005; Ainscow, Howes, Farrell, & Frankham, 2003; Dow, 2005; Flores, 2007; Greene, 2004; Tangen, 2005; Thompson, 2007).

Ainscow (2005) argues that "inclusion is the major challenge facing educational systems around the world," (p. 109) and certainly the dominant issue internationally in the field of special education (Deppeler, Loreman, & Sharma, 2005; Ferguson, 2008). Ainscow, Howes, Farrell, and Frankham (2003) conducted a 3-year study on inclusion and found that developing inclusive practices in schools involves "social learning processes within a given workplace that influence peoples actions and, indeed, the

thinking that informs these actions" (Ainscow, 2005, p. 113). This finding encouraged the researchers to investigate the CoP concept. For developing inclusive practices, Ainscow et al. (2003) argue that schools should adopt methods of social learning akin to the CoP perspective.

Research by Thompson (2007) and Dow (2005) are two more examples where the CoP concept was applied to special education and the topic of inclusion. Thompson (2007) conducted an inclusive education course that was informed by the CoP concept. Both preservice and practicing educators were involved. He found that CoPs were more effective when headed by leaders who already had experience as educators or with higher status in the profession. Dow (2005) applied the CoP concept to an inclusive woodworking class. She found that though, in theory, the CoP concept should apply well to this environment, legislated skill-based assessment requirements encouraged competition rather than collaboration among students. "Because of this, an important opportunity to help create an inclusive and effective community of learners … appears sadly to have been overlooked" (Dow, 2005, p. 15).

In Bulgaria, a website on social inclusion called *Portal Integration* (Portal Integration Project, 2005), was identified during the course of the SEB study. The website was first posted in 2005, the same year as SEB. Portal integration offers discussion forums and a repository of documents related to integration. There is a team of three volunteers that maintain the site. It is not sponsored by an NGO, government organization, or university. The site's manager reports disappointment with the level of involvement in the forums. She believes that the Bulgarian culture may not be conducive to participating online. Instead, she feels that they prefer to lurk. It differs from SEB in that the focus is only on social inclusion and not other aspects of the practice of special education. At the time that this thesis was submitted, the website had gone offline due to problems with the hosting company but was expected to return in the future.

Research on special education and CoPs not directly related to social inclusion has also been conducted. Oglesby (2008) researched the ability of *dialogue guides*—models for conducting discussion—to facilitate knowledge transfer in CoPs for special educators. Results indicated that the use of dialogue guides regarding community; collaboration; context and content; diversity; and equality were effective.

Bradley (2004) presented conclusions from a one-day training workshop intended to prepare employees of a child-care center. She reported that as a student in the workshop, she felt "sequestered." Instructors of the workshop explained their experiences as child-care givers but did not effectively allow students opportunities to learn by doing or even to "see or hear the activities of the experienced learners" or experts (p. 346). Hence, she did not feel engaged in the work shop but rather, excluded from it. Students in the workshop were forced to draw on their own experiences as learning resources rather than those of the instructors.

Similarly, Ogata (2001) researched the CoP concept as an approach to the professional development of care providers for children with disabilities. The research questioned, with qualitative methods, the degree to which the learning community formed was an effective CoP. Results indicated that the CoP concept can be effective but that facilitators are critical to the effectiveness of CoPs used for professional development.

Zorfass and Rivero (2005) discussed the results of a case study from a professional development program called *STAR Tech*. The case study focused on a third-grade teacher of an inclusive classroom seeking to address the research question, "In what ways can a community of practice foster technology integration to benefit students with and without disabilities?" (p. 51). Results indicated that the CoP approach was beneficial for strengthening teacher capabilities for effectively using technology as part of instruction.

West and Jones (2007) presented a planning framework of factors to consider when instructors prepare online courses for distance learners training to become special educators for children with low-incidence disabilities in rural areas. Their work was intended to help meet the demand for qualified special educators. They reported that a large portion of special educator training courses will be delivered online by 2010. This prediction is fueled by US federal policy that encourages the development of alternative teacher preparation strategies (Rosenberg, Boyer, Sindelar, & Misra, 2007; U.S. Department of Education, 2003, 2004).

The work of Zorfass and Rivero (2005) and West and Jones (2007) with online learning and CoPs closely relates to research being conducted on virtual CoPs and special education. Crisp, Lewis, and Robertson (2006) discussed the results of a study on using a professional email forum to develop special educator professional identities. They found that "use of the forums was highest when users felt they were not central members of their

professional group but at the same time this group was important to their identities" (Crisp et al., 2006, p. 599). Their research stems from reports that the distinction between the roles of special educators and general educators has begun to weaken as levels of inclusion in mainstream schools increases. They define the email forum as a "virtual community" (Crisp et al., 2006, p. 601) and conclude that the study's findings have implications for the wider development of CoPs and identity formation from professional development programs.

DePaula (2003) presented the results of a study on a web-based system called *Web2gether* that is designed to support special educator use of technology in the classroom. DePaula argued that computer-supported social networks be used to encourage the use of innovative technologies in special education. DePaula (2003) defined such networks as *active learning networks*, which are best characterized as

> Distributed (social) networks of actors and information sources through which knowledge and expertise are activated (or created) through the interaction among different nodes of the network (be they human experts, databases, or intelligent systems) to address specific needs in the context of a problem. This is a more dynamic and flexible model than CoP because in the current situation there is neither a movement toward a unique center (or a core expertise) nor a core expertise around which activities and practice revolve. (p. 2)

DePaula's (2003) concept of active learning networks is perhaps akin to the definition of online communities provided earlier in this chapter. One research question addressed by DePaula was, can computer support for social networks "also support the creation and development of new relationships or is it restricted to the support of already established ones?" (DePaula, 2003, p. 1). This work has to do with the design principle that for having a degree of preexisting relationships when starting up a new online community. DePaula reported that without preexisting relationships, new community development is a "daunting task" (p. 3).

Ryba, Selby, and Kruger (2000) examined several communities of learners to illustrate how knowledge networks can be formed for the practice of special education. They contended that the same community development principles apply to both traditional learning communities and online learning communities. The view they advanced is

that computers can be instrumental in creating socially interactive and reflective learning communities (Ryba et al., 2000, p. 59).

Head and Drakers (2005) reasoned that social constructivist theories such as those underlying the CoP concept have been well applied to the practice of special education where it can be argued that "there is a more urgent need for something 'different' to happen" (p. 33). Something 'different' is what the SEB study is all about. SEB is an exploration into a relatively unknown practice of special education in Eastern Europe. This literature review has shown that the application of online community technologies and CoP concepts to special education is not completely new, but that more research is needed in this area. It has also shown that the SEB online community is unique and the results of the study will advance research and development in the area of online communities for the practice of special education in diverse cultures.

2.5 Summary

A review of the literature concerning the theoretical and design principles for online community, CoP, and virtual CoP development was presented in this chapter. Theoretical constructs underlying the CoP concept were also discussed. The principles were extracted primarily from publications by Hung and Chen (2001); Johnson (2001), McDermott (2000), Preece (2000), Schwen and Hara (2003), and Wenger et al. (2002). It was argued that though the theoretical framework for CoPs is still in the early stages of development, there is sufficient evidence of the existence of CoPs to guide research. The chapter concluded with a benchmark analysis of existing websites, online communities, and CoPs and related research in education and special education. In the next chapter, the design-based research approach is presented and justified for use in the SEB study.

Chapter 3

3. Research design

This chapter describes the *design-based research* (DBR) approach and justifies its use in the study. In addition, the *exploratory research design*, as defined by Creswell and Clark (2007), is presented as a mixed-methods model for the process of data collection and analysis that suits both the Special Education Bulgaria (SEB) study and the DBR approach. First, quantitative, qualitative, and mixed methods are discussed with respect to the research questions and goals. DBR is then described, and arguments are made for why it is appropriate for the SEB study. Examples of how others have used the approach for the development of virtual communities of practice (CoPs) are also provided. Next, the study's three phases of research are defined in terms of the DBR approach. The incorporation of an exploratory research design is then detailed and the purpose of each research phase is summarized.

3.1 Mixed methods and design-based research

In this section, the study's quantitative and qualitative data collection requirements are highlighted to build a case for the use of mixed methods. The DBR approach is then advanced as appropriate for mixed-methods research and the SEB study. The section concludes with a review of several prior research projects that employed the DBR approach for the development of websites and online communities for the education field.

3.1.1 Strictly quantitative research is not enough

Traditional psychological experimentation is common in educational research. This type of research is often conducted in a laboratory setting, tends to focus on one dependent variable, attempts to control independent variables, uses fixed procedures throughout the study, tends to isolate the subject from the researcher, tends to isolate the

subject from other subjects, and defines and systematically tests hypotheses. These techniques are used to help ensure internal and external validity.

In recent years, however, many researchers have begun to question the validity of this type of experimentation. They argue that research conducted in laboratory settings relates poorly to real practice. One reason listed is that in the real world, learning occurs in complex social situations; in classrooms, for example. These complex environments are nearly impossible to simulate in a laboratory. Another reason is that there are too many independent variables in any given classroom environment to control. The sheer number of independent variables makes generalizations from experimental research conducted in one learning environment invalid in another learning environment.

One of the main outcomes of the SEB study was a website designed for use as a collaborative learning tool. By confining research and development to a laboratory, important real-world variables would be missed. According to Brown (1992), though laboratory research can be useful for initial development, testing and refinement should be carried out in a real-world setting. Further, by focusing on one dependent variable or trying to control independent variables, website development would be much too slow for the timeframe of one doctoral project. Multiple dependent variables and many independent variables must be addressed in this study.

Regarding the design of technologically-based educational interventions, Collins, Joseph, and Bielaczyc (2004) state:

> At least three types of dependent variables are important to assess: (1) climate variables such as engagement, cooperation, risk taking, student control; (2) learning variables such as content knowledge, skills, dispositions, metacognitive strategies, learning strategies; and (3) systemic variables such as sustainability, spread, scalability, ease of adoption, and costs. (p. 36)

Collins et al. (2004) list the following examples of independent variables: setting, nature of the learners (e.g., demographics and socioeconomic status), required resources and support for implementation, professional development, financial requirements, and implementation path (e.g., how the implementation is introduced, duration, etc.). Regarding independent variables, they state:

> In evaluating any design there are a large number of independent variables that may affect the success of the design in practice. It is a matter of art to determine what aspects of the implementation situation may affect the success of the design. Our goal here is to say what general aspects of the situation researchers need to consider in order to decide what is affecting the success of the design. (Collins et al., 2004, p. 37)

For the SEB study, variables including participant engagement, cooperation, content knowledge, and demographics; sustainability, spread, scalability, and usability of the online community; and participant knowledge of and access to the Internet will all be important. As the research was exploratory, a number of unexpected variables were also be anticipated. It follows that quantitative methods, including experimental[1] or quasi experimental,[2] casual comparative or correlational research,[3] or single-case research,[4] as defined by Mertens (2005), would not suit the research questions and goals of this study. Nevertheless, some data was quantifiable and analyzed using descriptive statistics. Such data included participant background data, website log data, and data from quantifiable questionnaire and survey questions.

Website log data is collected automatically by a website's host server. The data collected includes user names, web pages accessed, time of access, and links clicked. This data can be retrieved and analyzed using descriptive statistics. A web-based questionnaire and surveys were created and linked to the website. Where Likert-scale questions were used, results were quantifiable and analyzed with descriptive statistics. Where open-ended questions were used, content analysis was performed. Open-ended questions were transcribed and coded using qualitative techniques.

1. "Experimental research is fundamentally defined by the direct manipulation of an independent variable" (Mertens, 2005, p. 121). In addition, participants are randomly assigned to either a control or experimental group.
2. "Quasi-experimental designs are those that are 'almost' true experimental designs, except that the participants are not randomly assigned to groups. In quasi-experimental research, the researcher studies the effect of the treatment on intact groups rather than being able to randomly assign participants to the experimental or control groups" (Mertens, 2005, p. 135).
3. Research that compares two groups with inherently different characteristics such as ethnicity, gender, disabling condition, or some combination of characteristics. Quantifiable correlational data may be used to predict an outcome (Mertens, 2005).
4. Single-case research is very similar to experimental or quasi-experimental research except that only one subject or a small number of subjects are used in the study (Mertens, 2005).

3.1.2 Qualitative research techniques are also required

SEB project goals involved the development and evaluation of a website. In this regard, quantitative website log data analysis was useful, but a website on its own is of no consequence. It must have users. The primary focus of the SEB study was on the participants who use the site, and for this reason, qualitative methods were highly appropriate (Mertens, 2005). Ethnographic techniques have already been applied by researchers for the analysis of discussion forum communications. For the SEB study, it was not possible to enter into the everyday lives of individual subjects as is common with ethnographic research (Mertens, 2005), but communications recorded in SEB's discussion forums did help to determine the motivations and behaviors of users as they accessed the online community. Qualitative data analysis techniques including descriptive and interpretive coding were employed.

Personal interviews were used during each phase of research. Patton (2002) and Mertens (2005) list many benefits of interviewing. A few of the benefits that are especially relevant to this project have been the opportunity to:

- Verify research assumptions and incorporate new questions on the fly;
- Build relationships with the subjects as many of them may participate throughout the research project as website members and during follow-up research visits to Bulgaria;
- Advertise the existence and features of the website; and
- Train potential website participants and discussion forum moderators to use the website.

Focus group research could have been useful, but the organization of group meetings of Bulgarian subjects did not appear to be a realistic possibility in the early, planning stages of the study. The main issues considered included language difficulties and the challenge of coordinating meetings within the relatively short research trips planned to Bulgaria.

3.1.3 There is a clear case for the use of mixed methods

The previous two sections explained that a variety of research methods were useful for answering the research questions. It was also indicated that the nature of the research more closely aligns with qualitative approaches, but quantitative methods would also be useful. The use of quantitative data to support qualitative data can add credibility

to qualitative studies. According to Mertens (2005), "Some researchers and users are uncomfortable with the lack of hard-and-fast rules for establishing credibility in qualitative research; therefore, it is incumbent on qualitative researchers to demonstrate through the use of multiple strategies that their research is credible" (p. 254). This quote from Collins et al. (2004) explains why mixed methods are generally the most appropriate strategy for DBR projects:

> Success or failure of an innovation cannot simply be evaluated in terms of how much students learn on some criterion measure. Different kinds of evaluation are necessary for addressing questions such as: how sustainable the design is after the researchers leave, how much the design emphasizes reasoning as opposed to rote learning, how the design affects the attitudes of students, etc. To evaluate different variables, it is necessary to use a variety of evaluation techniques, including standardized pretests and posttests, survey and interview techniques, and systematic scoring of observations of the classrooms. Both qualitative and quantitative evaluations are essential parts of design-research methodology. (pp. 35-36)

Another argument for the use of DBR has to do with the researcher's way of looking at the world. A close representation of the researcher's viewpoint can be found in the definition of the pragmatic research paradigm. According to Mertens (2005), research operating from the pragmatic paradigm views the research product as more important than the research design or theoretical framework. In terms of the SEB project, the success of the online community is what matters most. Intrinsic to DBR is a "what works" stance that is used to determine the best methods for improving the design of an intervention. As stated by Maxcy (2003, as cited in Mertens, 2005):

> What is healthy about a pragmatic social science of mixed and multiple methods is … it allows a number of projects to be undertaken without the need to identify invariant prior knowledges, laws, or rules governing what is recognized as "true" or "valid." Only the results count! (p.27)

3.1.4 All signs point to design-based research

DBR is more than a methodology. It is an overarching research framework that provides a guideline for analyzing the research problem, developing solutions according to existing theoretical and design principles, evaluating solutions, and documenting results. One benefit of this approach is that it allows for the incorporation of all the qualitative and quantitative methods required to build and assess technology-based educational products in real-world contexts (Collins, Joseph, & Bielaczyc, 2004; Reeves, 2000).

The DBR approach originated in the early 1990s in publications by Ann Brown (1992) and Allan Collins (1990; 1992) who identified weaknesses in previous methods of educational research, especially in complex classroom settings. This was due, in part, to educational research conducted in laboratory settings that related poorly to practice. According to Collins (1990), most practitioners "regard education research as irrelevant to their day-to-day concerns" (p.1) and pay little attention to researcher recommendations.

With DBR, experiments are conducted in real-world learning environments. "Practitioners and researchers work together to produce meaningful change in contexts of practice, e.g., classrooms, after-school programs, teacher on-line communities" (Design-Based Research Collective, 2003, p. 6). Hence, DBR is seen as a way to bridge the growing divide between research and practice. See Table 3-1 for a comparison of laboratory experiments and design experiments.

Table 3-1. Laboratory experiments versus design experiments
Adapted from Collins (1999, pp. 291-293)

Please see print copy for table 3.1

Another argument for the use of DBR is one of social responsibility. According to Reeves (2000), to be socially responsible, education research should be use-inspired and:

- Address "complex problems in real contexts in collaboration with practitioners,"
- Integrate "known and hypothetical design principles with technological affordances to render plausible solutions to these complex problems," and
- Conduct "rigorous and reflective inquiry to test and refine innovative learning environments as well as to define new design principles." (p. 26)

These bullet points nicely summarize the DBR approach. A general diagram of the stages of DBR is presented in Figure 3-1.

Please see print copy for figure 3.1

Refinement of problems, solutions, and methods

Figure 3-1. Model of the design-based research (DBR) framework
Replication of "Predictive and design research approaches in educational technology research" (Reeves, 2006, p. 59)

In addition to Reeves (2000, 2006), such researchers as Bannan-Ritland (2003) and the Design-Based Research Collective (2003) propose similar stages for DBR projects. Bannan-Ritland, who conducted research on a website used by reading specialists, lists the following four phases:

1. Informed exploration
2. Enactment
3. Evaluation: local impact
4. Evaluation: broader impact (Bannan-Ritland, 2003, p. 22)

Similarly, the Design-Based Research Collective argues for a continuous cycle of "design, enactment, analysis, and redesign" coupled with the development of design principles (Design-Based Research Collective, 2003).

Design principles

In addition to designing a product, an important goal of DBR projects is to refine theoretical constructs and propose new design principles that can be used for generalizing results. Unlike generalizations from positivist research, generalizations from DBR are not assumed to be correct in all similar situations. Rather, they help communicate relevant implications to educational designers and researchers and invite discussion. The Design-Based Research Collective (2003) uses the term *prototheory,* or prototype theory, which is in some ways more descriptive than the term *design principle*.

Design principles are a way of documenting all of the guiding principles from the theoretical framework and published literature and either validating or modifying them based on the results of a study. The principles that come from DBR are one of the main reasons that the approach is so valuable (Design-Based Research Collective, 2003; Reeves, 2000; Reeves, Herrington & Oliver, 2005; Reeves, 2006).

DBR versus action research

Action research is "used to describe ongoing evaluation (for example of a new teaching technique) during which improvements are made, in other words, there is no discrete evaluation phase. This approach has been successfully used to evaluate educational communities in distance learning" (Preece, 2000, p. 305). DBR is an approach specifically intended for the development of technology-based solutions to educational problems. Action research approaches have been applied to a wide variety of educational problems (Brydon-Miller, Greenwood, & Maguire, 2003). In the discussion and conclusion chapters of this thesis, an action research approach is advanced in a proposal for a project on social inclusion in Bulgaria that could be facilitated by the SEB online community. Future phases of research and development on the SEB online community itself, however, would still be guided by DBR.

3.1.5 Prior use of DBR for online community development

Evidence of the effectiveness of DBR for the development of virtual CoPs can be demonstrated with examples from prior research. Researchers employed the DBR approach to develop and evaluate the *Beginning and Establishing Successful Teachers* (BEST) website (University of Wollongong Faculty of Education, 2003). BEST is a website designed specifically for novice teachers in their last year of training. During the three-year study, surveys, case studies, and electronic communications analyses were

used for website evaluation and subsequent revisions. At the end of the project, design principles for the development of online communities for novice teachers were proposed (Herrington, Herrington, & Omari, 2000; Herrington, Herrington, & Kervin, 2005).

Literacy Access Online (2000) was developed to assist special educators with helping children learn to read using web-based technologies. The website facilitates collaboration between teachers and students, especially those with disabilities. Researchers involved in the development of the website used a framework termed the *integrative learning design* (Bannan-Ritland, 2003). The integrative learning design framework is organized under four stages very similar to the DBR stages published by Reeves (2000, 2006, see Figure 3-1).

The *Urban Teacher Education* website (Amenta-Shin, 2003) provides a collection of educational resources to help prepare educators to teach in urban areas. Research was guided by the *developmental research* approach (Conceição, Sherry, & Gibson, 2004), which is similar to DBR. Conceição et al. (2004) reported that the definition of *Type I developmental research* provided by Richey and Nelson (1996) best described the research framework of their study. *Type II developmental research* applies to studies of existing designs, while *Type I* applies to studies that involve the creation of new designs. The main difference between DBR and Type I developmental research is that with the latter, results are not framed in terms of generalizable design principles. Instead, results are assumed to be context specific (Peterson, 2005; Richey, Klein, & Nelson, 2004).

3.2 DBR and Special Education Bulgaria

It can be argued that the DBR approach is a framework for conducting *design experiments* (Brown, 1992; Collins, 1992). Design experiments "attempt to carry experimentation into real-life settings, in order to find out what works in practice" (Collins, 1999, p. 291). Much of the research for the SEB study was conducted via the Internet. The research environment was located in the real world in that the website was not developed for research alone. The final product was expected to exist after research concluded. The SEB design experiment was organized around three phases of research (see Figure 3-2).

Please see print copy for figure 3.2

Figure 3-2. Extended evaluation variation of DBR as applied to SEB study
Adapted from "Predictive and design research approaches in educational technology research" (Reeves, 2006, p. 59)

The SEB study cycled through the latter three stages of Reeves' model (see Figure 3-1) two times. During Phase 1, the development stage was informed by the analysis stage. In this case, the analysis stage was carried out as a needs assessment. A prototype website was created for the needs assessment and then the alpha website version was created during the development stage. During Phase 2, testing was conducted on the alpha website version and then the beta site version was developed. For this phase, the development stage was informed by the testing stage. Design principles were produced as design requirements for the subsequent phase. Phase 3 mirrored Phase 2 and resulted in the development of the final website version.

Preece (2000) provides a five-stage cycle for the design of online communities (see Figure 3-3). What is significant about the Preece (2000) approach is that a stage is included for "welcoming and nurturing the community," but there is no mention of the production of design principles. Her approach appears to be valid for production-based

environments but less appropriate for research-based environments. Nonetheless, the idea of welcoming and nurturing the newly designed community is important and worth considering. Her approach is specific to a study focused on online communities, while the DBR approach is generally applicable to any type of technology-based educational research.

Please see print copy for figure 3.3

Figure 3-3. Online community development in five stages
Adapted from Preece "Community-centered development" (2000, p. 210)

A multiphase approach in DBR is strongly advocated by (Chatterji, 2004) who calls for the use of *extended-term mixed-method* designs in educational research. One problem with randomized-trial laboratory-based research is that is fails to take into account the "temporal factor" (Chatterji, 2004, p. 4). A technologically-based educational intervention that works or fails in one controlled experiment may lead to a different outcome at a later date because it is likely that the intervention will have evolved due to the fast-pace of change experienced by modern technology. Hence, instead of "conclusion-oriented" positivist research, research on technology-enhanced educational interventions require "decision-oriented" evaluative research (Chatterji, 2004, p. 6).

3.2.1 Exploratory research design

Creswell and Clark (2007) argue that the *exploratory research design* "is particularly useful when a researcher needs to develop and test an instrument because one is not available" (p. 75). By this definition, the SEB study is exploratory. The intent of the study was not only to investigate the potential for online community development in Bulgaria but also to develop an instrument, the SEB website. Figure 3-4 illustrates Creswell's exploratory design from within SEB's three DBR phases. According to Creswell and Clark (2007), exploratory design "typically emphasizes the qualitative aspect" over the quantitative aspect and is "easily applied to multiphase research" (p. 78). Miles and Huberman's (1994) figure titled, "Illustrative designs linking qualitative and quantitative data" (p. 41) was also considered in the construction of Figure 3-4.

Figure 3-4 illustrates how qualitative and quantitative data was collected and analyzed concurrently throughout each phase of research. The figure indicates that qualitative data was emphasized over quantitative data during all three phases. One reason for this is that it took time for the quantitative website log data to accumulate. Emphasis is shown using text and box size as well as uppercase and lowercase letters. The increasing size of the boxes indicates that the amount and strength of data increased as research progressed through the three phases.

During Phase 3, there was a great deal of quantitative data available from the website logs, but emphasis was still given to the qualitative data. The purpose for collecting quantitative data was to help explain the qualitative data. Had the SEB online community already existed at the beginning of the study, an *explanatory research design* (Creswell & Clark, 2007) could have been followed. In explanatory designs, qualitative data is collected to help explain the quantitative data. Since a significant amount of quantitative data had been collected by the conclusion of Phase 3, future research on the SEB online community could potentially follow an explanatory rather than exploratory research design.

Please see print copy for figure 3.4

Figure 3-4. Phased concurrent strategy for mixed-methods data collection and analysis
Adapted from "concurrent strategies" (Creswell, 2003, p. 214)

3.2.2 Three phases of DBR

The following section provides an overview of the methods and organization of each of the three research phases. Each phase was further divided into stages (see Figure 3-2, on page 54). Final analysis of all collected data was completed during Phase 3, the effectiveness evaluation.

3.2.2.1 Phase 1: Needs assessment

The purpose of the needs assessment was to characterize the target audience and to "identify the critical needs that the proposed interactive learning system is intended to meet" (Reeves & Hedberg, 2003, p. 60). The main sources of data for the needs assessment were personal interviews and exploratory *usability interviews*[5] with Bulgarian special education experts, special education practitioners, and representatives from Bulgarian education organizations.[6]

From mid September to mid October 2005, the researcher was in Bulgaria to interview participants. Exploratory usability interviewing was conducted using the prototype website. In addition, a brief Internet-use questionnaire was administered to gather information about how each participant used the Internet. The alpha website version was posted to the Internet at the end of the needs assessment.

3.2.2.2 Phase 2: Formative evaluation

The purpose of the formative evaluation was to "debug" and "enhance" the alpha version of the online community website (Reeves & Hedberg, 2003, pp. 60-61). Through methods of "progressive refinement" (Collins, 1999, p. 292), the website was revised throughout the formative evaluation phase. Rubin (1994) describes this as the "learn as you go perspective" whereby "the final product is 'shaped' over time. It requires designers to take the attitude that the optimum design is acquired through a process of trial and error, discovery and refinement" (p. 17). Similarly, Rosson and Carroll (2002) call this process "evolutionary development" (p. 207).

A second month-long trip to Bulgaria was taken by the researcher in May 2006. The main sources of data were personal interviews and assessment usability interviews. In Australia, three expert consultation sessions were conducted. Additionally, website log data was tracked to help determine how various areas of the website were used, and discussion forum communications were translated and reviewed. A questionnaire and surveys were posted to the website. The beta website version was posted to the Internet at the end of the formative evaluation.

3.2.2.3 Phase 3: Effectiveness evaluation

Following the formative evaluation, and after SEB had been online for more than 1.5 years, an effectiveness evaluation was conducted. "The overall purpose of an effectiveness evaluation is to determine whether the interactive learning system accomplishes

5. The term *usability interview* was chosen instead of usability test because of the extensive interaction between the researcher and participants throughout the usability sessions conducted during all research phases. This informal method of data collection is argued to be effective for exploratory research designs. This argument is presented in Section 4.3.5 Exploratory usability interviewing, which begins on page 72.
6. All of the educational, volunteer, and charitable Bulgarian organizations referred to in this thesis were described as non-governmental organizations (NGOs) by research participants. NGOs are further discussed in Section 5.3.2.3 on page 121.

its objectives within the immediate or short-term context of its implementation" (Reeves & Hedberg, 2003, p. 61).

Personal interview and validation usability interviews were conducted with research participants during a third trip to Bulgaria in 2007. Email questionnaires were sent to all website participants. The review of discussion forum contents was continued, and a fourth expert consultation session was conducted. At the conclusion of the effectiveness evaluation, the final version of the website was posted to the Internet, and plans were made for future website development and maintenance at Sofia University. Design principles were proposed for other online communities (see Section 10.1.3 Macedonia, Romania, Croatia, and SEB, on page 317). The submission of this thesis concludes three phases of DBR.

3.3 Summary

This chapter described the DBR approach, and arguments were made for why it is appropriate to the SEB study. Central to the case made for the use of DBR was the contention that the goal of DBR is to improve the way a design operates in practice. This goal parallels a goal central to the proposed research, the design of an online community for the practice of special education in Bulgaria. Moreover, DBR is seen as a way to better connect research with practice, and it allows for the incorporation of all the qualitative and quantitative methods that proved useful in addressing the study's research questions and goals. In the next chapter, Methodology, specific information is provided about the research and development activities conducted during each of the study's three research phases.

Chapter 4

4. Methodology

Chapter 3 explained why the DBR framework suits the exploratory nature of the SEB project and outlined the three research phases: needs assessment, formative evaluation, and effectiveness evaluation. This chapter describes how both qualitative and quantitative data were collected throughout each phase. The chapter begins with a review of the participant sampling methods employed. Next, the data collection methods used are explained with reference to three detailed tables that list the number of participants, types of data, and analysis methods for each stage of research. The chapter concludes with a review of the research limitations; ethical considerations; and travel and research partnership arrangements in Bulgaria. A month-by-month summary of the complete project is provided in Appendix A.

4.1 Travel and research arrangements in Bulgaria

The researcher was in Bulgaria from September 13, 2005 to October 10, 2005 to complete data collection for the needs assessment, Phase 1. United States passport holders do not need a visa for visits that last less than 30 days. Though Sofia University did not require documentation for the visit, the University of Wollongong's (UOW's) Faculty of Education formally recognized Mira Tzvetkova-Arsova as an associate supervisor of the study.

Tzvetkova-Arsova was the main research contact in Bulgaria for all phases of the SEB study. She is an associate professor in the Department of Special Education at Sofia University. Her research interests involve the teaching of students with vision impairments and multiple disabilities; special education policy; and the use of information communication technologies in special education. During the researcher's visit to Bulgaria for the formative evaluation, Phase 2, an important contact was made with Krassen Stefanov,

an associate professor in the Faculty of Mathematics and Informatics, Department of Information Technologies at Sofia University and Head of the University Computer Centre. His research interests include e-commerce and e-learning systems, standards, theory, and applications. He is the director of TENCompetence operations in Bulgaria and helped to coordinate the TENCompetence-SEB pilot discussed in Sections 9.2.4.2, A focus on integration and 10.1.4, Phase 4: Impact evaluation.

The researcher was in Bulgaria from April 30, 2006 to May 30, 2006 to complete data collection for Phase 2. During the effectiveness evaluation, Phase 3, the researcher visited Bulgaria for about six months, April 12, 2007 to September 26, 2007. The purpose of this extended trip was to study Bulgarian, nurture the development of the SEB community, complete effectiveness evaluation data collection, and collaborate with TENCompetence.

4.2 Participant selection

A "combination or mixed purposeful sampling" approach was employed for the selection of research participants (Patton, 2002, p. 242). The following three sampling methods were used: *purposeful-quota*, *purposeful-intensity,* and *volunteer*. Purposeful sampling methods were used for qualitative aspects of the study and volunteer sampling for quantitative aspects.

4.2.1 Qualitative sampling

During each research phase, participants were purposefully selected from within each of the main subgroups of the practice of special education in Bulgaria. The researcher's associate supervisor in Bulgaria helped to identify the following groups prior to conducting the needs assessment:

- Visual impairments
- Hearing impairments
- Speech, language, and learning disabilities
- Intellectual disabilities
- Physical disabilities

The following stakeholder roles with regard to special education in Bulgaria were also identified:

- Policy makers
- University researcher / lecturers
- Special school practitioners
- NGO employees[1] / specialists
- Students
- Parents

Miles and Huberman (1994) describe the use of subgroups in sampling as "quota selection" (p. 28). They argue that this strategy increases credibility by showing representativeness. Representativeness was also shown, for example, by the location where research participants live with respect to the location where website participants live (see Figures 6-3 and 6-4 on page 143).

In addition to purposeful sampling by quota selection, purposeful-intensity sampling was used during the effectiveness evaluation. The intent was to interview participants that would yield the most information about the effectiveness of the online community. According to Patton (2002):

> Intensity sampling involves the same logic as extreme case sampling but with less emphasis on the extremes. … The strategy can be applied in a program evaluation. … The evaluator may select cases that manifest sufficient intensity to illuminate the nature of success or failure. … The researcher or evaluator must do some exploratory work to determine the nature of the variation in the situation under study, then sample intense examples of the phenomenon of interest. (p. 234)

The criteria used to determine the level of user activity are specified in Section 6.2.2.3, Active, peripheral, and repeat website users, on page 174.

1. NGO stands for non-government organization. NGOs are non-profit associations independent from the direct control of any government. NGOs are further discussed in Section 5.3.2.3.

4.2.2 Quantitative sampling

For quantitative aspects of the study, which included web-based questionnaires, web-based surveys, email questionnaires, and website log data, participation was voluntary. It can be argued that *volunteer sampling* is probabilistic, but this could be misleading because:

- Many of the same participants from qualitative aspects of the study also participated on the website where quantitative data were gathered.
- It is generally not know how website participants found the website or why they decided to register. Questionnaire results indicate that many came from a search engine, rather than by word of mouth, but further research would be required to be certain which participants came to the website on their own and which were influenced by colleagues.

Creswell (2007) notes that the decision to select the same or different individuals for qualitative and quantitative samples is one of the recurring issues in mixed-methods research and no clear consensus exists (p. 119). For this study, it is not argued that sampling procedures were probabilistic, even for quantitative aspects. For results to be truly probabilistic, perhaps none of the qualitative participants should have participated with the live SEB website. The issue can be explained more clearly in terms of research participants and website participants. For the SEB study, research participants were sampled differently than website participants. While website participants found the SEB website without researcher contact, many research participants were invited to register for the website during interview sessions. Website participants were sampled on a volunteer basis while research participants were sampled purposefully.

For comparisons drawn between qualitative and quantitative data, additional problems arise such as sample size. Creswell argues that “the size of the quantitative sample (preferably randomly selected) will not be the same size as the smaller (preferably purposefully selected) qualitative sample” (Creswell & Clark, 2007, p. 119). Creswell noted that a typical approach to this issue is to increase the size of the qualitative sample and sacrifice some of the detail elicited from participants.

For this study, however, such sampling concerns were not considered relevant to answering the research questions from the standpoint of an exploratory research design. The answers sought were not positivistic and results were not intended to be generalized

to the development of all online communities. Rather, the purpose was to interpretively explore uncharted territory—the practice of special education in Bulgaria—and see how an Internet tool might be used to help identify and address challenges faced by the professional of this field.

Furthermore, as argued by Creswell (2007, p. 185-186), additional research and discussion among veteran researchers is required to address the issues of sample size and random sampling when comparing qualitative and quantitative data. It is not the intent of the SEB study to iron out these issues, only to acknowledge that they exist, and to confirm that they are not significant problems with regard to the research at hand (refer to Table 6-3, on page 141 for a summary of sampling results and methods used).

4.2.3 Informed consent

For the needs assessment, Phase 1, the researcher's associate supervisor in Bulgaria delivered information packets to participants prior to the researcher's arrival to Bulgaria. For the formative and effectiveness evaluation, information packets were delivered as participants became available. In all instances, the research contact in Bulgaria, from the Department of Special Education at Sofia University, approached potential research participants prior to the researcher.

A copy of the participant information packet used during each phase of research is available in Appendix C. Each packet included a letter of invitation, participant information sheet, and consent form. A second version of the packet was used to gain approval from the managers of practitioners interviewed at special schools. Expert reviewers were approached by the researcher by email. If interested in consulting for the SEB study, an information packet was mailed to them prior to conducting the expert consultation.

Prior to all research sessions, participants were reminded that they could withdraw data or completely withdraw from the study at any time. This was stated during the introductory script and was also stated in the consent form. The introductory script is included in the interview protocol and can be viewed in Appendix B. Questionnaires, interviews, and surveys did not contain personally sensitive questions and were kept strictly confidential.

Website user agreement

Website participants self-selected to register for the online community. Out of the more than 300 online community users, about 30 of them were known by the researcher prior to registration on the website. Information about the research was provided on the *About* webpage. The email confirmation sent to participants during the registration process included the website user agreement. The first time that users posted information to the website, they were required to review and accept the user agreement. The agreement included a privacy agreement, statement of participant confidentiality, notice of discussion forum monitoring, and disclosure that the website was built as part of a research project. A username and password was required as a condition of website participation. Though the website administrator could easily identify participant usernames, passwords were not possible to determine with any version of the website. By request, a summary of research results was offered to all participants. The user agreement is provided in Appendix D.

4.3 Phase 1: Needs assessment

This section provides detailed information about the personal interview and usability data collection techniques employed during Phase 1. A summary of methods used, data collected, number of participants, and analysis methods is provided in Table 4-1.

Table 4-1. Phase 1 activity summary (02/2005-04/2006)

Phase 1: Needs Assessment				
Stage	Location	Method	Collected data	Data analysis
Stage 1: Analysis of practical problems by researchers in collaboration	AUS	• Literature and websites review • Prototype website development (EN/BG)	• Periodicals, books, conference papers, websites • Review of available technologies	• Write up, EndNote • Compare website design to theoretical requirements
	BG	• Personal interviews • Exploratory usability interviews with prototype website • Internet-use questionnaires	• 7 audiotaped and transcribed: Special education researchers / lecturers, students, practitioners, parents • 6 audiotaped and transcribed / written notes for problem observed • Multiple choice and short answer questions* • 13 total research participants	• Thematic analysis • Problem/solution matrix, Thematic analysis • Descriptive statistics
Stage 2: Development of solutions informed by existing design principles and technological innovations	AUS	• Website redevelopment, alpha version (BG)	• Review of available technologies	• Meet Stage 1 requirements
Stage 3: Reflection to produce design principles and enhance solution implementation	AUS / Intrntnl	• Research proposal • Conference papers and presentations	Feedback from reviewers, advisors, and presentation attendants	• Document revisions • Thematic analysis of feedback

* Not included in participant count. Collected during interview sessions.
** (BG) indicates that Bulgarian language was used.

4.3.1 Stages of data collection

During Stage 1 (see Table 4-1), preparations for the study were made such as the development of the prototype website and research instruments. In addition, research participants were selected with the help of the main research partner in Bulgaria (see Section 4.1). In Bulgaria, personal interviews were completed using the protocol discussed in the following section. Exploratory usability interviewing was completed with the prototype website. All interviews were conducted in English during the needs assessment and were audiotaped and transcribed. Interviews lasted between 30 and 60 minutes and were carried out in a quiet office in the Department of Special Education at Sofia University or one of

the special schools in Sofia. Internet use questionnaires were collected during each interview session.

During Stage 2, the alpha version of the website was designed and posted according to requirements defined during Stage 1. During Stage 3, the process was documented and presented at conferences where feedback was received (see peer-review listings in Appendix F). The alpha site posting, documentation, and presentations completed the needs assessment phase of the DBR approach.[2]

4.3.2 Research instrument

A single comprehensive research instrument was developed that included both personal and usability interview protocols and an Internet-use questionnaire. Excerpts from the instrument are provided in this section. The complete research instrument is provided in Appendix B. The research instrument used for the needs assessment is included the following sections:

- Introductory script
- Internet use questionnaire
- Personal interview questions regarding special education in Bulgaria
- Exploratory usability test tasks and questions
- Personal interview questions to evaluate special education knowledge
- Closing questions
- Post-interview notes

As the researcher had never been to Bulgaria and had very little knowledge of the practice of special education there, a large number of questions were listed in the instrument with the understanding that not all of them could possibly be used in any one interview session. It was assumed that the interviews would be adjusted as needed to the subjects's area of expertise. It was also assumed that the protocol would be revised according to feedback from the first interview, which was conducted with the researcher's

2. The stages discussed in Section 4.3.1 and presented in Table 4-1 help to define the different types of work completed in terms of the four-stage DBR model (see Figure 3-1, on page 51). In practice, the stages overlapped. For example, some conference papers (Stage 3) were presented before the alpha website was fully posted (Stage 2). The research timeline presents the chronological order in which research steps were completed (see Appendix A).

associate supervisor in Bulgaria (refer to Section 8.3, Interviewing challenges and solutions, on page 264 for details about changes to the interview protocol and in how it was used while in Bulgaria to collect data).

4.3.3 Internet-use questionnaire

Data from the Internet-use questionnaire were needed to determine if the target audience was skilled enough with the Internet to operate the website and if they had sufficient Internet access. The questionnaire was also used as a way to get the interview going and make the subject comfortable. According to Patton (2002), "Begin an interview with questions about noncontroversial present behaviors, activities, and experiences. … Such questions are, it is hoped, fairly easy to answer" (p. 352). The researcher went through the questionnaire slowly with the participant, to ensure that each question was properly understood and to gauge the extent of the language barrier. As an example, the first question on the questionnaire is provided below.

- How often do you use the Internet?
  a. Once per week
  b. 1 to 5 hours per week
  c. 1 to 2 hours per day
  d. Other:

4.3.4 Personal interviewing

The purpose of questions regarding the practice of special education in Bulgaria was to determine discussion forum themes and priorities in the Bulgarian special education system. The purpose of the evaluation of special education knowledge was to generate a baseline of knowledge of the practice of special education held by website users.

The approach taken for personal interviewing closely resembles Denzin's (1989) description of a *nonscheduled standardized interview*—questions are determined in advance, but there is flexibility depending on the responses of subjects. Elements of Patton's (2002) description of an *interview guide approach* were also evident in the personal interviews. With this approach, questions or topics to be explored are outlined in advance, but the interviewer decides the sequence and wording of questions during the course of the interview.

With nonscheduled standardized interviews, there is the danger that interviews will not be sufficiently focused and that a great deal of superfluous information could be collected. Still, the needs assessment was intended to be exploratory. Miles and Huberman (1994) state, "If you are running an exploratory, largely descriptive study, you do not really know the parameters of the social setting. So heavy initial instrumentation or closed-ended devices are inappropriate" (p. 35). Research instruments for the formative and effectiveness evaluations were more structured.

Questions were divided into four categories: experience, opinion, and knowledge, as described by Patton (2002), as well as task-related questions used for usability interviewing. The questions were further analyzed in terms of time—past, present, and future. According to Patten (2002), differentiating the types of questions asked and sequencing questions according to type and time frame can increase subject comfort. Background/ demographic questions were not specifically listed in the research instrument, but such data, including contact details, title, age, and professional experience, was collected through business cards and informally just before or after the interview. The reason that background questions were not included in the research instrument is that, according to Patton (2002), "Background and demographic questions are basically boring; they epitomize what people hate about interviews" (p. 353). Table 4-2 lists the total number of questions of each type and timeframe included in the research instrument.

Table 4-2. Phase 1 interview questions and tasks by type and time frame

	Past	Present	Future	
Experience	5	8		13
Opinion	2	11	4	17
Knowledge		35	5	40
Task*		20		20
	7	74	9	90

* Tasks were used for usability data collection.

Questions regarding special education in Bulgaria were a mix of the knowledge and opinion type. The interviews began in the present time frame and concluded with questions regarding the future. Some of the questions asked are listed below.

- What does the Bulgarian special education system do well? In what areas could it improve?

- What changes in the special education system do you expect in the next 5 years? 10 years?
- Let's say that a child is born with a serious complication such as Down Syndrome. The child is born into the average Bulgarian family. Predict what would happen with the child from age one through adulthood.

Questions for the evaluation of special education knowledge were mostly of the knowledge type and in the present time frame. A few were opinion/present or experience/past. The evaluation of special education knowledge was intended to cover a wide spectrum of the special education field. Gargiulo's book, *Special Education in Contemporary Society* (2006), was used a basis for the construction of the questions. A few of the questions are provided below.

- How are students in Bulgaria selected for special education services?
- Discuss the special education policies and regulations of the Bulgarian education system.
- Have you heard of the Principle of Normalization? In what ways does it apply to the Bulgarian education system?
- Describe some of the techniques used to assist students with speech and language problems in Bulgaria.
- What assistive technology is available to students with physical disabilities or special needs in Bulgaria?

Closing question and post-interview notes

Each interview was concluded with an open-ended question such as, "That covers the things that I wanted to ask, is there anything that you would like to add?" or "What should I have asked you that I didn't think to ask?" According to Patton (2002), it is important "to provide an opportunity for the interviewee to have the final say: 'That covers the things I wanted to ask. Anything you care to add?' I've gotten some of my richest data from this question with interviewees taking me in directions it had never occurred to me to pursue" (p. 379).

Immediately following each interview, the researcher took notes about the interview setting, rapport with participant, problems with certain questions, appropriate-

ness of topics, performance of the interviewer, and performance of the participant. "It is easy to forgo this time of reflection and elaboration, put it off, or neglect it altogether. To do so is to seriously undermine the rigor of qualitative inquiry. Interviews and observations should be scheduled so that sufficient time is available afterward for data clarification, elaboration, and evaluation" (Patton, 2002, p. 384).

Transcriptions

All needs assessment personal interviews were transcribed with Express Scribe-transcription playback software, which is freely downloadable from the Internet (NCH Swift Sound, n.d.). Each interview was saved as a separate Microsoft Word document. Time stamps were inserted regularly throughout the transcribed text. These documents were then referenced for thematic analysis as described in Section 4.3.6.

4.3.5 Exploratory usability interviewing

The goal of usability interviewing during the needs assessment was to observe participant skill with the Internet and receive preliminary feedback on the prototype's design. There was also the opportunity to observe target user skill with the Internet and to highlight website features as well as provide some training.

The *think-aloud protocol*, which is defined later in this section, was used to better understand what participants were thinking, help identify problem areas, and better understand how participants solve problems while navigating the site. Open-ended post-interview questions were used to gather additional feedback and to help determine the level of interest in a website that would facilitate the development of a community of practice for special education in Bulgaria. All usability activity was carried out in front of a computer with an Internet connection as shown in Figure 4-1.

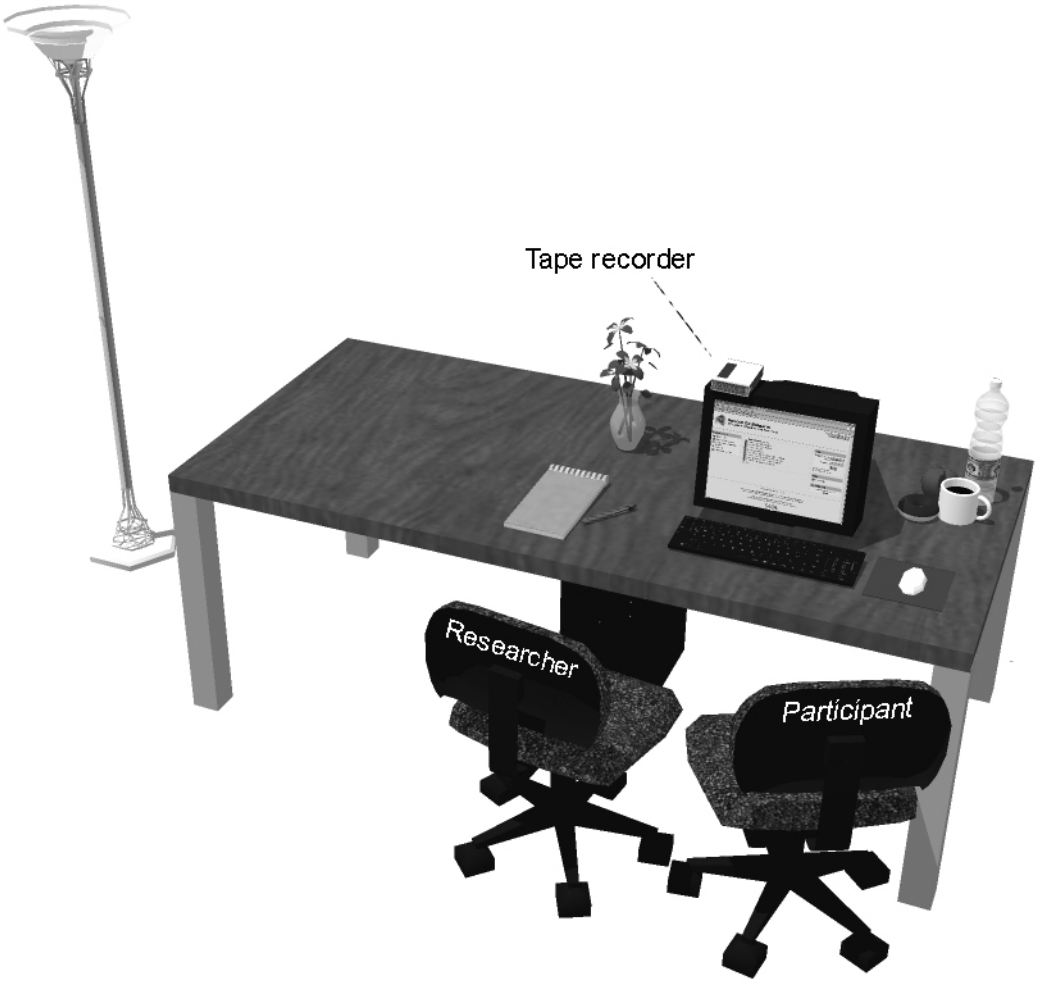

Figure 4-1. Setup for exploratory usability evaluation sessions

Users were audiotaped as they worked through a series of tasks such as registering for discussion forums or finding the definition of a special education term. This form of data collection most closely corresponds to what Rubin (1994, p. 33) defines as *Exploratory usability testing*. He states:

> Exploratory usability tests informally explore the concepts behind a design with the users. There may or may not be a working prototype. This is generally a qualitative test and useful for gathering information to verify assumptions about the target users such as their perceived value of a system as well as the skill level of target users. Such tests usually dictate extensive interaction between the participant and test monitor. (Rubin, 1994, p. 33)

Usability testing versus usability interviewing

Due to the exploratory research design that underlies the entire SEB study, the informal exploratory approach to usability data collection described by Rubin was

followed during all personal interview sessions conducted where an computer and Internet connection was available. Rubin (1994) also describes assessment, validation, and comparison usability testing methods.

Assessment and validation methods were used during the formative and effectiveness evaluation phases, respectively. Assessment and validation methods are more formal than exploratory usability testing, but for the purposes of the needs assessment, the informal exploratory approach allowed for more efficient data collection. It was efficient because it allowed both usability and personal interview data to be collected within a single session. This was important because of the difficulty of accessing participants during the researcher's limited time in Bulgaria, especially ones that spoke sufficient English. The term *usability interview* was chosen instead of *usability test* because the term *interview* implies a more qualitative and less rigid format than the term *test*.

In addition to the type of test, there are a variety of methods that can be used when conducting usability evaluations. For the purpose of this research project, the following two methods are defined:

- *Think-aloud protocol* is "a usability evaluation method in which the user speaks out loud his or her goals, plans, behaviors, and reactions while using an interactive system" (Rosson, 2002, p. 381).
- *Heuristic evaluations*, also called usability inspections, are usually carried out by a group of three to five evaluators who work alone to inspect a system against a set of criteria. The evaluators are generally given a form to complete and may be given a typical-use scenario to perform (Barnum, 2002).

Think-aloud protocol was used in all phases of usability interviewing. It is one of the only ways to learn about what users are thinking while they carry out tasks during a usability evaluation. It also gets them talking. At the beginning of each session, participants were reminded to speak often and told that the researcher would remind them to do so throughout the session. Here is an excerpt from the introductory script read by the researcher that describes the think-aloud protocol.

> As you work through tasks, please think out loud and speak clearly. Just say whatever comes to mind. Listening to users as they work provides useful information that I can get in no other way. It may be a bit awkward at first, but it's really very easy once you get used to it. All you have to do is speak your thoughts as you work. If you forget to think aloud, I'll remind you to keep talking.

Heuristic evaluation checklists were included in the expert consultation protocols and are further discussed in Section 4.4.5.

Exploratory usability interviewing, comparison method incorporated

Comparison usability tests compare the usability of two or more design versions or competitive systems. For the needs assessment, an exploratory usability interview was conducted, but a second website was reviewed in conjunction with the prototype. Therefore, the method of comparison usability interviewing was incorporated. Rubin (1994) says that "exploratory tests are often conducted as comparison tests, with different prototypes matched against each other. This prevents the project team from committing too early to one design" (p. 36).

For exploratory portions of the test, participants were asked to work with the prototype SEB website when prompted to compete a task, such as registering for the discussion forums. Later in the test, additional tasks required participants to compare the customized, prototype discussion-forum template of SEB with the standard phpBB template used by another Bulgarian website (Figure 4-2). The second website was run by a charitable organization affiliated with the Bulgarian Orthodox Christian Church. It was chosen mainly because of similarities in website size and features offered. The content was also similar, dealing with social responsibility and the care of institutionalized children.

The needs assessment, Phase 1, usability interview setup is illustrated in Figure 4-1. Given the exploratory nature of the evaluation, no video camera was required. The researcher interacted with the participant extensively as described in the definition of exploratory usability testing (p. 73). A tape recorder and handwritten notes were sufficient. The tape recorder was also less difficult to set up and much less invasive for the participant.

Please see print copy for figure 4.2

Figure 4-2. Prototype website discussion forums built with custom phpBB template
Standard phpBB discussion-forum template (right) used by www.pokrov-foundation.org

The exploratory usability data collected was qualitative in nature. Participants were asked to complete a series of tasks and the researcher observed and took notes on an observation sheet (Table 4-3). Although all participant and researcher comments were recorded, important comments were noted on the observation sheet. An initial judgement regarding the *importance* and *repairability* of findings was made where possible. Importance is a rating for how urgently a problem needs to be corrected and repairability is a rating for the ease with which a problem can be corrected. Positive comments, such as, "I like the glossary, it is a much needed tool," were also noted. According to Barnum, "If you don't document the positive findings, they could be changed" when the system is improved based on usability results (Barnum, 2002, p. 253).

Table 4-3. Observation sheet for usability data collection
Adapted from table provided in a report by Dillon and Evans (reprinted in Barnum, 2002, p. 74)

Please see print copy for table 4.3

Some of the tasks and questions asked during usability interviewing are listed below. The concept of completing a series or hierarchy of tasks for usability data collection came from Preece (2000, Chapter 4).

- Some of the tasks were:
  - Switch the language from English to Bulgarian.
  - Find a definition for the word *dyslexia*.
  - Send a message to the website administrator.
  - Register for the discussion forums.
- A few of the post-interview questions were:
  - Discuss what you like and dislike about the two websites.
  - How do you foresee yourself using Special Education Bulgaria?
  - Is there anything else that you would like to comment on about the website?

Since this was an exploratory usability evaluation, it was assumed that there would be a great amount of *outlier data*. Barnum defines outlier data as data that represents "the findings from one participant only" (2002, p. 252). In other words, it was assumed that participants would provide feedback that was not substantiated by the other participants. Nonetheless, as recommended by Barnum, given the small number of usability participants and the exploratory nature of the testing, each unique usability finding was closely reviewed even though only one person may have experienced it.

Exploratory usability tests are also subject to what Hertzum and Jacobsen (2001) call the evaluator effect. In a study of three common usability evaluation techniques, think-aloud protocol, heuristic evaluation, and cognitive walkthrough, Hertzum and Jacobsen (2001) found that "multiple evaluators evaluating the same interface with the same usability evaluation method detected markedly different sets of problems" (p. 421). In fact, all usability tests may be subject to the evaluator effect, but given the open-ended nature of the exploratory approach, the evaluator effect was greater.

In spite of their findings, Hertzum and Jacobsen (2001) argue that "usability evaluations are a prerequisite for working systematically with, ensuring, and improving the usability of computer systems. Although the usability evaluation methods reviewed in this article are not perfect, we still believe they are among the best techniques available" (p. 441). Hence, it was clear from the beginning that the exploratory usability interviews conducted for SEB would not uncover all of the usability problems with the website nor would all of the problems uncovered in one session be repeatable among the other sessions. This was only a preliminary test of a prototype product to provide initial direction for design of the alpha website version.

4.3.6 Qualitative code development

A list of *interpretive codes* was generated based on the research questions, goals, and theoretical and design principles. According to Miles and Huberman (1994), interpretive codes indicate that a segment of text "illustrates an emergent leitmotiv or pattern (p. 59)" that has been determined through analysis.

Thematic analysis was conducted on the data collected during the needs assessment, Phase 1, as an initial, rough cross-case inquiry to generate a preliminary lists of *descriptive codes*. Descriptive codes, as defined by Miles and Huberman (1994), entail not interpretation, but simply, "attribute a class of phenomena to a segment of text" (p. 59). Thematic analysis was carried out using Microsoft Word as shown in Figure 4-3. The process loosely followed the *constant comparison method* laid out by grounded-theorists Glaser and Strauss (1967) and later updated by Strauss and Corbin (1990), Glaser (1992), and recently by Charmaz (2006).

The outcome of the analysis was a group of loosely related themes. The groupings were created through *open-coding*, which is "the process of breaking down, examining, comparing, conceptualizing, and categorizing data" (Strauss & Corbin, 1990, p. 61). In other words, a list concepts, or themes, was developed and these themes were organized into categories. The themes were referenced against time stamps from the transcribed recordings of one or more personal interviews. Additional rigors of the open-coding method defined by the grounded theory approach, such as the definition of properties for categories, were not performed during Phase 1.

A rough initial analysis of qualitative data is supported by Miles and Huberman's (1994) 3-step qualitative data collection and analysis process: "data reduction, data display, and conclusion drawing/verification" (p. 10). They argue that conclusions are continually drawn and refined throughout that qualitative data collection process. These conclusions are then verified through analysis of collected data.

Please see print copy for figure 4.3

Figure 4-3. Thematic analysis with Microsoft Word

Additional interview data collected during the formative evaluation, Phase 2, were transcribed and merged with data from Phase 1. The list of descriptive and interpretive codes slowly evolved as data were collected and the theoretical and design principles were further examined. Interview data from all phases of the research would later be entered in to a matrix for final analysis.

During Phase 3, the effectiveness evaluation, the preliminary codes generated during Phases 1 and 2 were used as a starting point for coding the complete data set. The bulk of qualitative coding and analysis was conducted during Phase 3 because SEB had been running for a sufficient amount of time for discussion forum and other website posts to accumulate. The coding process is explained in Section 7.1, Coding the data, on page 190.

Coding schedule

Qualitative coding and analysis required three progressions of coding and revision as shown in Table 4-4. An *a priori* set of interpretive codes was derived from the research

questions and theoretical framework. The codes were then revised as new and modified codes were induced from the data. An *inductive* set of descriptive codes was extracted from Phase 1 and 2 qualitative data.

Table 4-4. Qualitative code development progressions by research phase

Research Phases 1 & 2		Research Phase 3			
Progression 1		Progression 2		Progression 3	
Coded research questions	Coded interview data	Stage 1 interpretive & descriptive codes	Coded 1/3 of all qualitative data*	Stage 2 interpretive & descriptive codes	Coded remaining 2/3 of data
Interpretive codes	Descriptive codes				
A priori	Inductive	A priori	Inductive	A priori	Inductive

* 1/3 data from each data set (e.g., website posts, surveys, and observations) to ensure a representative data sample

For each of the three coding progressions shown in Table 4-4, the following steps were followed:

1. Transcribing and translating
   - Interview and observation data were transcribed and Bulgarian speech and texts were translated.
   - Long passages of Bulgarian text—more than one hundred words—were generally summarized rather than fully translated.
2. Code development
   - Descriptive and interpretive code lists were developed.
3. Coding
   - *Data units*—the segments of text to be coded—were organized into a matrix.
4. Data reduction
   - Patterns and themes were identified; generalizations were made; code lists were refined; and data were sorted and organized in the matrix.
5. Data display
   - Matrix data were prepared for final display and additional charts and tables were created as needed.
6. Conclusion drawing/verification
   - Conclusions were drawn and articulated with citations from the data.
   - Articulated conclusions were verified, when possible, through triangulation with other data sources or follow-up emails with research participants.

The six steps shown were adapted from Herrington (1997) "Stages of computer analysis of data" (p. 146) and Miles and Huberman (1994) "Components of data analysis: Flow model" (p. 10).

4.4 Phase 2: Formative evaluation

This section describes the personal and usability interview and expert consultation techniques employed during Phase 2. A summary of methods used, data collected, number of participants, and analysis methods is provided in Table 4-5.

4.4.1 Stages of data collection

During Stage 1 (see Table 4-5), preparations for the formative evaluation were made. Research protocols for personal and assessment usability interviewing and expert consultations were created. Web-based questionnaires and surveys were posted. This work was completed in Australia. The researcher then travelled to Bulgaria for one month to conduct interviews and collect Internet-use questionnaires.

Research participants were selected with the help of the researcher's associate supervisor in Bulgaria. All interviews were conducted in English during the formative evaluation and were audiotaped or videotaped. The interviews lasted between 30 and 60 minutes. Interviews were conducted in Sofia as well as two smaller Bulgarian cities: Vratsa and Blagoevgrad. These cities were selected because they are significantly smaller than Sofia, and the researcher's contacts in Bulgaria had English-speaking colleagues there. The purpose of the interviews was to confirm that there was interest in SEB and appropriate infrastructure in areas other than Sofia, especially smaller, remote locations. Moreover, as noted in Section 2.4, prior research has shown that there is greater participation when online community participants are from different institutions.

Personal interviews were completed using the protocol discussed in the following section. Assessment usability interviewing was completed with the alpha website. The number of interviews conducted is listed in Table 4-5. Internet use questionnaires were collected during each interview session. Back in Australia, experts in online communities and website and graphic design, were asked to review the alpha website. The following three data sources were monitored, but a full analysis was not completed until Phase 3: website log data; discussion forum contents; and web-based questionnaires and surveys.

Table 4-5. Phase 2 activity summary (04/2006-03/2007)

Phase 2: Formative Evaluation				
Stage	Location	Method	Collected data	Data analysis
Stage 1: Iterative cycles of testing and refinement of solutions in practice	BG	• Assessment usability interviews with alpha website	• 8 videotaped participants: Error observed, assist required, think-aloud protocol	• Problem/solution table, Conceptually clustered coding matrix
		• Personal interviews	• 8 audiotaped: Special education researchers / lecturers, students, practitioners, parents	• Conceptually clustered coding matrix
		• Internet-use questionnaires	• Multiple choice and short answer questions*	• Descriptive statistics
	AUS	• Expert consultations	• 3 audiotaped and transcribed: Moodle, graphic design, CoPs	• Checklist matrix
		• Web-based questionnaires (BG)	• 7 submitted, Likert-scale questions, multiple choice, short answer	• Descriptive statistics, Conceptually clustered coding matrix
		• Web-based surveys (BG)	• Web-based survey questions**	• Descriptive statistic
		• Discussion forum / other postings (BG)	• Postings translated**	• Conceptually clustered coding matrix
		• Website log analysis	• Pages most and least visited, number of unique visitors • 26 total research participants	• Descriptive statistics
Stage 2: Development of solutions informed by existing design principles and technological innovations		• Website redevelopment, beta version (BG)	• Review of available technologies	• Meet Stage 1 requirements
Stage 3: Reflection to produce design principles and enhance solution implementation		• Literature review, website benchmarking, ongoing	• Periodicals, books, conference papers, websites	• Write up, EndNote
	AUS / Intrntnl	• Conference posters, presentations, and papers	• Feedback from reviewers, advisors, and presentation attendants	• Document revisions, Thematic analysis of feedback

* Not included in participant count. Collected during all interview sessions.
** Included as website participants but not research participants.
*** (BG) indicates that Bulgarian language was used.

During Stage 2, the beta website was posted. During Stage 3, the entire process was documented and presented at conferences where feedback was received (see peer-review listings in Appendix F). The beta site posting, documentation, and presentations completed the formative evaluation phase of the DBR approach.

4.4.2 Research instruments

As with the needs assessment, Phase 1, only one research instrument was developed that included both personal and usability interview protocols and an Internet-use questionnaire. For Phase 2, a second instrument was developed for expert consultations. Excerpts from the instruments are provided in this section. Complete research instruments are provided in Appendix B.

Internet use questionnaire and personal interviews

The Internet-use questionnaire and personal interview questions and techniques were largely the same as in Phase 1. For Phase 2 personal interviews, however, an evaluation of special education knowledge section was not included. Since the focus of the formative evaluation was online community and website improvement, personal interview questions were only used if time allowed during usability interviews. Only an outline of the most useful questions asked during Phase 1 was included in the Phase 2 interview protocol. In addition, Phase 2 interview sessions were only partially transcribed because most of the data related to website improvement and usability.

4.4.3 Web-based questionnaire and surveys

A Moodle[3] questionnaire plug-in module was used to host an anonymous web-based questionnaire (see Figure 4-4). Respondents had to be logged in to fill out the questionnaire and were only allowed to respond once. Two of the 10 questions asked included:

1. How did you find this website?
   a. Received a letter
   b. Received an email
   c. Searched the Internet
   d. A colleague told me
   e. Link from another website
   f. Other:

3. Moodle is an open-source course management system designed to support social learning online. It was chosen to power the SEB website during Phase 2, the formative evaluation phase of the project, and is further discussed in Section 5.3.1, on page 111.

2. Rate the following website features from 1 (least interested) to 10 (most interested):
   a. Discussion forums
   b. Chat
   c. Document gallery
   d. Links gallery
   e. Special education glossary
   f. Calendar
   g. Online seminars
   h. Online courses
   i. Photo album
   j. Scheduled chat sessions with experts

Please see print copy for figure 4.4

Figure 4-4. Web-based questionnaire screenshot

The standard Moodle survey module was used to host web-based surveys (Figures 4-4 and 4-5). Participants could only respond once. Results were displayed immediately, and the respondent's user name and avatar were shown next to responses. It was decided not to make surveys anonymous because responses might spur discussion among participants. Two of the survey questions asked were:

1. What is your primary area of interest / expertise in the special education field?
   a. Hearing
   b. Intellectual disabilities
   c. Learning disabilities
   d. Multiple disabilities
   e. Physical disabilities
   f. Speech and language
   g. Vision

2. What is your secondary area of interest / expertise in the special education field?
   a. Hearing
   b. Intellectual disabilities
   c. Learning disabilities
   d. Multiple disabilities
   e. Physical disabilities
   f. Speech and language
   g. Vision

Please see print copy for figure 4.5

Figure 4-5. Web-based survey screenshot

4.4.4 Assessment usability interviewing

Assessment usability tests determine user experiences with one or more aspects of a system's interface during the formal stages of its design. This test may include a mixture of qualitative and quantitative data. The interaction between researcher and participant is

less than during exploratory tests. In general, the participant is expected to complete tasks with a system without help from the researcher. The researcher is there to observe and explain the tasks to be completed. According to Rubin (1994), this is "probably the most typical type of usability test conducted" (p. 37). It "is a cross between the informal exploration of the exploratory test and the more tightly controlled measurement of the validation test" (p. 38).

Participants were selected for assessment interviewing by *purposeful-quota sampling* (see Section 4.2.1). According to Barnum (2002), five participants are enough to receive productive feedback. Assessment interviewing was carried out in front of a computer with an Internet connection as shown in Figure 4-6. The setup was devised as a way to conduct an inexpensive usability evaluation at a remote location with one researcher and only one video camera. A mirror was strategically placed to capture participant facial expressions.

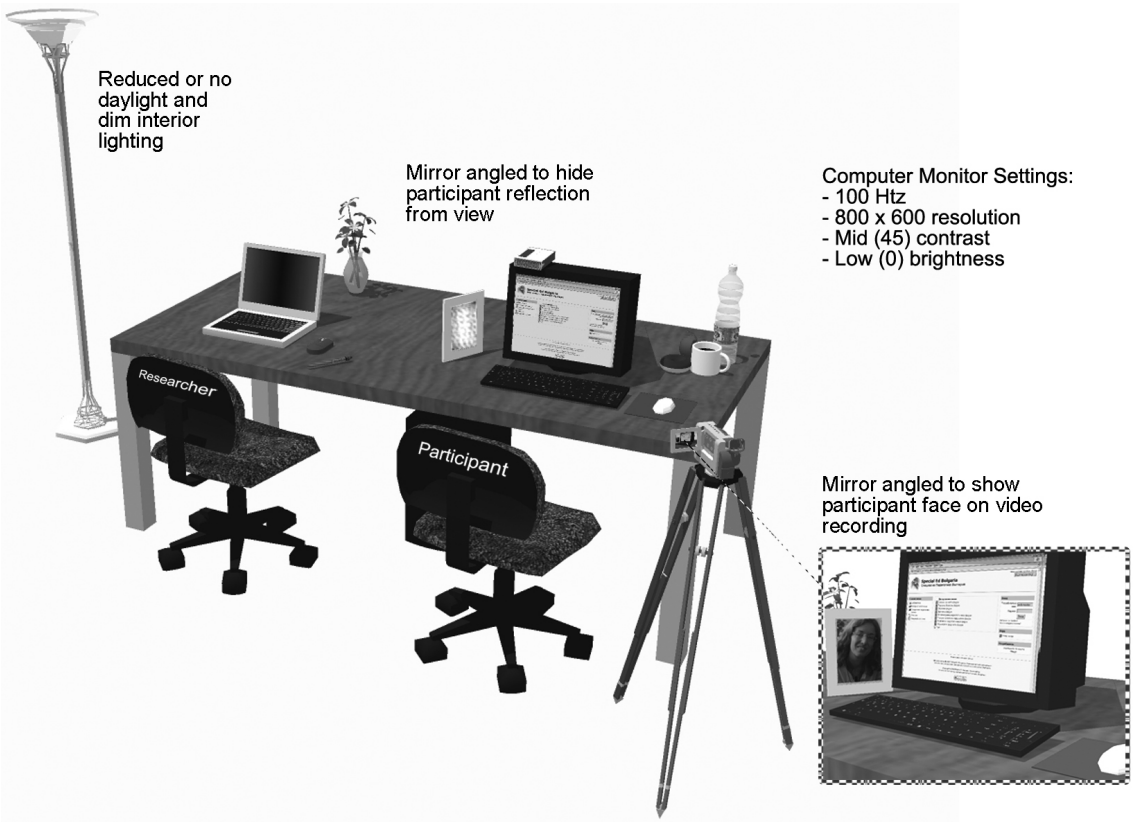

Figure 4-6. Setup for assessment and validation usability evaluation sessions

Equipment

- Camcorder and tripod:
  - Inexpensive MiniDV camera used to capture both audio and video.

- Positioned camera to capture the monitor, keyboard, and mouse.
- Reduced flicker by setting the monitor to the fastest refresh frequency possible that was divisible by the camcorder's frequency. The refresh rate of consumer MiniDV camcorders is generally about 50 Hertz. For this study, the monitor was set at a resolution of 800 by 600 pixels and 100 Hertz refresh frequency (50 Hertz x 2 = 100 Hertz).

- Used mirror (10 x 15 cm) to capture facial expressions.
- Participant computers were of average quality or just slightly above average with respect to those used by the target audience.
- Laptop:
  - Microsoft Word's track-changes feature was used to help discern researcher notes from usability protocol text.
  - The SEB website was download onto the laptop for backup in case the Internet was not available.
- Water and snacks were provided for the participant and researcher.
- Used a tape recorder (shown on top of monitor in Figure 4-6) for backup in case the camcorder recording failed.

Scenarios

For the formative and effectiveness evaluations, *scenarios* were used instead of tasks. The scenarios were modeled after Hotmail usability test plan by Barnum et al. (1999). The scenario concept was chosen because, in comparison to a list of tasks, it helps reduce researcher-participant interaction. Scenarios also allow the participant more freedom to interact with the tool being evaluated. The scenarios used included:

- Scenario 1: Registration
  - Register for SEB and briefly review its contents and features
- Scenario 2: Chat
  - Log in and enter the chat room, chat with other participants
- Scenario 3: Discussion forums
  - Access and use the discussion forums
- Scenario 4: Lost password and username
  - Attempt to log in when you have forgotten your username and password
- Scenario 5: Upload
  - Upload a document, photo, and link to the website repositories

4.4.5 Expert consultations

During the formative evaluation, information in addition to usability data were needed from experts regarding the appropriateness of online community and website design. The consultations were conducted in front of a computer with an Internet connection. The sessions ran like exploratory usability interviews, described previously in this chapter, but the purpose was not to gather usability data. Instead, experts were asked to comment in terms of their specific area of expertise. Experts from the following areas were asked to consult for the SEB study:

- Graphic and website design
- Moodle website development
- Online communities and CoPs
- Distance learning environments and the TENCompetence program

An expert in special education was originally to be selected as well, but it was decided that one was not necessary given that nearly every research participant was from the special education field. The distance learning, TENCompetence expert consultation was conducted during the effectiveness evaluation while the researcher was in Bulgaria. All other consultation sessions were completed in Australia as part of the formative evaluation.

The term *expert consultation* was chosen instead of *expert review* because of the extensive interaction between the researcher and expert throughout each consultation. The term *review* implies a more rigid format that would require experts to examine the website on their own for a considerable amount of time. Instead, experts were asked to review the website prior to the consultation but were not required to. Each session lasted between 60 and 90 minutes and was tape recorded and transcribed.

The approach taken to each session was similar to the interview guide approach discussed in Section 4.3.4, Personal interviewing. The point of each consultation was to get the expert talking and the ideas flowing. The intention was not to limit the expert to a certain predefined path but to facilitate out-of-the-box thinking. The protocol developed for expert consultations included an introductory script and checklist used to walk each expert through various website features. Depending on the expert being consulted, the checklist focused on certain areas more heavily than others. For example, the reasoning behind website colors and icons was more thoroughly addressed for the graphic design expert than the Moodle expert.

Following the website walkthrough, a list of other websites was included in the protocol to facilitate discussion about best practices with reference to exemplary community websites. The consultation sessions each concluded with a review of several heuristic checklists.

Specific heuristic checklists were designed for each of the different areas of expertise. For example, for the online community and CoP expert, checklists were developed to cover the following four areas: technology, content, organization, and functionality. For the website and graphic design expert, checklists were created for visual design, organization, and functionality. Preece's (2000) checklist of eight heuristics for usability and sociability (pp. 291-292); Barnum's heuristic evaluation checklists for Xerox (2002, Appendix 2.2); Jakob Nielsen's ten usability heuristics (as cited in Barnum, 2002, p. 38); and Reeves' (2003, downloaded) expert review checklist were used as a basis for the development of the lists. The complete expert consultation protocol is provided in Appendix B.

4.4.6 Website log data

Website log data, also referred to as *clickstream data* or *website usage data*, were captured for a two-year period that began on December 1, 2005 and ended on December 31, 2007. The data were collected automatically by Moodle (see Figure 4-7). Website log data can be defined as the information logged by a web server as users move from page to page and click on items within a website.

The process of collecting and analyzing website log data to discover usage patterns is called *website usage mining* (Srivastava, Cooley, Deshpande, & Tan, 2000, p. 12). Srivastava et al. (2000) describe four types of web data: *content*, *structure*, *user profile, and usage*. Content mining refers to the analysis of the text, graphics, and multimedia hosted by a website. SEB's textual content was analyzed qualitatively as described in 7.1, Coding the data, on page 190. Structure mining has to do with analyzing the number and organization of hyperlinks and other HTML tags using a tree or hierarchical diagram. This type of mining was not conducted for the SEB project except in a limited manner using website map diagrams (Figures 5-3, 5-6, 5-8, and 5-9). User profile data mining refers to the analysis of demographic data collected from user profiles and registration information. SEB website participant background and demographic information is presented in Section 6.1, Research and website participation, on page 139. In addition to

participant registration information, which was used to determine participant location and gender, questionnaire and survey data were collected.

Please see print copy for figure 4.7

Figure 4-7. Website log entries generated by Moodle and displayed on SEB website

Usage mining refers to the analysis of website log data—also called server log data or server log files—which includes, usernames, IP addresses, data and time of access, and information that describes the pages accessed or hyperlinks clicked as shown in Figure 4-7. Each row in the Moodle table is a single *log entry*, and more than 80,000 entries were collected from 2005 to 2007. That data could be used to determine who visited the SEB site, which web pages they viewed, how much time they spent there, how often they visited, and what types of errors they encountered (Tec-Ed Inc., 1999).

Though website log data provide valuable information that can be gained in no other way, there are some limitations. It is impossible, for instance, to discern all user

actions from website log data alone because of some problems inherent in the way that web servers log data (Goldberg, 2001; Haigh & Megarity, 1998; Sen, Dacin, & Pattichis, 2006; Tec-Ed Inc., 1999). Some of the problems noted by researchers are as follows:

- Not all user actions on the website are logged
  - Website browsers and Internet service providers both cache website pages to increase browsing speeds. If a page is opened from a cache, the web server does not log the activity.
- Logs files are very large
  - Website log files can be enormous, from hundreds of thousands of log entries to millions. SEB is a small online community website, and it still accumulated more than 80,000 log entries in two years. For comparison, Excel 2003 is limited to 65,000 rows of data per spreadsheet. Hence, a single server log can easily overwhelm standard spreadsheet programs.
- Log data is messy and misleading
  - Sometimes user IP addresses are changed by the Internet service provider during a session, which makes it very difficult to track a single user's activity.
  - Data related to website development activity are logged along with the user data.
  - Website crawlers and search engines can also create website log data.
    - For SEB, the Moodle feature that allows Google and website crawlers to access the site was turned on. Google access in the server log appears as a "guest user." But Moodle's ability to accurately differentiate between website crawlers and human users who have not logged in is unknown.

Regardless of the challenges and limitations, website log data "complement data extracted from other sources, to gain a fuller picture of what is happening" in an online community (Preece, 2000, p. 329). The majority of the website log analysis was performed during the effectiveness evaluation, Phase 3, because the site had accumulated much more usage data. Nonetheless, preliminary analyses were performed during Phases 1 and 2 to ensure that log data were correctly being gathered.

4.4.7 Discussion forums and other website postings

Discussion forums, chat, and document and information repositories were provided to participants using the alpha, beta, and final website versions. Though the format of the tools changed, the features offered for all versions were basically the same. All website posts through the tools were translated into English for qualitative data analysis. The following discussion forums were provided:

- Speech, language, and learning disabilities

- Visual impairments
- Integrated education
- Intellectual disabilities
- Multiple disabilities
- Hearing impairments
- Physical disabilities
- Special Education Bulgaria

A chat room was also available. The following tools were provided to post definitions, links, images, dates, and anonymous feedback:

- Glossary
- Links gallery
- Document gallery
- Photo album
- Calendar
- Feedback / write us (anonymous if selected)

4.4.8 Qualitative code development

The list of qualitative codes developed during the needs assessment was updated based on formative evaluation results, but a formal analysis of qualitative data was not conducted until the effectiveness evaluation (see Figure 4-4).

4.5 Phase 3: Effectiveness evaluation

This section reviews the personal and usability interview and expert consultation techniques employed during the effectiveness evaluation. A summary of methods used, data collected, number of participants, and analysis methods is provided in Table 4-6.

Table 4-6. Phase 3 activity summary (03/2007-04/2008)

Phase 3: Effectiveness Evaluation				
Stage	Location	Method	Collected data	Data analysis
Stage 1: Iterative cycle of testing and refinement of solutions in practice	BG	• Validation usability interviews (EN/BG) with beta website (BG)	• 5 videotaped participants: Error observed, assist required, think-aloud protocol	• Problem/solution matrix, Conceptually clustered coding matrix
		• Personal interviews (EN/BG)	• 3 audiotaped: Special education researchers / lecturers, students, practitioners	• Conceptually clustered coding matrix
		• Internet-use questionnaires (BG)	• Multiple choice and short-answer questions*	• Descriptive statistics
		• Expert consultation (EN/BG)	• 1 audiotaped and transcribed: TENC / online communities	• Checklist matrix
		• Email questionnaires (BG)	• 17 returned, Likert-scale questions, short answer	• Descriptive statistics, Conceptually clustered coding matrix
		• Web-based questionnaires (BG)	• 11 submitted, Likert-scale questions, multiple choice, short answer	• Descriptive statistics, Conceptually clustered coding matrix
		• Website log analysis	• Users reviewed for activity: posts, logins, registration date	• Descriptive statistics
		• Web-based surveys (BG)	• Web-based survey questions**	• Descriptive statistics
		• Discussion forum / other postings (BG)	• Postings translated**	• Conceptually clustered coding matrix
			• 37 total research participants	
Stage 2: Development of solutions informed by existing design principles and technological innovations	AUS / Intrntnl	• Website redevelopment, final version (BG)	• Review of available technologies	• Meet Stage 1 requirements
Stage 3: Reflection to produce design principles and enhance solution implementation		• Conference posters, presentations, and papers • PhD thesis	• Feedback from reviewers, advisors, and presentation attendants	• Document revisions

* Not included in participant count. Collected during all interview sessions.

** Included as website participants but not research participants.

*** (BG) indicates that Bulgarian language was used.

4.5.1 Stages of data collection

During Stage 1 (see Table 4-6), the researcher made preparations for a three- to six-month trip to Bulgaria to collect data for the effectiveness evaluation and to study the Bulgarian language. It was hoped that a few of the interviews could be conducted in Bulgarian. Improved skill with the Bulgarian language would also help with data analysis, the bulk of which would be conducted at the conclusion of the effectiveness evaluation.

In Bulgaria, personal interviews and validation usability interviews were conducted. Internet-use questionnaires were collected during each interview and a final expert consultation was conducted. Research participants other than the expert reviewer, were selected according to the quota method described in Section 4.2, Participant selection, or from a group of the most active website users.

Half of the usability interviews during the effectiveness evaluation were conducted in Bulgarian. The interviews lasted between 30 and 60 minutes. The interviews were conducted in Sofia, though some of the participants lived in other cities including Montana, Shumen, and Pazardjik. Discussion forum contents were translated while the researcher was in Bulgaria. Email questionnaires were sent to all website participants. In Australia, respondent results were evaluated, web-based questionnaire and survey results were evaluated, and website log analysis was completed. Lastly, design requirements were formulated for the final website version (see Section 5.4.2, Final site features, on page 128).

During Stage 2, the final website was posted. During Stage 3, the entire process was documented and presented at conferences where feedback was received (see peer-review listings in Appendix F). The final website posting, articles, and presentations completed the effectiveness evaluation phase of the DBR approach and provided closure to the SEB study.

4.5.2 Research instruments

As with Phases 1 and 2, a single instrument was developed that included protocols for both personal and usability interviewing as well as the Internet-use questionnaire. A second instrument was developed for the expert consultation. Excerpts from the instruments are provided in this section. Complete research instruments are provided in Appendix B.

Questionnaires, interviews, surveys, log data, forums, and other posts

The Internet-use questionnaire; web-based questionnaire and surveys, personal interview; website log data; and discussion forum monitoring methods and instruments used during the formative evaluation, Phase 2, were the same as those used during this phase. Only minor modifications were made to instruments based on Phase 2 results. The succession of research instruments between phases can be viewed in Appendix B.

4.5.3 Email questionnaires

A letter of invitation and email questionnaire were sent to all website participants, about 225 at that time. The letter described the SEB research project, invited participants to return the questionnaire, and also invited them to contact the researcher if they were interested in meeting to discuss the online community. The letter and email questionnaire are provided in Appendix B. The questionnaire included nine questions, three of which were:

- In what ways has Special Education Bulgaria helped you do your job better? If you are a student, in what ways has it helped you with school?
- Special Education Bulgaria would be more useful to me in my profession or as a student if _____.
- My greatest complaint(s) about Special Education Bulgaria is/are _____.

4.5.4 Validation usability interviewing

Validation usability tests determine the overall usability of a product just before implementation. Such testing "is intended to certify the product's usability" (Rubin, 1994, p. 38). The objective of validation usability evaluations is to determine how well a product meets a set of standards. The standards are generally determined early in the product development cycle by benchmarking against competitors and through exploratory usability evaluations. For validation testing, there is little to no interaction between the participant and researcher and the collection of quantitative data is of central importance.

Five participants were selected for validation usability interviews. For the SEB study, validation usability interviews, rather than tests, were conducted. The main difference between validation usability interviewing and the assessment interviews conducted during Phase 2 was the level of interaction with the participant and the list of prior usability problems that had been corrected and needed to be retested. In addition, website

log analysis was formally conducted during Phase 3. Log analysis is a quantitative process (refer to Section 6.2.2.1, Website log preprocessing, data display, and analysis, on page 162).

4.5.5 Expert consultation

An expert consultation was conducted with a distance-learning expert and representative of TENCompetence. The consultation was conducted in the same manner as those completed during the formative evaluation.

4.5.6 Qualitative code development

The list of qualitative codes developed during the needs assessment, Phase 1, and updated during the formative evaluation, Phase 2, was formally tested and put to use during Phase 3. Formal qualitative data analysis was not completed until the effectiveness evaluation because (1) not enough data had been collected during the needs assessment and (2) the formative evaluation was intended to identify and correct website design issues rather than to review the online community as a whole. The final list of codes is presented in Tables 7-3 and 7-4. The process of applying codes to the data is explained in Section 7.1, Coding the data, on page 190.

4.6 Limitations

The two most evident limitations to the SEB study were the language barrier and distance between research preparation and data collection locations. It is a given that some qualitative data were misconstrued or lost in translation between Bulgarian and English. Further, the physical distance between Bulgaria and Australia limited the number of research participants that could be interviewed and sampling methods that could be employed.

To counter these limitations, *member checks* were important. Transcribed interviews from the needs assessment, Phase 1, were sent to the interviewees for review. In addition, multiple methods were used to allow findings to be *triangulated*. Data from the personal interviews, web- and email-based questionnaires, and discussion forum communication analysis were coded as one complete qualitative data set. Findings among the different groups were compared as described in Chapter 7.

4.7 Ethical considerations

This study was approved by the University of Wollongong Human Research Ethics Committee. There were a variety of ethical considerations considered prior to approaching participants and collecting data. These considerations are listed below. Each bulleted item is then discussed briefly in the paragraphs that follow.

- Copyright of content available on the SEB website
- Website photos
- Ownership of the website and intellectual property
- Confidentiality of website participants
- Monitoring of discussion forum communications
- Manner in which subjects were approached for participation in the study
- Obtaining informed consent from Bulgarian subjects
- Obtaining informed consent from the managers of Bulgarian subjects
- Confidentiality of collected data
- Identifiable questionnaires and surveys
- Publication of research in a thesis and scholarly articles

The right to post copyrighted material to the SEB website must be requested from the author and publisher. This is true for the website administrator as well as the site's users. There are four photos on SEB's home page, but only one is displayed at a time—. their display rotates as the home page is refreshed. The photos were taken at two of the special schools in Sofia. The children displayed in the photos were residents of the orphanages at the schools. Permission to post their pictures was granted by the school directors.

When the website was run from a server in California and the hosting service was paid in full by the researcher, it was clear that the researcher owned the website and related intellectual property rights. During the formative evaluation, Phase 2, the website was transferred to Sofia University's servers, and the university purchased the domain name www.specialeducationbulgaria.com. Once the website was transferred, the researcher offered to continue assisting with site management, but officially donated the site to Sofia University. The researcher's associate supervisor in Bulgaria was added to

the website's copyright details. Though UOW is still listed on the website's copyright statement, there is no commercial aspect to the site. An executive officer in UOW's commercial research development department (T. Coyle, personal communication, March 29, 2006) stated, "If there is no commercial aspect to your project, UOW is very unlikely to assert a proprietary interest in the IP [intellectual property]."

As part of the SEB registration process, usernames and passwords are required. Website visitors cannot view participant information unless the visitor registers for the site and logs in. The website user agreement; disclosure about the research project and discussion forum monitoring; the manner in which research subjects were approach to participate in the study; and the participant information packet are all addressed in Section 4.2.3, Informed consent. All research data were stored in a locked file cabinet or on a password protected computer.

4.8 Translation

The study employed two official translators. Each of them signed a translator confidentiality agreement (see Appendix C). One of the translators was a personal contact of the researcher and the other was recommended by a Bulgarian language instructor at Sofia University. The website home, about, and features pages and content posted to the special education entry at Wikipedia.bg were all translated from English. Several glossary entries and much of the Moodle instructional and navigational text were also translated. All discussion forum and other website posts were translated from Bulgarian into English, though posts longer than about 100 words were only summarized.

Prior to the needs assessment, Phase 1, the researcher completed 10 hours of Bulgarian language coursework with a private tutor in the United States. During the effectiveness evaluation, Phase 3, the researcher completed 4, 3-week Bulgarian language and culture courses, which totaled more than 200 hours of course time. The researcher was then certified by two separate tests: the ALTE B1 (intermediate) proficiency in the Bulgarian language (Association of Language Testers in Europe, 2007); and Advanced Certificate for Practical Bulgarian from Sofia University's Department for Language Teaching and International Students. The researcher's competency with Bulgarian facilitated data collection during Phase 3 as well as final data analysis.

Translation tools

Several software tools assisted the researcher with communicating at a distance and learning Bulgarian. The following tools were invaluable:

- Microsoft 2003 language tools with Bulgarian spellchecker
- Miranda instant messaging software (Kocak et al., 2007)
  - Miranda is open-source, Cyrillic compatible, and has a Bulgarian spellchecker plug-in
- SA English-Bulgarian dictionary (Angelov, 2005)
  - SA dictionary is free and has thesaurus and computer-terms add ons
- Bg.wiktionary.org (Wiktionary.org, 2008)

4.9 Summary

This chapter discussed the participant sampling and data collection methods employed throughout the SEB study. The data collection methods described included personal interviewing; exploratory, assessment, and validation usability interviewing; questionnaires; web-based questionnaires and surveys; email questionnaires; expert consultations; website log analysis; and review of website participant communications and postings. The chapter concluded with a look at research limitations; ethical considerations; and travel and research partnership arrangements in Bulgaria.

The next chapter describes the website development process and how it tied in with each of the three research phases. Chapter 6 explores the results from all of collected data. In Chapter 7, the results are analyzed and findings are discussed.

Chapter

5

5. Website development

This chapter explores the website development process. First, the website development cycle is discussed with reference to data collection from each of the three phases of research. The chapter is then organized into three sections: prototype; alpha; and beta and final websites. Each of the three sections discusses the design consideration and requirements of the respective website version and provides a list of features, website map, and screenshots.

5.1 Website development cycle

The website development cycle maps to each phase of research through a usability and development process similar to the typical product development life cycles described by Rubin (1994, p. 32) and in a white paper published by Tec-Ed (1999, p. 12). Development of the prototype, alpha, beta, and final website versions; and research conducted during the needs assessment, formative evaluation, and effectiveness evaluation phases are mapped to Rubin's product development life cycle as illustrated in Figure 5-1.

During the needs assessment, Phase 1, the prototype website was employed to collect user and usage needs data necessary for alpha website requirements to be specified. The purpose of the prototype website was to give research participants a good idea of what on online community could offer so that their feedback would be better informed. Such a prototype was needed for exploratory data collection as described in Section 4.3, Phase 1: Needs assessment, on page 66.

The alpha website or *preliminary design* (see Figure 5-1) was assessed with target users and *detailed design* requirements were specified for the beta website during Phase 2, formative evaluation. The beta website or *product build* was validated with target users

and requirements were specified for the final website or *product release*, during Phase 3, effectiveness evaluation.

Please see print copy for figure 5.1

Figure 5-1. Website development cycle by research phase
Adapted from "Product development life cycle" (Rubin, 1994, p. 32)

5.2 Prototype website

This section describes the design considerations made to create the prototype website. Information about the software used, timeframe in which the website was created, and how the content, colors, and layout were chosen is provided. The second part of the section explains some of the preliminary work completed to specify the site's purpose and target audience and then provides a complete list of prototype's features and a site map. An investigation conducted to baseline the levels of accessibility and usability

shown by similar websites is then described. The section concludes with a review of the features that the prototype website lacked as a lead in to Section 5.3, which discusses the alpha website.

The prototype website (Figure 5-2) was developed using Adobe GoLive, now Adobe Dreamweaver, and basic HTML website design techniques. A discussion forum was built using a popular open-source software package called phpBB (phpBB Group, 2000).[1] Portions of the software, including help FAQs and navigational links, were already available in Bulgarian. The program is available with many different customizable layouts also called templates.

Please see print copy for figure 5.2

Figure 5-2. Prototype Special Ed Bulgaria home page in English and Bulgarian
www.SpecialEdBulgaria.org

The website concept was explored during a semester-long project required by an information architecture course completed by the researcher at Arizona State University in the United States. The website's strategy report included an audience analysis, statement of objectives, baseline of existing websites, website map, and preliminary project timeline, all of which led to a proposal for Master of Education (MEd) research candidature at the University of Wollongong (UOW).

During the first six months of the study, the prototype website was built, plans for a needs assessment in Bulgaria were made, and an official MEd (Research) proposal was

1. An inexpensive Linux hosting service, IX WebHosting in the United States, hosted the website. One MySQL database was required to power the phpBB discussion forum.

approved by the Faculty of Education. The site was posted to the Internet in April 2005. Much of the preliminary content on the prototype was based on a recent, introductory special-education textbook from the United States (Gargiulo, 2006). The content was translated by a Bulgarian language teacher now living in the United States (see Acknowledgements section). Website colors were chosen to match the Sofia University home page, www.uni-sofia.bg.

SEB was originally called Special Ed Bulgaria. The domain name chosen was www.specialedbulgaria.org. When translated into Bulgarian, however, the term Special Ed, does not make sense. During Phase 2, formative evaluation, the domain name was changed to www.specialeducationbulgaria.com. The site was renamed Special Education Bulgaria. The prototype website is still available on the Internet at http://www.specialeducationbulgaria.com/backupoldseb, but the discussion forums and search features no longer work. Ones Internet browser must be set to accept the character encoding Cyrillic (Windows-1251) when viewing the website in Bulgarian. The final version of SEB, available at http://www.specialeducationbulgaria.com, is built with the Unicode (UTF-8) character set. The final website is only available in Bulgarian, though parts of it have been translated into English for research purposes. English translations may automatically show if the primary language of the Internet browser is set to English.

5.2.1 Prototype site features

One of the main intentions of the prototype website was to provide Bulgarian educators with information about learning disabilities. Findings in a report by Cholakova and Georgieva (1996) indicated that only students with “noticeable” disabilities were engaged by the Bulgarian special education system. The education system sent such students to special schools. Students with more severe intellectual disabilities were totally excluded from the education system (Cholakova, 1996). The report implied that students with learning disabilities were integrated into classrooms and never identified for additional support. Tzvetkova-Arsova in the Department of Special Education at Sofia University substantiated this finding (personal communication, August 2004). Hence, it was postulated, as a general guide for prototype design, that SEB might assist Bulgarian teachers and parents by giving them access to information about learning disabilities to help them diagnose students with learning disabilities.

It follows that the website LD Online (2005) was a major source of inspiration for the SEB prototype. LD Online (learning disabilities online) featured a series of discussion forums powered by the phpBB software and content sections labeled LD basics and LD in depth. The site also provided a monthly newsletter, online directory of special education experts, online store for recommend books and testing materials, events calendar, and audio and video multimedia resources. The site targeted a broad range of special education stakeholders interested in learning disabilities.

The SEB prototype targeted a more focused audience of educators and parents in Bulgaria. Many of the LD Online features were well beyond the scope of the prototype website. Large multimedia and image files, for example, were not provided on the prototype because it was assumed that download time must be kept to a minimum. According to a representative of Internet Society Bulgaria, the average computer at K-12 institutions with Internet access in Bulgaria had a Pentium II 433 MHz processor, 64MB of RAM, and 33.6K dial-up modem and ran Windows 98 (Velkova, personal communication, August 2004). In general, the SEB prototype was text-based to ensure fastest possible download, though the site was improved graphically with basic HTML design techniques as shown in Figure 5-2.

For the prototype, only basic website design and information architecture principles were applied. A global navigation bar, for example, was provided on each SEB page with the same links in the same order. By comparison, LD Online's global navigation bar changed as pages were navigated, making some pages very difficult to find. The most complicated portion of SEB technically was the discussion forums. The home page, top-level pages, and much of the website's lower tiers of content were fully translated into Bulgarian and made available in both languages. There were only five main content areas provided on the site: discussion forums, quick reference, library of articles, Internet resources, and glossary. A complete list of the prototype site's features is provided in Table 5-1 and illustrated in Figure 5-3.

Table 5-1. Prototype website features

• Discussion forums (phpBB) - Research bulletins forum; hearing forum; vision forum; intellectual disabilities forum; speech and language forum; behavior forum; physical disabilities forum; learning disabilities forum (reading, writing, math) - Forums search functionality - Secure login and email-based registration - Membership directory - Contextual help (Bulgarian) o Contextual or in-line help is provided by a hyperlink to documentation related to a user's location in a website or certain elements on a webpage.
• Quick reference - Topic areas: learning disabilities (reading, writing, math); intellectual disabilities; attention; behavior; gifted; speech and language; hearing; vision; autism; physical disabilities; prevalence of various special educational needs internationally - Similar to the LD basics section at LD Online (2005)
• Library of articles - Topic areas: learning disabilities (reading, writing, math); intellectual disabilities; attention; behavior; gifted; speech and language; hearing; vision; autism; physical disabilities; prevalence of various special educational needs internationally - Similar to the LD in depth section at LD Online (2005), designed to provide journal articles, sample evaluation and screening techniques, sample individual education plans, and lesson plans
• Internet resources: links to Bulgarian, EU, and American websites related to special education
• Glossary: alphabetical list of special education terms
• Search: site-wide search feature (OpenFTS)
• About: Special Ed Bulgaria was designed as part of a MEd project by a student at the University of Wollongong . . .
• Contact us: link to an HTML email form
• Bulgarian/English dictionary: external link to Bulgarian-English translation website

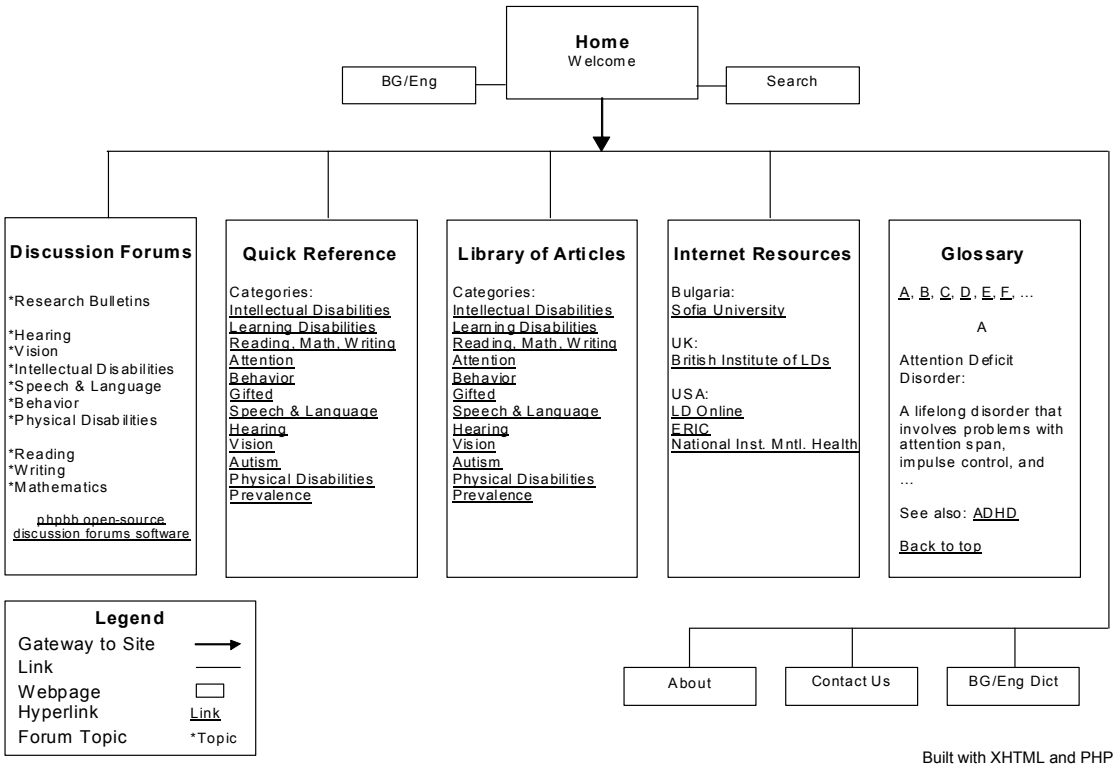

Figure 5-3. Prototype website map

The design principles from the literature review (see Chapter 2) applicable to development of the prototype website are shown in Table 5-2. In the left column, the design principles are named. In the center column, a more detailed description of each principle is provided. In the right column, examples of how the principles were enacted in the study are listed.

Table 5-2. Prototype website design principles

Design principle		Enactment
1. Purpose	• Provide a clear frame of purpose for the community. - Ensure that the purpose is clearly and centrally stated on the website.	• Anchoring theme for SEB is the practice of special education in Bulgaria. - The purpose of the website is stated in first few sentences in center of the home page.
2. Prototype	• Create a prototype design. - Decide on what technology to employ. o The technology should already have a record of being used in the way that the community will use it. - Facilitate usability and design for sociability. - Design for evolution and sustainability.	• Prototype was an HTML website with a link to discussion forums powered by the software phpBB. - An open-source content management software package was investigated but the quality of Internet access in Bulgaria was unknown when the prototype was designed.
3. Stakeholder alignment	• Seek stakeholder alignment by negotiating a common understanding of the potential value of the community. - Interview potential members and engage stakeholders in the design process. - Identify the knowledge that is worth sharing. - Cultivate stakeholder support and executive sponsorship by inviting participation from across multiple structures.	• Conducted personal and exploratory usability interviews with special education stakeholders in Bulgaria. • Made an informal proposal for alpha website design features to representatives of Sofia University's Department of Special Education and formal proposal to research advisors at the University of Wollongong.
4. Varied participation levels	• Invite different levels of participation from peripheral to active and core group members.	• Automatically-generated forum emails helped less-active participants keep up-to-date with discussions.
5. Preexisting relationships	• Ensure that there are a number of preexisting relationships among members, but not all participants should be from the same school or workplace. - A blend of online and face-to-face communication is crucial, especially in the early stages of community development.	• Colleagues from existing groups of teachers in training, practitioners, and university experts all registered for SEB, ensuring that a number of SEB members already knew each other. Efforts were made during all phases of the study, however, to interview potential members from different schools and cities across Bulgaria.
6. Assigned leadership	• Divide the community into cells and assign leadership roles. - Conduct a training session with the leadership team to ensure that everyone understands their role. - Long-term success with asynchronous communication requires active facilitation.	• Separate discussion forums were created for the various areas of expertise in the practice of special education in Bulgaria.

5.2.1.1 Accessibility and usability

Given the subject matter of SEB, it made sense that this website, in particular, be accessible to people with disabilities. According to Tim Berners-Lee, W3C Director, "The power of the web is in its universality. Access by everyone regardless of disability is an essential aspect" (1994). To determine what level of accessibility was required for the prototype, the following websites were reviewed:

- Tapped In www.tappedin.org/tappedin/
- Proteacher www.proteacher.net
- Society for Technical Communication (STC) Berkeley www.stc-berkeley.org
- W3C Web Accessibility Initiative www.w3.org/WAI
- Bobby webpage accessibility validator bobby.watchfire.com
- United States Section 508 Website Accessibility home page www.section508.gov
- WebAIM website accessibility products provider www.webaim.org
- Google search engine home page www.google.com

These webpages were examined against the W3C Web Content Accessibility Guidelines 1.0 (1999) and the requirements of the Section 508 federal law on accessibility (1999). To conduct the analysis, the free webpage accessibility validator, Bobby, was used.[2] In addition to Bobby, two checklists were used: W3C's Checklist of Checkpoints for Web Content Accessibility Guidelines 1.0 and Bohman's Section 508 Web Accessibility Checklist for HTML (1999).

None of the websites examined met all of the requirements for website accessibility, not even the websites posted by the organizations responsible for setting accessibility requirements (namely W3C and Section 508). W3C requirements are broken into three sections, termed Priorities I, II, and III. To meet Section 508 standards, certain sections from all three W3C priorities and some additional requirements must be met. The W3C website only met Priority I and II requirements. The Section 508 website only met Priority I requirements. Most of the other websites failed to meet even Priority I requirements. W3C, Section 508, and several of the other websites did, however, meet Section 508 requirements.

2. Bobby was provided for free by the organization Watchfire prior to February 2008. At the time this thesis was published, Bobby was no longer publicly available.

A usability analysis of the following three websites was undertaken to see what usability problems are commonly found on websites similar in size to SEB and with similar content.

- Tapped In www.tappedin.org/tappedin/
- Proteacher www.proteacher.net
- STC Berkeley www.stc-berkeley.org

One lesson learned from the Tapped In website is that the home page should clearly explain the purpose of the website. In addition, many of the hyperlink labels did not sufficiently describe what the link would do. The use of acronyms on the website was also confusing. On the Proteacher site, the use of color for links and text was very confusing. Text was pink, blue, green, red, purple, and other colors, and links were intermixed. One thing that would have helped is the use of rollovers. The length of webpages on the STC site was an issue. Many of the pages required extensive scrolling and even the global navigation bar was too long to fit on one page. It also seemed clear that the STC website could benefit from a thorough audience analysis to determine who frequents the website. Results from the analysis could be used to determine the best links to make available from the global navigation bar.

Based on these brief accessibility and usability benchmark studies, the prototype site was designed to meet the following criteria:

- All images, input, and other non-text elements have a text equivalent
- Tables are coded with percent values.
- Correct document type statements are coded to ensure that browsers can identify markup language correctly.
- Contrast between text and background color is sufficient.
- No obsolete markup tags are used.
- Cascading style sheets are used.
- All hyperlink phrases are descriptive.
- The same names are not used for links that go to different URLs.
- All pages are Priority I accessible as certified by the Bobby accessibility validator.

5.2.2 Prototype upgrade requirements

Despite preparation efforts put into accessibility and usability and into the features offered by the website, the purpose of the prototype was only to give research participants a general idea of what an online community could be. Some of the things missing from the prototype were a *champion* (see Section 2.2.1, Social interaction versus mutual engagement, on page 24), moderators, and most importantly, website participants. From a technological perspective, some of the things missing from the prototype were a repository for uploaded documents, fully functional site-wide search engine, and shared synchronous workspace (e.g., instant messaging). A home page, description of the community, conversation space for online discussions, and membership directory, were available.

From a usability perspective, the prototype allowed for quick, secure access and easy navigation but was rather basic in terms of its visual and information design. From a sociability perspective, the prototype required acceptance of a user policy agreement, but it was written in very basic terms. The site was missing clear policies regarding participant roles, codes of conduct, and moderator involvement. In addition, the site lacked a clear focus and provided limited Web 2.0 tools for user-uploaded content.[3] Many of the more complex Web 2.0 features available in 2005 were specifically not included in the prototype because prior to the needs assessment, Phase 1, the quality of Internet access and computers available to target users in Bulgaria was unknown.

5.3 Alpha website

In this section, the alpha website's design considerations are discussed. The section begins with a appraisal of the upgrade requirements discussed in Section 5.2.2. Most of the technological requirements were met with the use of an open-source software program called Moodle. After discussing Moodle, a list of the alpha site's features is provided along with a site map. Next, accessibility and usability issues with the alpha site are reviewed, and then, improvements with regard to sociability are discussed. The section concludes with a look at the SEB website address and the site's classification as a non-government organization.

The alpha website, shown in Figure 5-4, was posted to the Internet in December

3. The term *Web 2.0* refers to second generation Internet services designed to encourage collaboration and sharing among website users and a move away from the use of read-only content.

2005. While the researcher was in Bulgaria in September 2005, moderators were secured for all discussion forums. All of the technological features missing from the prototype website could be addressed by the alpha version because Phase 1, needs assessment, data indicated that broadband Internet access was widespread and that adequate computers were available in all schools, even in special schools, across Bulgaria (see Section 6.1.2, Research participant computer hardware and Internet access, on page 150). International businesses and organizations, including Microsoft and UNESCO, had helped make this possible in the years just prior to the SEB project.

Please see print copy for figure 5.4

Figure 5-4. Alpha SEB home page
Glossary of special education terms (right)

Since data indicated that the required technologies were available to target users in Bulgaria, existing features, including the graphic design, membership directory, and user agreement, could be also improved. Further, Web 2.0 technologies could be implemented to remove much of the need for content updates by the administrator.

5.3.1 Moodle

At the 2005 E-learn conference in Vancouver, Canada, during a discussion about the alpha website, CoP consultant John Smith[4] recommended the use of *Moodle*. Moodle is an open-source course management system designed to support social learning online. The first version of Moodle was authored in 1999 by Martin Dougiamas during his PhD

4. John Smith is a consultant and founder of the www.cpsquare.org website. He runs the Communities of Practice Foundations workshop with prominent CoP theorist, Etienne Wenger.

candidature at Curtin University of Technology in Perth, Western Australia. At present, Moodle has close to 25 million users of greater than 50,000 registered websites, "speaking over 75 languages in 193 countries" including Bulgaria. It is scalable from small 10-member communities to large 50,000- or even 200,000-member communities and has proven to be sustainable over time by its millions of users internationally (Moodle community, 2008).

Moodle was chosen to power the alpha website version because it meets all of the criteria for ease of navigation; quick, secure access; and visually-pleasing, professional information design as well as "registering and logging in, communicating, finding people and information, ensuring readability of instructions, getting help, and providing tools to support moderators and other role-players" presented by Preece (2000, p. 282). It also provides for all of the facilities that Wenger et al. (2002) say are useful to virtual CoPs including a home page and description of the community, conversation space for online discussions, repository for uploaded documents, search engine, directory of membership, shared synchronous workspace, and community management tools to track who is participating and what is most visited on the website.

Moodle is also well documented, frequently updated, well understood and used by experts at Sofia University, and available with a large and expanding range of modules and plug-ins. Moreover, at its core, it is a course management system, and it was expected that online courses would be offered via SEB (see Sections 9.2.4.2, A focus on integration, on page 303 and 10.1.4, Phase 4: Impact evaluation, on page 323).

In addition, Moodle is designed to support social constructionist epistemologies. In their research on Moodle, Dougiamas and Taylor (2002) asked, "How can internet software successfully support social constructionist epistemologies of teaching and learning? More specifically, what web structures and interfaces encourage or hinder participants to engage in reflective dialogue within a community of learners—by reading openly, reflecting critically and writing constructively" (p. 1)? It follows that even though Moodle is designed to function primarily as a course management system, it should also be able to support the activity of virtual CoPs. The Moodle.org website itself appears to be a good example of a virtual CoP (Moodle community, 2008).

The main reason that software like Moodle had not been implemented from the beginning of the SEB study was that prior to the needs assessment, Phase 1, the quality of

Internet and computers available to target users in Bulgaria was unknown. Since Internet and computer access was found to be adequate, Moodle could be used.

5.3.2 Alpha site features

The alpha site included many of the same features of the prototype but restructured according to the design of Moodle websites. Moodle websites are generally made of *blocks* laid out in two or three columns. The blocks display content or contain links to a website's pages. Blocks often have a specific purpose such as the login block. The home page, shown in Figure 5-4, is built with five blocks in three columns. The main menu, login, people, and online users blocks are standard in Moodle. They are shown, in English, in Figure 5-5. The admin block is also shown because the administrator was logged in when the screenshot was taken. The HTML block, shown in the middle of Figure 5-5, is a block that can be customized. In this case, it was used to provide a list of links to the various discussion forums hosted by SEB.

Please see print copy for figure 5.5

Figure 5-5. Moodle website with editing features turned on

The discussion forum, chat, glossary, and other tools provided by Moodle are called *modules*. Each instance of a module on a Moodle website is called an *activity*. For example, a single chat activity could be made available to users. A single link to another website or a single document, such as a PDF or Microsoft Word file, that is made available to users is referred to as a *resource*.

A complete list of the alpha site's features in comparison to the prototype is provided in Table 5-3 and is illustrated by the website maps shown in Figures 5-6 and 5-3.

Table 5-3. Alpha website features

Alpha website	Prototype website
• Moodle version 1.5 - Formal white theme (customized to match SEB logo)	• HTML and phpBB - Sofia University home page colors
• Discussion forums (Moodle) - Search forums (Moodle) - Website news forum; research bulletins forum; hearing forum; vision forum; intellectual disabilities forum; speech and language forum; physical disabilities forum; and learning disabilities forum o The behavior forum was removed because behavior was not a recurring topic identified during Phase 1, needs assessment, thematic analysis (see Section 7.2.1, Special education themes, on page 197). The reading, writing, and math descriptors were removed from the learning disabilities forum for the same reason.	• Same except for two forums
• Chat (Moodle) - A chat feature was added to the alpha website because needs assessment results showed that many research participants had chat accounts and used them frequently. Chat sessions were scheduled to start during the researcher's visit to Bulgaria in May 2006 and continue each week on Tuesday afternoons until each discussion forum had been the focus of a session. The sessions were to be led by the respective discussion-forum moderator.	
• Secure login & email-based registration (Moodle)	• Secure login & email-based registration (phpBB)
• Membership directory (Moodle, block on home page) - User profiles: email (required to register, optional to make viewable by other participants); city, country; brief personal description; instant messaging usernames for ICQ, MSN, and others (optional); avatar (optional) - A membership directory block was added to the home page, something that was not possible with the prototype due to the limitations of an HTML-phpBB website.	• Membership directory (phpBB)
• Users online (last 30 minutes) - The users online block was added to make the home page more interactive and provide an area with regular updates.	
• Moodle glossary modules - Library (Moodle glossary module) - Internet resources (Moodle glossary module) - With Moodle, users can post documents, glossary entries, and Internet resources without going through the webmaster.	• Library (HTML) • Internet resources (HTML)

Table 5-3. Alpha website features (continued)

Alpha website	Prototype website
• Glossary (Moodle glossary module) - Word of the day (block on home page, automatically updated) o The word-of-the-day block was added to give the home page an area with regularly updated content.	• Glossary (HTML)
	• Quick reference - Quick reference was removed but only temporarily. It was planned to place the text into a wiki during later website versions (see *SpecPedia* in Section 5.4.2).
	• Site-wide search (OpenFTS)
• About - Site welcome, overview, and features - Participant roles - User agreement - Research overview o Participant roles and an updated user agreement were added per sociability recommendations by Preece (2000). Refer to the Sociability section on page 120.	
• Contact us (Moodle feedback module)	• Contact us (HTML form)
• Contextual help for entire Moodle site (English only) - Bulgarian translation was not available at that time.	• Contextual help for phpBB only
	• Bulgarian/English dictionary - Removed because needs assessment results showed that it was unnecessary and unrelated to the purpose of the website.

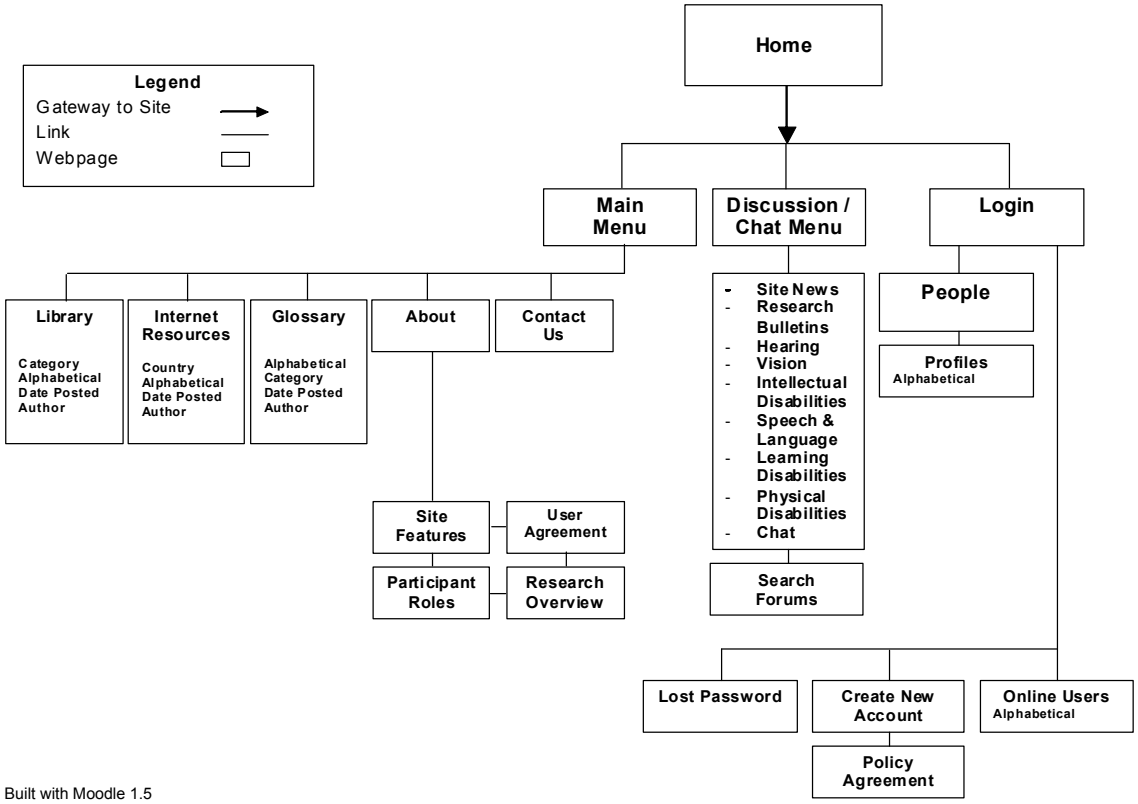

Figure 5-6. Alpha website map

The design principles from the literature review (see Chapter 2) applicable to development of the alpha website are shown in Table 5-4. In the left column, the design principles are named. In the center column, a more detailed description of each principle is provided. In the right column, examples of how the principles were enacted in the study are presented.

Table 5-4. Alpha website design principles

	Design principle	Enactment
1. Purpose	• Provide a clear frame of purpose for the community. - Ensure that the purpose is clearly and centrally stated on the website.	• Same as with prototype website.
2. Prototype	• Create a prototype design. - Decide on what technology to employ. o The technology should already have a record of being used in the way that the community will use it. - Facilitate usability and design for sociability. - Design for evolution and sustainability.	• Alpha site was powered by Moodle. - Moodle provides all of the tools needed to support sociability and is regularly updated with new features by an active group of developers. - Usability was refined during interview sessions with research participants. - See also Table 2-1 on page 19 for usability and sociability considerations incorporated into alpha site.
3. Stakeholder alignment	• Seek stakeholder alignment by negotiating a common understanding of the potential value of the community. - Interview potential members and engage stakeholders in the design process. - Identify the knowledge that is worth sharing. - Cultivate stakeholder support and executive sponsorship by inviting participation from across multiple structures.	• Sofia University officially sponsored SEB when moderators were secured for each discussion forum topic from the university's special education department.
4. Varied participation levels	• Invite different levels of participation from peripheral to active and core group members.	• Same as with prototype website.
5. Preexisting relationships	• Ensure that there are a number of preexisting relationships among members, but not all participants should be from the same school or workplace. - A blend of online and face-to-face communication is crucial, especially in the early stages of community development.	• Same as with prototype website.
6. Assigned leadership	• Divide the community into cells and assign leadership roles. - Conduct a training session with the leadership team to ensure that everyone understands their role. - Stimulate productive asynchronous communication with active facilitation.	• The roles of *administrator*, *lead moderator*, *moderator*, and *participant* were formally defined. • Discussion forum topics updated to reflect findings from Phase 1, needs assessment (see Table 5-3).
7. Website marketing	• Advertise and market the community website as appropriate to achieve desired membership numbers and levels of participation.	• SEB is the number one search return on Google for the keywords *special, education, and Bulgaria*. • SEB was announced at special education conferences in Bulgaria. • Word-of-mouth adverting facilitated though efforts made to interview potential SEB participants from different schools and cities across Bulgaria.

Table 5-4. Alpha website design principles (continued)

8. Personal space	• Develop personal space in the community by providing the ability to make detailed member profiles with photos. - Provide tools for both public and one-on-one communication. - Organize small group activities to foster personal relationships in the community.	• Custom profiles supported by Moodle. • Chat and email allow for more private forms of communication.
9. Membership value	• Make clear the immediate value of membership in the community. - Create artifacts of community activity. - Focus on emergent values rather than early values that were predicted to apply to the new community.	• All discussion forum activity saved and searchable. • Repositories for documents, links, and glossary terms provided. • SEB registration allows for full access to the profiles of other participants and the ability to post to the forums.
10. Central and satellite groups	• Maintain a central cell for everyone with a global facilitator but have local coordinators for the other cells. - Legitimate the community's core leader. - Build a core group of active participants.	• A lead moderator was assigned to the central SEB discussion forum, and moderators were assigned to each of the other forums.
11. Rhythm of activity	• Build a rhythm of activity with regular events such as synchronous online meetings and email reminders of events. - Maintain group cohesion by scheduling regular face-to-face meetings with the entire group or its subgroups.	• One-hour chat sessions scheduled with moderators for each discussion forum topic. Moodle calendar features used for scheduling.

5.3.2.1 Accessibility and usability

The use of Moodle rather than HTML and phpBB permitted the use many new tools but also increased site complexity. The alpha site was no longer Priority I accessible (see Section 5.2.1.1, Accessibility and usability, on page 108). The Cynthia Says web content accessibility validator (HiSoftware, 2008) and Internet Explorer 6.0 browser were used to test SEB for Priority I accessibility. A summary of the results is provided in Table 5-5.

Table 5-5. Accessibility of prototype and alpha websites

	Proto	Alpha
Correct document type statements are coded to ensure that browsers can identify markup language correctly.	Yes	Yes
Contrast between text and background color is sufficient.	Yes	Yes
All hyperlink phrases are descriptive.	Yes	Yes
The same names are not used for links that go to different URLs.	Yes	Yes
Cascading style sheets are used.	Yes	Yes
HTML tables are coded with percent values.	Yes	No
Organize documents so that they can also be read without style sheets	Yes	No
No obsolete markup tags are used.	Yes	No
Identify all data table elements such as rows and columns.	Yes	No
All images, input, and other non-text elements have a text equivalent (ALT tag).	Yes	No

Since the prototype and alpha websites were never directly compared, it is difficult to compare their levels of usability. It was assumed that the alpha site was less usable simply because of the great number of new features and relatively unconventional organization of standard Moodle websites. Table 5-6 provides a summary of the alpha site's usability in comparison to the prototype site's design criteria for usability.

Table 5-6. Usability of prototype and alpha websites

	Proto	Alpha
Compatible with both Internet Explorer 6.0+ and FireFox 1.0+	Yes	Yes
Contrast between text and background color is sufficient.	Yes	Yes
Rollovers are provided for all hyperlinks.	Yes	Yes
All acronyms are defined.	Yes	Yes
All hyperlink phrases are descriptive.	Yes	Yes
The same names are not used for links that go to different URLs.	Yes	Yes
Web pages are deeper, through the use of hyperlinks, than they are long.	Yes	Yes
Breadcrumbs are provided.*	Yes	Yes
ALT tags are used to describe all images.	Yes	No
A streamlined and consistent global navigation bar is provided on all pages.**	Yes	No

* Breadcrumbs, also provided on the prototype, are a standard feature of Moodle. Breadcrumbs are trails of text links that appear toward the top of web pages to help users orient themselves with respect to the home page.

** One of the major usability complaints about Moodle is the lack of a global navigation bar. Moodle sites have a main menu block as well as a series of other blocks that may change location depending on the page visited. Some Moodle site developers have managed to integrate a global navigation bar, but it is still not a standard Moodle feature.

Regardless of Moodle's drawbacks with regard to accessibility and usability, it was anticipated that the array of new features would far outweigh the costs. Furthermore,

usability results (see Section 8.2, Usability, on page 258) indicated that the implementation of Moodle actually solved more usability problems than it created.

One important usability improvement that did not relate to the use of Moodle was that the alpha site was only available in Bulgarian. The prototype home page opened in English and could be translated into Bulgarian. This was a problem identified during Phase 1, needs assessment, usability testing. Since all users are Bulgarian, the prototype should have opened in Bulgarian first.

5.3.2.2 Sociability

According to Preece (2000), supporting sociability in online communities means providing user-friendly communication tools, giving users a clear purpose for communicating, and providing sufficiently detailed guidelines for participation. Moodle is equipped with all of the communication tools and technical features that Preece (2000) and Wenger et al. (2002) and others (Coakes, 2006; Patrick, Cox, & Abdullah, 2006; Wasko & Teigland, 2006) argue are required for CoPs to function online (see Section 5.3.1). What it lacks, are a purpose for use and guidelines for participation. These and other sociability requirements were provided in SEB as shown in Table 5-7.

Table 5-7. Sociability checklist for alpha website
Adapted from Preece (2000, p. 290) "Checklist for sociability and usability"

Please see print copy for table 5.7

* The participant roles defined include lead moderator, administrator, moderator, and participant.
** (Putz & Arnold, 2001)
*** A getting started guide was planned but never translated for inclusion on SEB.
**** The user agreement; confirmation email; and welcome, about, roles, and features pages are provided in English in Appendix D.

5.3.2.3 NGOs, NPOs, .org, .com, and .bg websites

SEB's current website address ends with *.com*. For the needs assessment, Phase 1, SEB's website address was www.specialedbulgaria.org, but research participants reported that *.org* was harder to remember than *.com*. Since SEB is best classified in Bulgaria as a non-government organization (NGO),[5] it was initially thought that SEB

5. Willetts (2002) defines an NGO "as an independent voluntary association of people acting together on a continuous basis for some common purpose other than achieving government office, making money, or illegal activities" (Introduction section, para. 2).

would be best suited to a *.org* domain-name extension—the extension designated for non-profit firms or any other organization that does not fit the definition of *.com* (commercial), *.gov* (government), or other extensions.

Phase 2, formative evaluation, results indicated that research participants preferred the extension *.bg* (Bulgarian) to *.com*, but *.bg* would have been significantly more expensive for Sofia University to purchase. Therefore, during Phase 2, SEB's domain name was changed to www.specialeducationbulgaria.com at the same time that the website was transferred to Sofia University web servers.

5.4 Beta and final websites

Both the beta and final websites are discussed in this section. The discussions of these two SEB versions were merged into one section because the beta site continued to be developed throughout data collection during the effectiveness evaluation, Phase 3. As site improvements were made, they were tested with subsequent research participants. Consequently, the distinction between the two versions began to blur. The section begins with a brief review of relevant results from the needs assessment, Phase 1, and formative evaluation, Phase 2. Next, screenshots, a features list, and a website map are provided for the beta website first and then the final site.

Phase 1 results indicated that the alpha site should focus on each the main areas of the practice of special education in Bulgaria, which includes:

- Hearing impairments
- Visual impairments
- Intellectual disabilities
- Speech, language, and learning disabilities
- Physical disabilities

This finding is reflected in the organization of the beta website's discussion forums (Table 5-8).

Phase 2, formative evaluation, results indicated that Moodle could be successfully adapted for use with online communities. Moreover, findings confirmed that Moodle was a good choice for the SEB community. It provides all of the CoP functionality needed but also the course management features required for future expansion and work with TEN-

Competence (refer to comments about the 'Moodle best choice' code in Section 7.3, Interpretive coding, which begins on page 232 and to comments about Moodle in Section 8.1, Expert consultations, which begins on page 250). Shortly following data collection for Phase 2, a letter was sent from the Bulgarian Ministry of Education to special education directors throughout the country. The purpose of the letter, which was sent in September 2006, was to publicize the website. A copy of the letter is provided in Appendix E.

Though SEB now had the required functionality, it still needed significant visual improvements. Graphic design was one of the primary requirements of the beta site upgrade. The improvements made can be seen in the beta site home page (Figure 5-7) and final site (Figure 5-10). Usability modifications were also made, many of which were related to improper translation from English to Bulgarian (see Section 8.2, Usability, on page 258). Results from the expert consultations conducted provided much of the direction for the website logo and graphic redesign (see Section 8.1, Expert consultations, which begins on page 250). The consultations also provided a great deal of information about how Moodle's standard and plug-in features could be used more effectively.

Please see print copy for figure 5.7

Figure 5-7. Beta SEB home page, blue theme
Participant gallery, purple theme (right)

One such feature, *XAMP*, allows Moodle's data-driven core to function from a personal computer and any Internet browser. XAMP (Apache, MySQL, PHP) is a Moodle download (Moodle community, 2008) based on the open-source XAMPP Apache server distribution (Seidler, 2008). Though website users are not affected by the use of XAMP, it allows website developers to work on data-driven websites from their computer without

using the website host's server. In effect, XAMP is a free test server. XAMP can also be used to run a copy of Moodle websites from a CD.

5.4.1 Beta site features

A list of the beta site's features in comparison to the alpha site is provided in Table 5-8 and is illustrated by the website maps provided in Figures 5-8 and 5-6. Additionally, it can be noted that an email addresses ending with the site's domain name, webmaster@specialeducationbulgaria.com, was provided by Sofia University for the beta site. It was needed to add credibility to website-related communication. In the future, it will also simplify the transition to a new website administrator.

Table 5-8. Beta website features

Beta website	Alpha website
• Moodle version 1.5.4 - An upgrade to Moodle version 1.6 and higher was not possible until Sofia University updated the host server. - SEB blue and purple themes (SEB merging-dots logo) o Two themes were created for the SEB site: blue and purple (see Figure 5-7). Blue, the standard theme, was designed to be gender-neutral and purple more feminine. More than 80% of the site's participants are female. The theme can be changed in the user profile or by clicking a link provided in the upper-left corner of the site.	• Moodle version 1.5.0 - Formal white theme (SEB people-arrows logo)
• Discussion forums (Moodle) - Search forums (Moodle) - Website news forum; hearing forum; vision forum; intellectual disabilities forum; speech, language, and learning disabilities forum; physical disabilities forum o The learning disabilities forum was combined with the speech and language forum because this is the current organization found in the Bulgarian special education system. The research bulletins forum was removed because it had not been used by participants.	• Same except for two forums
• Recent posts (block on home page) - Posts to the discussion forums within the last three days are displayed in a recent activity block on the home page.	
• Chat	• Same
• Secure login and email-based registration	• Same
• Membership directory - User profiles	• Same
• Users online (last 30 minutes)	• Same
• Special education news (block on home page) - Bulgarian and English news sources o Links to other websites. Could not use RSS because of problems with Cyrillic characters in Moodle's RSS feed prior to version 1.6.	
• Popular Internet links (block on home page, administrator updated) - A block to highlight links posted to the participant gallery on the home page.	
• Participant gallery (Moodle database module) - Documents, links, and photos repository o Merged library and Internet resources repositories because usability session data indicated that participants did not understand the difference between the two types of repositories.	• Library - Moodle Glossary module repository for documents • Internet resources - Moodle Glossary module repository for links
• Glossary - Word of the day	• Same
• Website questionnaire (Moodle questionnaire module)	
• Website surveys (Moodle survey module)	
• Site-wide search (Google site search)	
• About: site welcome, overview, and features; participant roles; user agreement; research overview	Same
• Contact us	Same
• Contextual help (partly translated into Bulgarian)	Contextual help (English only)

NOTE: *RSS* stands for *RDF site summary*, but has also been defined as *really simple syndication* or *rich site summary*. It is an Internet technology that allows RSS feed software to automatically access content from websites as it is posted. One application of RSS is to aggregate the latest content posted to one or more websites onto a single website.

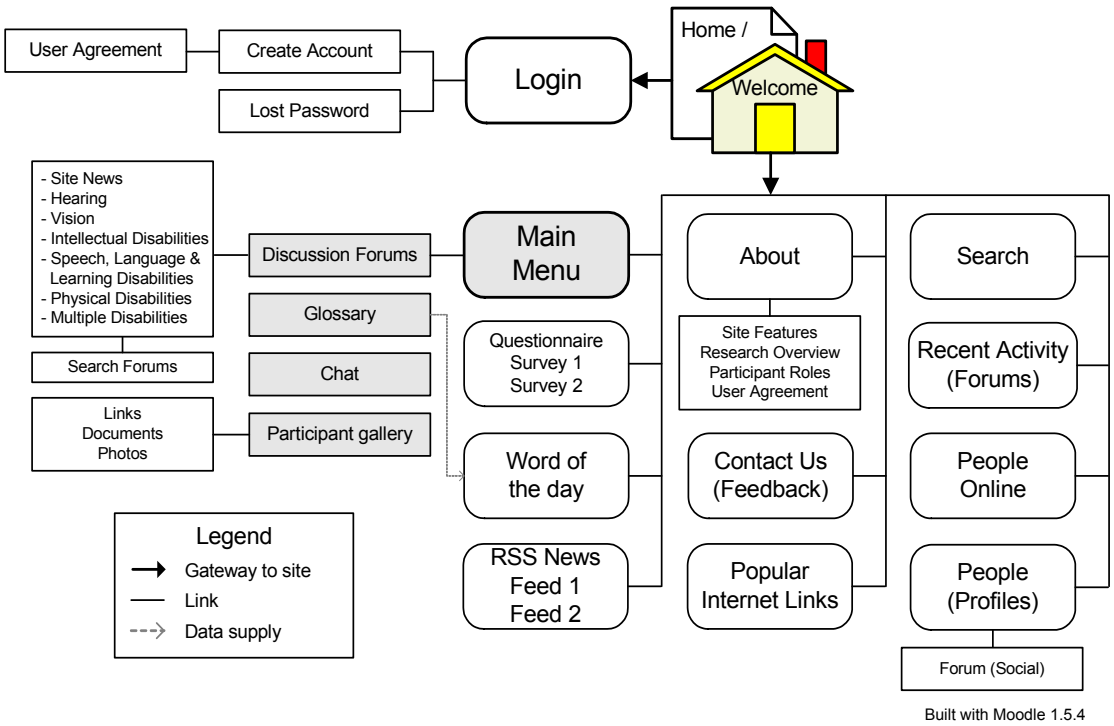

Figure 5-8. Beta website map

The design principles from the literature review (see Chapter 2) applicable to development of the beta and final websites are shown in Table 5-9. In the left column, the design principles are named. In the center column, a more detailed description of each principle is provided. In the right column, examples of how the principles were enacted in the study are presented.

Table 5-9. Beta and final website design principles

Design principle		Enactment
1. Purpose	• Provide a clear frame of purpose for the community. - Ensure that the purpose is clearly and centrally stated on the website.	• Same as with prototype and alpha websites.
2. Prototype	• Create a prototype design. - Decide on what technology to employ. o The technology should already have a record of being used in the way that the community will use it. - Facilitate usability and design for sociability. - Design for evolution and sustainability.	• Same as with alpha website.
3. Stakeholder alignment	• Seek stakeholder alignment by negotiating a common understanding of the potential value of the community. - Interview potential members and engage stakeholders in the design process. - Identify the knowledge that is worth sharing. - Cultivate stakeholder support and executive sponsorship by inviting participation from across multiple structures.	• The Bulgarian Ministry of Education and Science officially sponsored SEB in letter sent to special education directors across Bulgaria to announce the website. • EU's TENCompetence project sponsored SEB through partnership activities.
4. Varied participation levels	• Invite different levels of participation from peripheral to active and core group members.	• Same as with prototype and alpha websites.
5. Preexisting relationships	• Ensure that there are a number of preexisting relationships among members, but not all participants should be from the same school or workplace. - A blend of online and face-to-face communication is crucial, especially in the early stages of community development.	• Same as with prototype and alpha websites.
6. Assigned leadership	• Divide the community into cells and assign leadership roles. - Conduct a training session with the leadership team to ensure that everyone understands their role. - Stimulate productive asynchronous communication with active facilitation.	• Same as with prototype and alpha websites.
7. Website marketing	• Advertise and market the community website as appropriate to achieve desired membership numbers and levels of participation.	• Letter sent from the Bulgaria Minister for Special Education to announce SEB to special education directors across Bulgaria. • "Special education" entry created at http://bg.Wikipedia.org (Bulgarian), and SEB link added.

Table 5-9. Beta and final website design principles (continued)

8. Personal space	• Develop personal space in the community by providing the ability to make detailed member profiles with photos. - Provide tools for both public and one-on-one communication. - Organize small group activities to foster personal relationships in the community.	• Same as with prototype and alpha websites.
9. Membership value	• Make clear the immediate value of membership in the community. - Create artifacts of community activity. - Focus on emergent values rather than early values that were predicted to apply to the new community.	• Same as with prototype and alpha websites.
10. Central and satellite groups	• Maintain a central cell for everyone with a global facilitator but have local coordinators for the other cells. - Legitimate the community's core leader. - Build a core group of active participants.	• Moderator profiles updated with areas of expertise and qualifications.
11. Rhythm of activity	• Build a rhythm of activity with regular events such as synchronous online meetings and email reminders of events. - Maintain group cohesion by scheduling regular face-to-face meetings with the entire group or its subgroups.	• A *blended*—part online, part face-to-face—course was completed in cooperation with the TENCompetence project as described in Chapter 9. A follow-up course was conducted several months after and a second course is planned for the future.

5.4.2 Final site features

The final website was posted to the Internet in December 2007. Some initial modifications were made to the beta site in July and August 2007 while the researcher was in Bulgaria. The modifications were made based on results from usability sessions conducted during the effectiveness evaluation, Phase 3. A complete list of the final site's features in comparison to the beta site is provided in Table 5-10 and is illustrated by the website maps provided in Figures 5-9 and 5-8.

Table 5-10. Final website features

Final website	Beta website
• Moodle version 1.8.2 - SEB blue and purple themes (SEB merging-dots logo) - The upgrade from Moodle 1.5.4 to 1.8.2 required Sofia University to update openSUSE (Linux), PHP, and MySQL on the host server.	• Moodle version 1.5.4 - Same theme
• Discussion forums (Moodle) - Search forums (Moodle) - Website news forum; hearing forum; vision forum; intellectual disabilities forum; speech, language, and learning disabilities forum; physical disabilities forum; dyslexia forum; integrated education forum o The dyslexia forum was added because of a request from a dyslexia specialist who also agreed to be the moderator. The integrated education forum was added based on qualitative analysis findings from Phase 3, effectiveness evaluation. It was the most recurrent theme of the forums. Existing forum threads related to integrated education were moved to the new forum.	• Same except for two new forums
• Recent posts block	• Same
• Chat	• Same‘
• Secure login and email-based registration	• Same
• Membership directory - User profiles	• Same
• Users online (last 30 minutes)	• Same
• RSS feeds (Moodle blocks on home page) - Block 1: Bulgarian news site “education” feed - Block 2: About.com “special education” feed - Block 3: Latest links from SEB links gallery - Block 4: Latest documents from SEB document gallery	• Special education news - Links to other websites.
• Links gallery (Moodle database module) - The latest links posted to the site are featured on the home page using a RSS feed block. • Document gallery (Moodle database module) - The latest documents posted to the site are featured on the home page using a RSS feed block. • Photo album (Moodle database module) - The latest photos are not featured on the home page for privacy reasons and because they tend to distort the home page layout in certain web browsers. - The participant gallery of the Beta site was split back out into three repositories: documents, links, and photos. The main reason for using three separate Moodle database modules was to better control RSS feed content.	• Participant gallery (Moodle database module) - Documents, links, and photos repository
• Glossary - Word of the day	• Same
• SpecPedia: “special education” entry at http://bg.Wikipedia.org (Bulgarian) - Quick reference content from the prototype site was posted as a “special education” entry at http://bg.wikipedia.org. Anyone, who speaks Bulgarian, is free to make edits without registration. SpecPedia is a link from the SEB main menu to the special education entry at Wikipedia Bulgaria.	
• Website questionnaire	Same
• Website surveys	Same
• Site-wide search	Same

Table 5-10. Final website features (continued)

Final website	Beta website
• Blogs (Moodle blog module, site-wide entries) - Site-wide and personal blogs were added to the final website version but data were not collected in time for publication in this thesis.	
• My journal (Moodle notes module, personal entries) - A personal notes module, essentially a private blog, was added to the final version but data were not collected in time for publication in this thesis.	
• Calendar - Upcoming events: Daily chat o A daily chat schedule for 2:00. Any participant is free to join but data were not collected in time for publication in this thesis.	
• About: site welcome, overview, and features; participant roles; user agreement; research overview	• Same
• Contact us	• Same
• Contextual help (Bulgarian)	• Contextual help (partly translated into Bulgarian)
• My courses - At the time this thesis was submitted, a preliminary TENCompetence-SEB pilot course had been completed (see section 9.2.4.2).	
• My portfolio (under construction, Mahara-Moodle) - Allows users to create a resume, include supporting documentation, list references, and provide contact details. The search feature allows users to find other people's portfolios. Moodle version 1.9 officially integrated Mahara for e-portfolios and provided single sign-on functionality. At the time this thesis was submitted, Mahara was uploaded but not yet ready for use by SEB participants.	

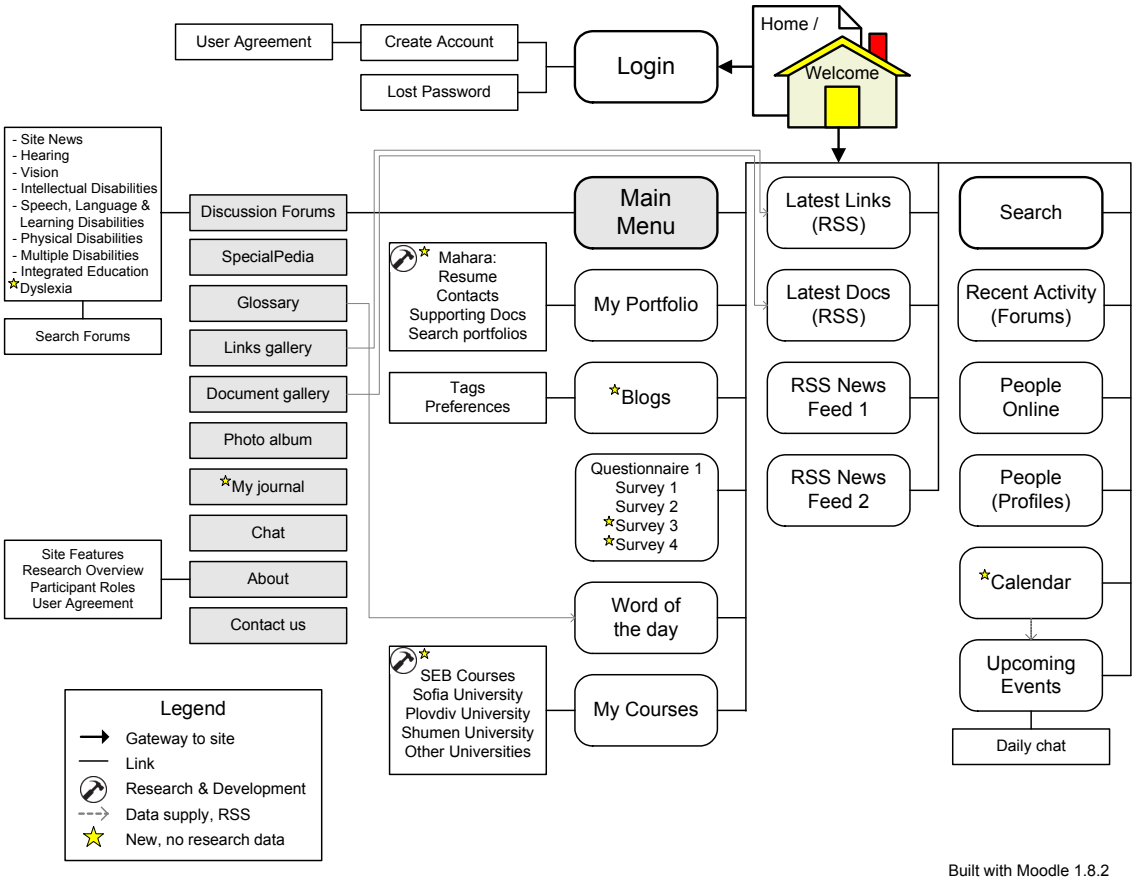

Figure 5-9. Final website map

5.4.2.1 Screenshots

The following screenshots exhibit the key features of the final website. Figure 5-10 shows the SEB home page. Figure 5-11 exhibits the discussion forums. The photo album and links gallery are shown in Figure 5-12. Figure 5-13 displays a participant profile on the left and searchable list of all participant profiles on the right. Figure 5-14 shows the feedback form and chat room on the left and SpecPedia on the right. Figure 5-15 exhibits the TENCompetence-SEB pilot course webpage on the left and Mahara e-portfolio interface on the right. The TENCompetence-SEB pilot course is further discussed in Sections 9.2.4.2, A focus on integration, on page 303 and 10.1.4, Phase 4: Impact evaluation, on page 323.

Please see print copy for figure 5.10

Figure 5-10. Final SEB home page

Please see print copy for figure 5.11

Figure 5-11. Discussion forum topics (left) and threaded discussion posts (right)

Please see print copy for figure 5.12

Figure 5-12. Photo album (left) and links gallery (right)

Please see print copy for figure 5.13

Figure 5-13. Participant profile (left) and participant profiles list (right)

Please see print copy for figure 5.14

Figure 5-14. Feedback form (upper left) and chat room (lower left)
Special education entry at http://bg.wikipedia.org (right)

Please see print copy for figure 5.15

Figure 5-15. TENC-SEB pilot course page (left) and Mahara e-portfolio interface (right)

5.5 Summary

This chapter explained the website development cycle and how it coincided with each phase of research. Screenshots of the prototype, alpha, beta, and final websites were presented along with a discussion of the features available with each version. Accessibility, usability, and sociability considerations were highlighted.

The following three chapters present the results of participant sampling and quantitative, qualitative, expert consultation, and usability data collected. The results are accompanied by analysis. A synthesis of all forms of collected data and conclusions drawn is presented in Chapter 9, Discussion.

Chapter

6

6. Participants and quantitative results

The presentation and analysis of results was divided into three chapters. This chapter, presents the results from participant sampling and all phases of quantitative data collection. Chapter 7 presents the results from qualitative data collection. Chapter 8 presents the results from expert consultations and usability evaluations and describes some of the challenges encountered while collecting interview data and solutions enacted. The conclusions drawn from all forms of collected data are presented in Chapter 9, Discussion.

The first section of this chapter presents an analysis of participant sampling results. It provides detailed background information about the *research participants* with comparisons made to *website participants*. Participant background data were collected using the Internet-use questionnaire and website participant registration profiles and by researcher observations. The remainder of the chapter exhibits results from quantitative data collected and provides analysis. Where possible, the analysis of quantitative results corroborates findings with references to the qualitative results presented in Chapter 7 and Chapter 8.

A summary of participants and quantitative data collected throughout all phases of research is provided in Tables 6-1 and 6-2. Table 6-1 shows the total number of participants as well as the number of participants by data collection method employed. It also exhibits the number of website participants grouped by website user activity level.

Table 6-1. Research and website participants, all phases (12/2005-12/2007)

Research participants		Website participants	
Interview, usability interview participants*	37	Users	189
Web-based questionnaire respondents	18	Repeat users	27
Email questionnaire respondents	17	Participants**	20
Expert reviewers	4	Moderators	6
Research participants (total)	**76**	**Website participants (total)**	**242*** **

* Includes Internet-use questionnaire, and post-interview questionnaire respondents.
** Participation level criteria are provided in Section 6.2.2.3, Active, peripheral, and repeat website users, on page 174.
*** Total registered users from 12/2005 to 12/2007. Does not include duplicate registrations. To date, there are more than 350 registered users.

Table 6-2 summarizes the quantitative data collected. It also lists the total number of questionnaire and survey respondents.

Table 6-2. Quantitative data collected, all phases (12/2005-12/2007)

Website log entries			
Just browsing, not logged in	50,200	Discussion forum views	22,700
Registered users, logged in	12,800	User logins	939
Web development log entries	20,500	Registrations	242
Raw website log entries (total)	**83,500**	Website posts	240*
Questionnaires, surveys (quantitative questions only)			
Web-based questionnaires		8	18
Email questionnaires		2	17
Post-interview questionnaires**		4	19
Internet-use questionnaires		14	21
Web-based surveys		2	66
Questionnaires, surveys, quantitative questions (total)		**30 questions**	**146returned*** **

* Includes posts to the discussion forums; anonymous feedback module; glossary; and documents, images, and links repositories.
** Questionnaire collected during interview sessions. Responses collected verbally.
*** All questionnaires and surveys returned. Questionnaires included both qualitative and quantitative questions.

6.1 Research and website participation

This section provides detailed information about the research and website participants. First, it discusses the results of participant sampling, and then it presents a number of charts that exhibit participant background and demographic data.

6.1.1 Sampling results

Every effort was made to ensure purposeful sampling by: (1) purposefully selecting a quota from each participant subgroup identified or (2) intensity sampling from a group of the most active website users as described in Section 4.2.1, Qualitative sampling, on page 62. Given the language and time constraints faced by conducting research in Bulgaria, however, some participants were sampled because they were available. In these cases, sampling was still purposeful because the participants were special education stakeholders from the target subgroups but did not help to fill quotas. The subgroups targeted for purposeful-quota sampling were defined by area of expertise and profession as shown in Figure 6-3.

At times, *opportunistic sampling* methods were also used—sampling that takes advantage of the unexpected (Miles & Huberman, 1994, p. 28). In one case, when arriving at a special school for students with vision impairments to interview a computer teacher, there was an opportunity to speak with the school's director. A spare copy of the interview protocol was used to take notes and the case was logged along with other collected data. A parent, active in the school's parents association was also present in the director's office. The parent was engaged in conversation, and this rare opportunity to speak with a parent was recorded. Prior to recording the conversation, both the director and parent were given an information packet and completed a consent form.

If participants were not available to sample from the subgroup targeted, Bulgarian special education stakeholders were chosen to participate for their availability and ability to speak English. For those with weaker skill with the English language, a translator was generally provided. In some cases, two subjects with less advanced English-speaking skill were interviewed in pairs.

Figure 6-1 presents the areas of expertise or study of research participants as recorded on the Internet-use questionnaire or verbally expressed to the researcher during interview sessions. The figure displays the same data as Table 6-3. The only difference is that Figure 6-1 excludes the four expert consultations and two ICT staff participants shown in Table 6-3 because they did not practice in the field of special education. The sampling results and method used to select each participant are detailed in Table 6-3.

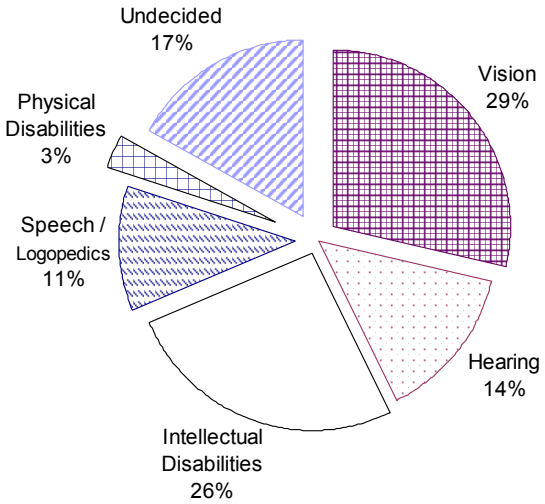

Figure 6-1. Research participant areas of expertise, interview subjects
N = 35

Table 6-3. Sampling methods and totals by participant area of expertise and profession
Sampling methods: Purposeful-Quota (P), Volunteer (V), Purposeful-Intensity (I)

Phase 1: Needs Assessment (02/2005-04/2006)								
Area of expertise / Sampling method (P, C, V)		University researchers, lecturers	Special school practitioners	NGO practitioners / specialists	Students	Parents	Policy makers	
Vision	P	2	2		1	1		**6**
Hearing	P	1	2	1***				**3**
Speech, language, and learning disabilities**	P	1						**2**
Intellectual disabilities	P	1	1					**2**
								13
Phase 2: Formative Evaluation (04/2006-03/2007)								
Vision	P	1			1			**2**
Hearing	P	1						**1**
Speech, language, and learning disabilities**	P	1						**1**
Intellectual disabilities	P		4		1			**5**
Physical disabilities	P		1					**1**
General	P				4		1	**5**
Expert consultations, ICT staff****	P	3			1			**4**
Web-based questionnaires	V							**7**
								26
Phase 3: Effectiveness Evaluation (03/2007-04/2008)								
Vision	PI		1		1			**2**
Hearing	I			2***				**2**
Speech, language, and learning disabilities**	I							
Intellectual disabilities	P		1		1			**2**
General	P	1						**1**
Expert consultations, TENC staff****	P	1			1			**2**
Web-based and email questionnaires	V							**28**
								37

* The purposeful-quota, volunteer, and purposeful-Intensity sampling methods are defined in Section 4.2, Participant selection, on page 62.
** In Bulgaria, the practice of speech and language generally encompasses learning disabilities. The combination of these two distinct areas of special education is currently a topic of heated debate among Bulgarian speech and language professionals (refer to Section 7.2.1, Special education themes, on page 197 for further information).
*** The hearing and speech and language categories were combined because the practitioners interviewed practiced in both areas.
**** Experts with Moodle, graphic design, and CoPs were consulted. Information communication technologies (ICT) and TENCompetence support staff were consulted regarding website design and hosting at Sofia University.

6.1.1.1 Interview locations

Figure 6-2 shows the locations where interviews took place. In total, five cities were visited to conduct interviews: Sofia, Vratsa, Blagoevgrad, Pazardjik, and Shumen (refer to the map of Bulgaria in Figure 6-3). Sofia has a population of approximately 1.1 million; Vratsa 77,000; Blagoevgrad 73,000; Pazardjik 83,000; and Shumen 96,000 (Columbia Electronic Encyclopedia, 1993).

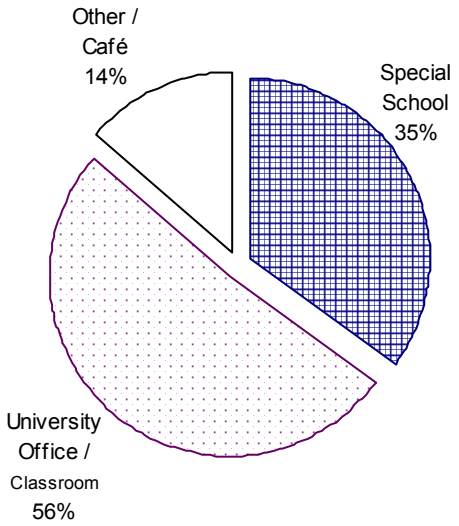

Figure 6-2. Interview locations
N = 37

The majority of interviews took place at Sofia University. Two interviews were also conducted at Southwestern University in Blagoevgrad. Interviews and tours were conducted at a school for children with vision impairments, school for children with hearing impairments, and school for children with intellectual disabilities in Sofia; a school for children with intellectual disabilities in Vratsa; and a school for children the intellectual disabilities in Pazardjik.

6.1.1.2 Participant background and demographic information

Figures 6-3 and 6-4 exhibit the locations of research participant residences in comparison to website participants. Figure 6-3 indicates that research participants were sampled from all of the major cities in Bulgaria, which include Sofia 1.1 million; Plovdiv, 345,000; Varna, 307,000; and Burgas, 198,500 (Columbia Electronic Encyclopedia, 1993). Participants were also sampled from many of the smaller cities and towns including Botevgrad, 24,000; Harmanli, 22,000; Novi Pazar, 16,500; and Kotel, 7,200 (Wikipe-

dia, 2008). Most website users participated from the larger cities but others came from towns as small and remote as Popovo, 20,200; and Kubrat, 11,200 (Wikipedia, 2008).

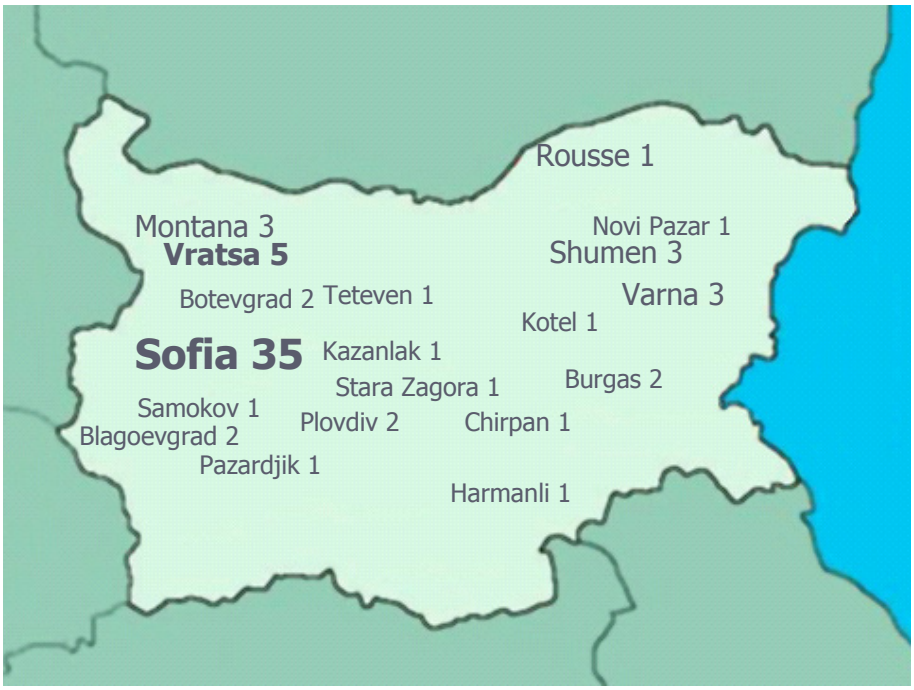

Figure 6-3. Research participants by location
67 of 76 research participants listed

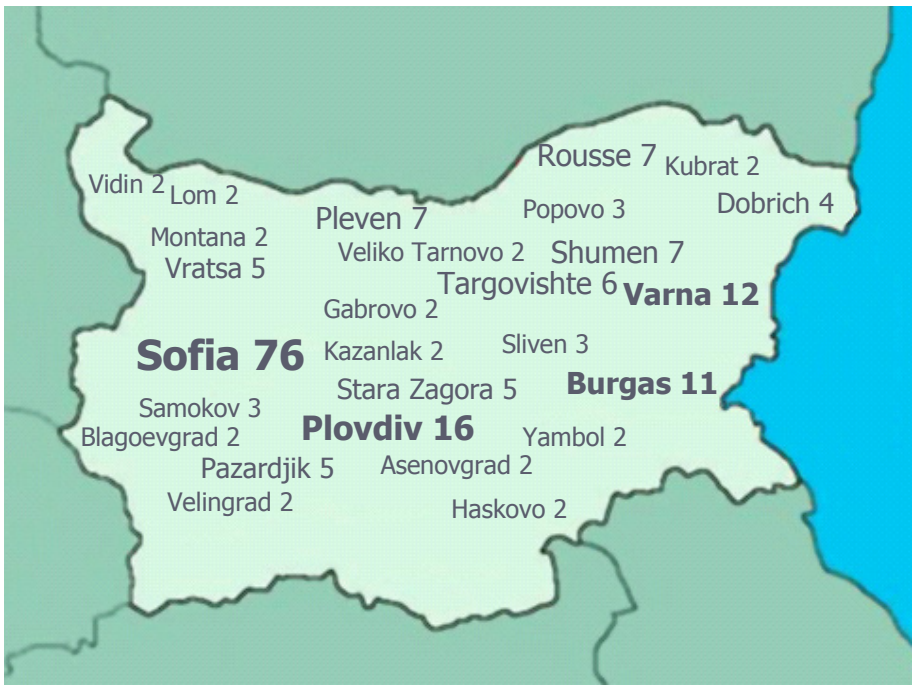

Figure 6-4. Website participants by location
200 of 242 website participants listed

Figures 6-5 and 6-6 compare the genders of research and website participants. There were 58 female research participants and 10 male. There were approximately 205 female website participants and 37 male. The gender of website participants was inferred from the participant name and, if available, their photo avatar. Unlike English names, Bulgarian first and last names clearly identify a person's gender. A woman's last name ends with the letter 'a' and their first name seldom, if ever, can be confused with a male's first name. For example, a Bulgarian man's name might be Vladimir Ivanov while his wife's name might be Gergana Ivanova. If she chose to keep her maiden name as well, her name might read Gergana Todorova-Ivanova.

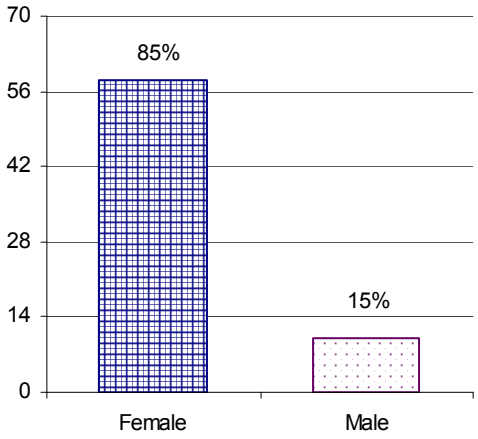

Figure 6-5. Research participant gender
N = 68

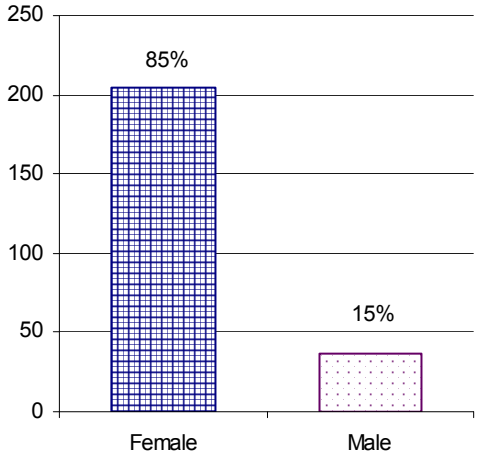

Figure 6-6. Website participant gender
N = 242

Figures 6-7 and 6-8 exhibit the professions and ages of research participants. The figures show that the majority of participants were practitioners, lecturers, and students in the field of special education between the ages of 17 and 40. The NGO employees interviewed can also be considered practitioners as they all had experience working at special schools.

Figures 6-9 to 6-17 present the results of the Internet-use questionnaire. The questionnaire was necessary to address research Goal 3: to report on the feasibility of developing an online community and providing online professional development opportunities.

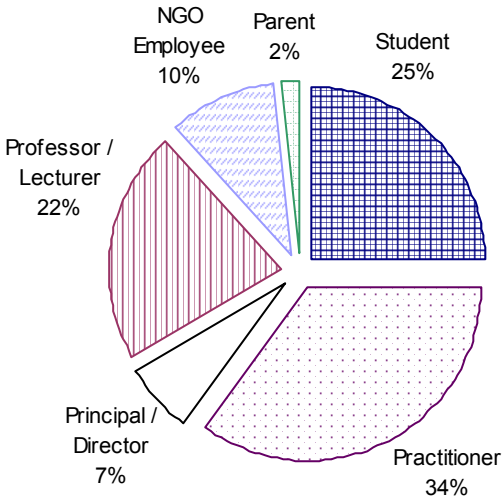

Figure 6-7. Research participant professions
N = 56

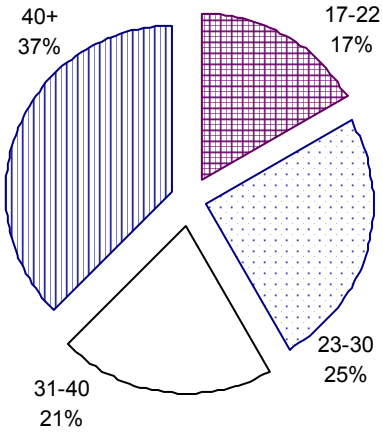

Figure 6-8. Research participant age groups
N = 48

Figure 6-9 shows the approximate skill level that research participants had using the Internet. Participants were asked to rank their level of skill with using the Internet on a scale of 1 to 10. Results were then grouped according to four skill levels: 1 to 4 = poor, 6 to 5 = average, 7 to 8 = above average, and 9 to 10 = strong. It is important to note that Figure 6-9 reflects both self-reported participant skill levels as well as researcher observation of participant skill during interview sessions. Based on researcher observations, some participant responses where adjusted. Email questionnaire responses to the Internet-skill question are also reflected in Figure 6-9.

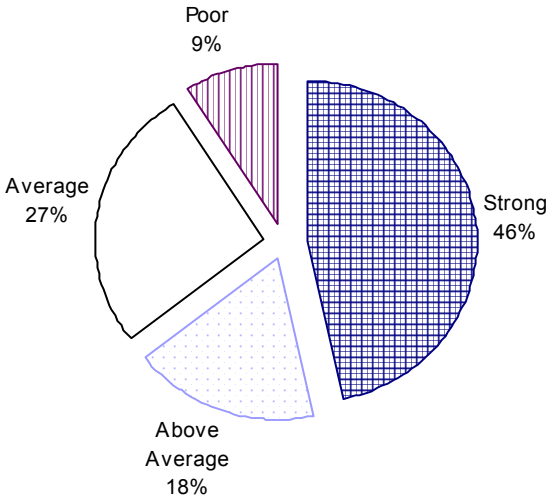

Figure 6-9. Research participant Internet skill
N = 45

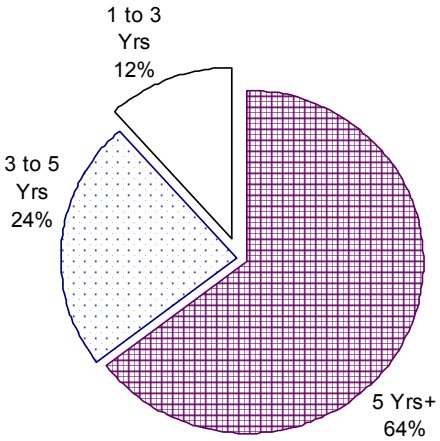

Figure 6-10. Research participant Internet experience
N = 17

Figures 6-10 and 6-11 show that the majority of research participants had at least three years of experience using the Internet and that they used it one or more hours per day. Most of the participants accessed the Internet from home, which indicates that Internet access is affordable (see Figure 6-12). It can be inferred from Figures 6-9 to 6-12 that there are enough Bulgarian special educators with the Internet skills and access necessary to participate in the SEB community.

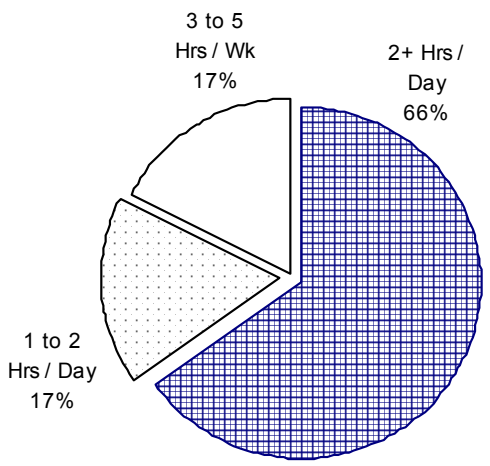

Figure 6-11. Hours research participants spend using the Internet per week / day
N = 23

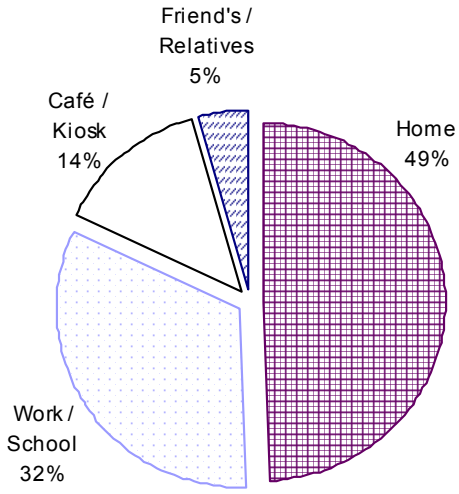

Figure 6-12. Where research participants use the Internet
N = 23

Figure 6-13 indicates that research participants spend 70% of their Internet time using email and searching. This finding is similar those found in a study on how professionals in rural Australia use the Internet (Herrington & Herrington, 2005). It can be inferred that website participants received the automatically generated emails about SEB discussion forum postings but that they may not login to the site as a consequence of receiving the emails. One SEB moderator reported that it was too much effort to login to the website after receiving forum emails. The moderator would have preferred to reply to postings directly from the email. This finding is further discussed in the section titled, Moderators, on page 178.

Regarding Figures 6-14, 6-15, and 6-17, it is interesting to know which instant messaging and email providers that research participants use as well as some of the websites that they frequent, but during analysis, it was found that these data were of no immediate value to the SEB study. It is provided here for possible use by future research. It is also provided to further demonstrate the range of participant information collected. Figure 6-16, however, indicates that the majority of website users were most likely to use

Internet Explorer to access the SEB website. For this reason, the site was designed to work in Internet Explorer. The site was then adjusted as needed to function properly in Firefox and other browsers. It can also be noted that abv is the largest email provider in Bulgaria and the chat program ICQ is closely tied to the abv.bg website (Figures 6-14, 6-15, and 6-17). In addition, it was observed that participant registrations during usability sessions conducted in Bulgaria completed as much as 10 minutes faster when Bulgarian email providers were used instead of Gmail or Yahoo.

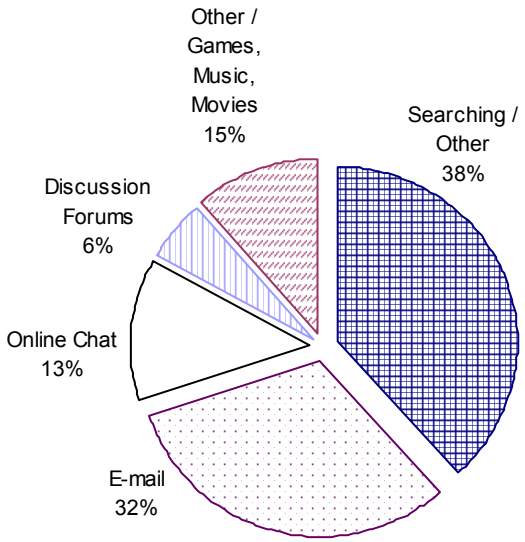

Figure 6-13. What research participants do on the Internet
N = 21

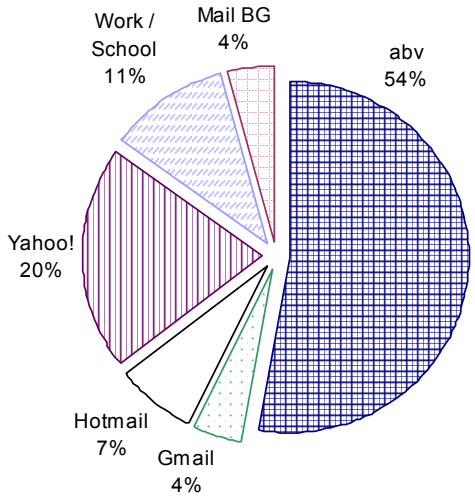

Figure 6-14. Research participant email providers
N = 28

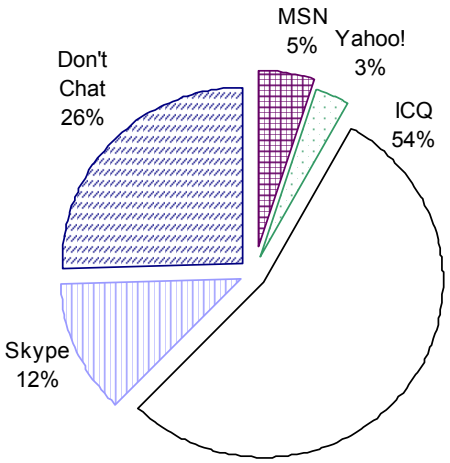

Figure 6-15. Research participant instant messaging providers
N = 21

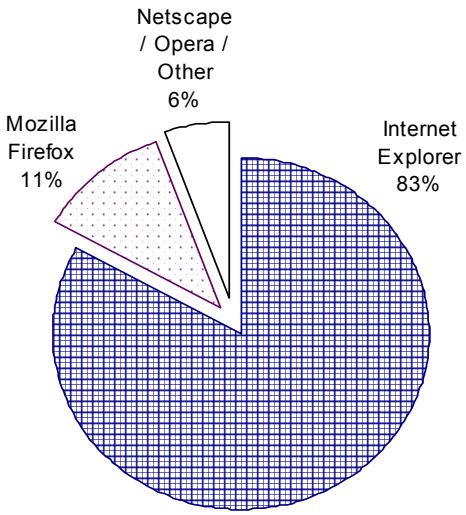

Figure 6-16. Browsers used by research participants
N = 23

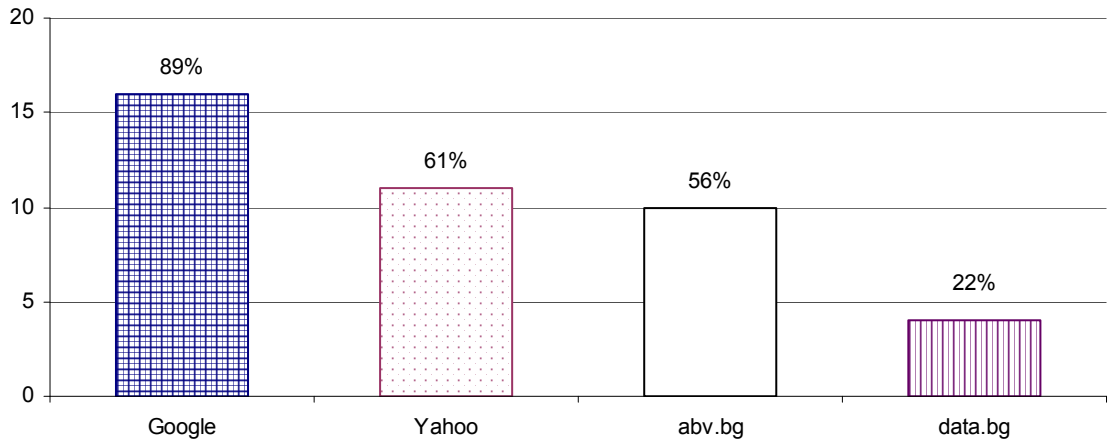

Figure 6-17. Website's most visited by research participants
N = 18

6.1.1.3 Representativeness of sampling

Though it was not possible to interview an equal number of participants from each of the main professional areas of the Bulgarian special education system (see Figure 6-1 and Table 6-3), it is argued that sampling was sufficient for the scope of this exploratory mixed-methods study. For one, representative sampling was not required to validate the quantitative results. The majority of quantitative data collected came from website logs. Since research-related activity, including website development, could be purged from the data (see Section 6.2.2.1) the extent to which the log files were biased by the research project was minimal.

For the qualitative results, participant sampling was adequate. Participants from each of the major areas of the practice of special education in Bulgaria were included in the study (Table 6-3 and Figure 6-1). Most interview sessions took place at the subject's place of work rather than in a laboratory or off-site location (Figure 6-2). Interviews were conducted in cities in addition to Sofia (see Section 6.1.1.1). Representativeness is indicated by the location where research participants live with respect to the location where website participants live (Figures 6-3 and 6-4). The ratio of female to male research participants was a very close match to the website participant ratio (Figures 6-5 and 6-6).

Moreover, Figures 6-7 and 6-8 indicate that there was an equal number of special education practitioners, university-level educators, and university students sampled across a nearly equal spread of age groups. When the practitioner, principal, and NGO employee groups are combined, the ratio is 51% practitioner to 47% university. There was a relatively low number of parents involved, however, and this group should be targeted by future research.

For all of the reasons noted, participant sampling results were more than sufficient for an exploratory study with the limitations noted in Section 4.6, Limitations, on page 96. Most importantly, the results provided enough detail to address the research questions and guide future research.

6.1.2 Research participant computer hardware and Internet access

Figures 6-18 to 6-25 exhibit the results of Internet-use questionnaire data that were collected to gauge the quality of research participant computer hardware and Internet access. There were a relatively low number of respondents to some questions because there was not enough time to gather a full set of data during interview sessions. This discussion is necessary to address research Goal 3.

Figures 6-18 and 6-19 indicate that most computers used by research participants or in the computer labs at special schools were less than three years old and were running Windows XP. The computers had fast processors and plenty of RAM to power Internet browsers (see Figures 6-20 and 6-21).

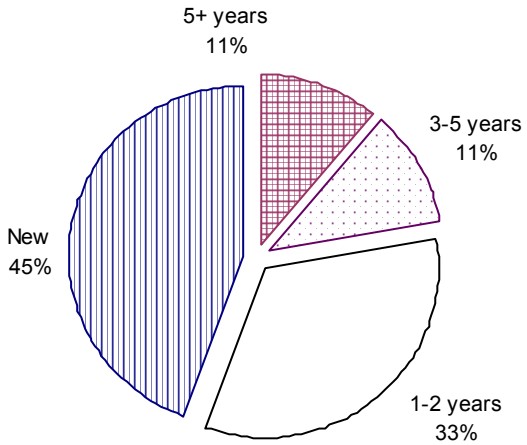

Figure 6-18. Age of research participant computers
N = 9

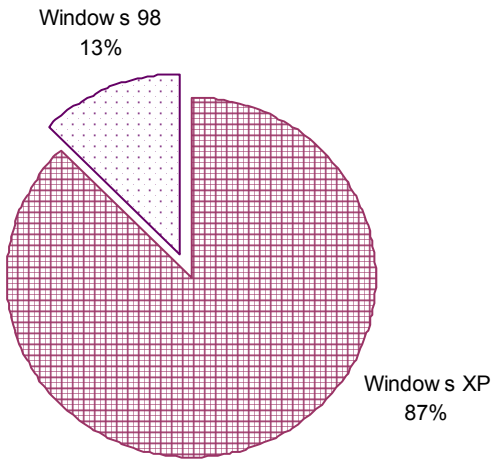

Figure 6-19. Operating system installed on research participant computers
N = 8

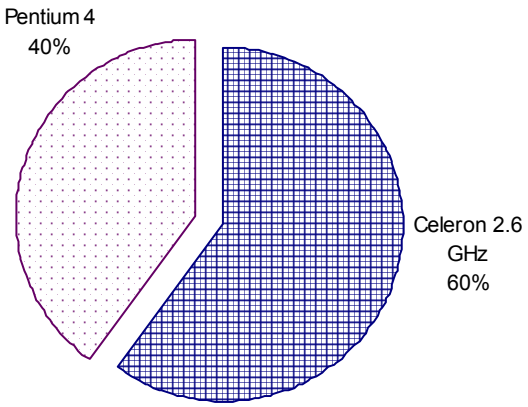

Figure 6-20. Processor type in research participant computers
N = 5

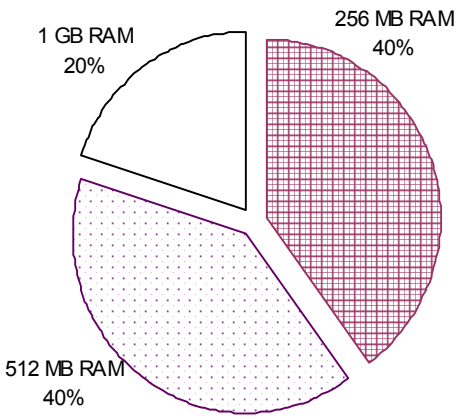

Figure 6-21. Amount of RAM in research participant computers
N = 5

NOTE: In Figures 6-18 through 6-23, the results from individual participants were grouped with those from the computer labs in the special schools visited.

Figures 6-22 and 6-23 indicate that most participant computers had hard drives larger than 20MB and broadband Internet connections. In addition, Figures 6-24 and 6-25 show that they were happy with Internet download speeds and reliability.

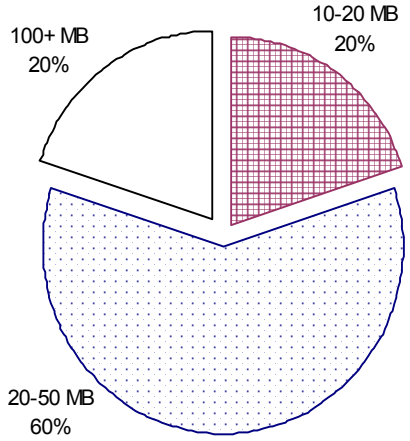

Figure 6-22. Hard drive size in research participant computers
N = 5

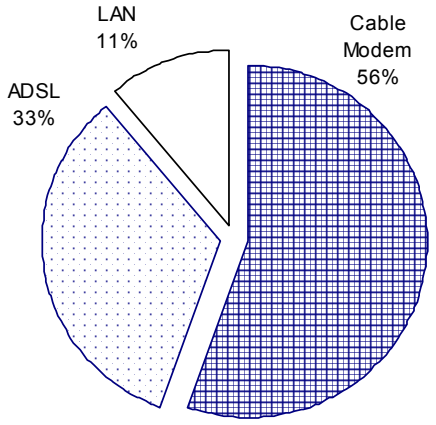

Figure 6-23. Connection type for research participant Internet access
N = 9

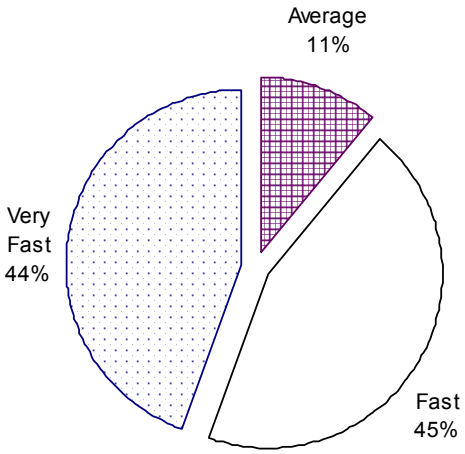

Figure 6-24. Speed of research participant Internet access
N = 9

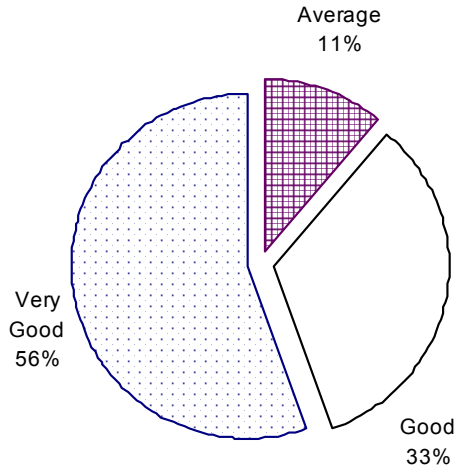

Figure 6-25. Reliability of research participant Internet access
N = 9

In 2005, during the needs assessment, Phase 1, the five computer labs visited at special schools had new computers. One lab had just received its computers and was scheduled for Internet access later that week. The labs had approximately 10 computers each for use by 100 to 200 or more students. Labs in general schools were reported to be

larger with, for example, 20 to 30 computers for 150 to 250 or more students. The teachers at public schools were reported to share computers among three or more teachers.

Research participants reported that all schools in Sofia and many of the other large cities in Bulgaria had been outfitted with new computer labs since 2004. This was the case in all special schools as well. The computers found in the special schools were very impressive with large, flat-screen monitors, 40GB hard drives, Windows XP Professional operating systems, Intel Celeron 2.6 GHz processors, and broadband Internet access. Computer center operators at Sofia University explained that the drive to meet EU entrance standards by 2007 coupled with support from the United Nations had led to similar computer installations in all schools across the country. In addition, there were a number of small and large-scale Internet providers available in Bulgaria. PowerNet, Atlatis, Sillinet, MegaLAN, Evrocomkabel, and TVVratsa were just a few of the providers currently in use by research participants.

Researcher observations regarding computer access

Data collected from the Internet Society Bulgaria late 2004 indicated that the average computer at K-12 institutions with Internet access in Bulgaria had a Pentium II 433 MHz processor, 64 MB of RAM, and 33.6K dial-up modem and runs Windows 98 (see Section 5.2.1, Prototype site features, on page 104). While in Bulgaria in 2005 for the needs assessment, Phase 1, it was found that the allotment of new computers had just begun to be distributed with funds from international businesses and organizations including Microsoft and UNESCO (United Nations Educational, Scientific, and Cultural Organization). The computers found, which are described in Figures 6-18 to 6-25, were much more advanced than those specified by the Internet Society Bulgaria only one year prior to the visit.

During the researcher's third trip to Bulgaria in 2007, Internet access in Sofia was found to be faster, easier to establish, and less expensive than in Australia and the United States. Within 10 hours of requesting service, the researcher had broadband Internet, without the need to purchase a modem or special equipment, that provided speeds from 3 to 12 megabytes per second. Actual speeds averaged about 3.5 MB/s. The cost was 24 Bulgarian Leva (12 Euros) per month, and no contract or setup fee was required. These observations provide further evidence that the Internet is accessible to special education

stakeholders in Bulgaria. Qualitative findings regarding computer and Internet access are discussed in Section 7.2.3 on page 230.

Main finding regarding Internet access

Figures 6-9 to 6-25 and researcher observations regarding computer access exhibit where research participants use the Internet, how well they use it, and how much they use it. It is unclear how accurately these results can be generalized to the entire group of SEB website users, but it can be inferred that users, on the whole, have adequate Internet access and skill to participate in the SEB community.

6.2 Quantitative questionnaires and website logs

Quantitative data were gathered using the following research instruments: Internet-use questionnaire, web-based questionnaire, web-based surveys, email questionnaire, post-test questionnaire, and website logs. The Internet-use questionnaire was used to gather research participant background and demographic data. These results are reported in the previous section, 6.1. Results from the remaining instruments are exhibited in this section and are accompanied by analysis.

6.2.1 Questionnaires and surveys

The web-based questionnaire included ten questions. The results of the questionnaire are presented in the following charts. The results of the short-answer questions were analyzed along with the other qualitative data as explained in Chapter 7. The complete questionnaire instrument is provided in Appendix B. The data discussed in this section relates to research Goal 4: to develop and evaluate a community website for special education stakeholders in Bulgaria.

Results from web-based questionnaire question five, which asked how any times per week website participants visited SEB, indicated that on average, website participants visited the website two times per week. This data was not possible to collect from website logs because the logs could only track the number of times that participants logged into the site. They could not accurately track how many times participants visited the site without logging in.

Figure 6-26 exhibits how website participants reported that they found SEB. It indicates that most respondents found SEB using an Internet search engine. This was not surprising, especially since the term 'special education Bulgaria,' in both English and Cyrillic characters, results in the SEB website as the number one search return on Google. Though only 11% of respondents reported that they found the site because of the letter drafted by the Ministry of Education in 2006 to announce the site (see Figure 6-26), a peak in new registrations is clearly visible in Figure 6-50 when the letter was sent. In addition, it is likely that some of the 17% referred to SEB by a colleague may indirectly have found the site because of the letter.

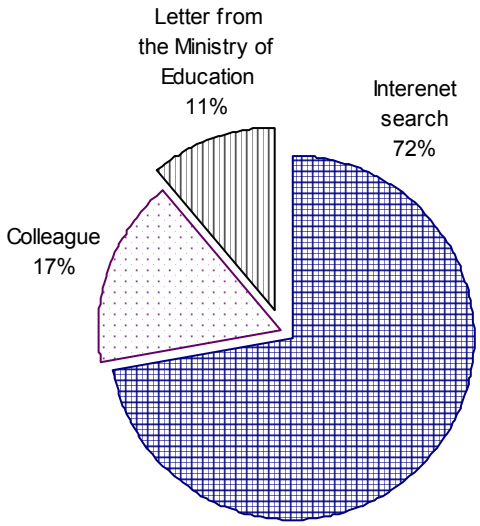

Figure 6-26. How website participants discovered SEB
N = 18

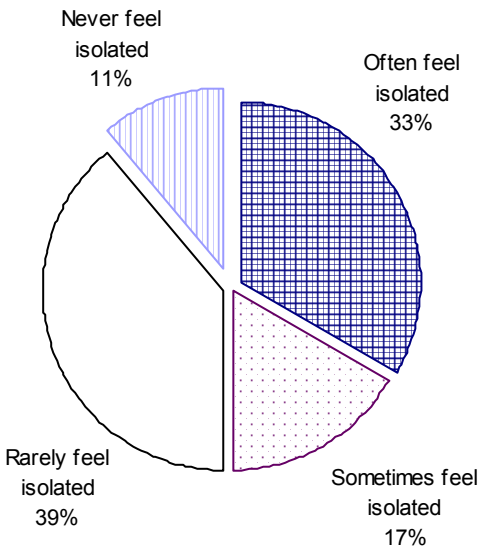

Figure 6-27. Level of isolation felt by website participants at work
N = 18

Figure 6-27 shows to what extent website participants reported that they feel isolated at work. This question was asked because one of the research Goal 2 was to determine if special education stakeholders in Bulgaria needed an online community. It was thought that stakeholders that felt isolated might find SEB to be a useful resource for making professional contacts. The subsequent short-answer question on the questionnaire asked respondents why they did or did not feel isolated. These responses are discussed with the other qualitative data presented in Section 7.3.1, Need for SEB and feasibility to establish, on page 236.

Figure 6-28 displays the percentage of website participants that knew they could upload documents to the SEB website. Figure 6-29 displays the percentage of participants that knew they could add words to the glossary. These questions were asked, in part, to

inform participants that it is possible to upload documents and add glossary terms. It seems, on the whole, participants did not know that they could upload content to areas other than the discussion forums. If a future version of the website is created, it might be beneficial to make those areas of the website more apparent. One idea is to post a getting started guide that would explain these website features. Another idea is to put more detail about the various content and file repositories on the home page. There is room below the photo in the center of the home page (see Figure 5-10, on page 132).

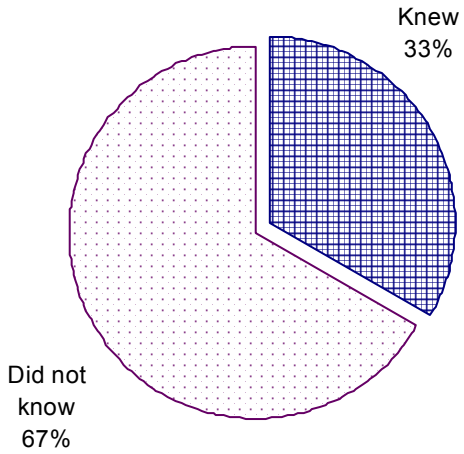

Figure 6-28. Website participants that knew they could upload documents to SEB
N = 18

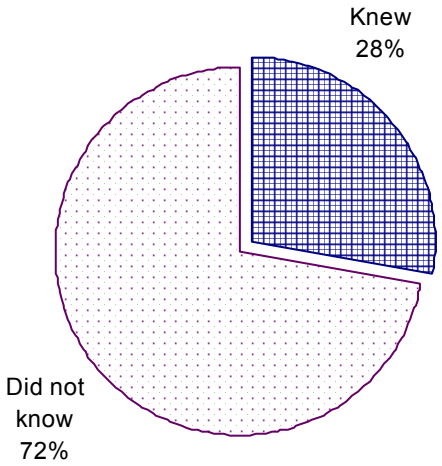

Figure 6-29. Website participants that knew they could add to the glossary on SEB
N = 18

Figure 6-30 exhibits the features of SEB in which website participants reported they were most interested. These results can be compared with the website log results shown in Figures 6-46 and 6-47 on page 173. According to the web-based questionnaire, the links gallery and discussion forums are of most value to website participants and the document gallery was a close third. These are followed by the glossary and online seminars and courses.

According to the website logs displayed in Figure 6-46, the forums and glossary were by far the most popular website features in terms of total page views. The links gallery rated third most popular and the document gallery fourth most popular. By total postings (see Figure 6-47), the forums again scored highest and the glossary fourth highest.

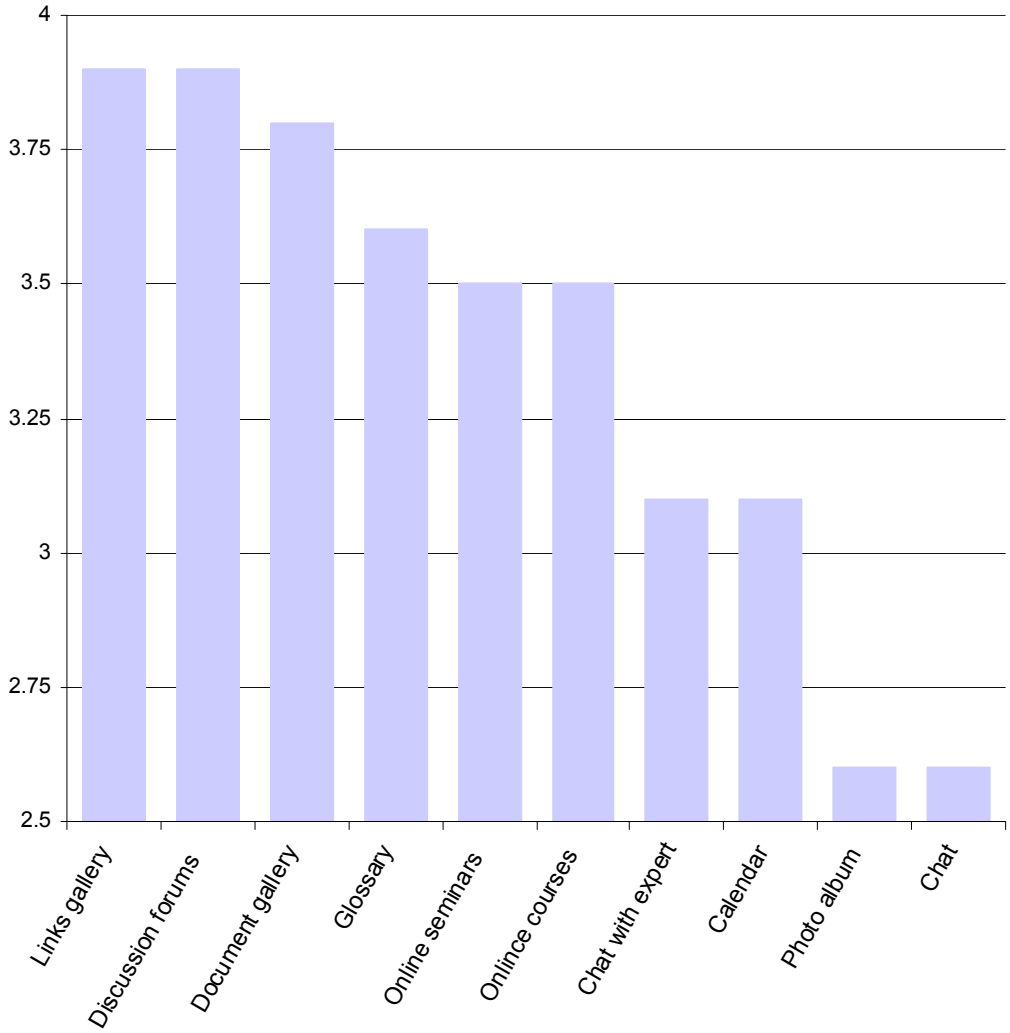

Figure 6-30. Best SEB features according to web-based questionnaire respondents
N = 18

From these results it can clearly be inferred that the discussion forums were the most widely used and valued SEB resource. It was surprising, however, to see how many participants valued the glossary. Qualitative results also supported this finding with two interview participants expressly noting that they thought it was a useful feature (see Figure 7-6, on page 219). It may be that the Bulgarian special education system is in need of a standard glossary for special education. It may also be an indicator that the system is in need of more special-educator training resources in Bulgarian. Many of the teacher-training resources at Sofia University, for example, are only available in English. Of the 24 books and teaching materials regarding visual impairments that were shown to the researcher, ones that were most used for teaching, only seven of them were Bulgarian or translated into Bulgarian. In addition, the percentage of English materials is much higher than Bulgarian materials in Sofia University's visual impairments resources library.

Hence, the ability to read English is very important for post-graduate studies in special education.

The links and documents gallery—termed Internet resources and library, respectively, on the prototype website—were also valued by participants (see Figures 6-30 and 6-46), but the total number of postings to these repositories was very low (see Figure 6-47). This may indicate that the user interfaces were poorly designed or that participants did not see the immediate personal benefit of taking the time to post links and documents to these modules. The fact that the document gallery was less popular than the links gallery in terms of posts and page views may be an indicator that there are not many Bulgarian special education documents in electronic form available to be posted.

The photo album was one of the least valued site features according to the web-based questionnaire (see Figure 6-30), but it attracted a significant number of posts in comparison to the links and document gallery (see Figure 6-47). The number of posts is even more significant given that the photo album was first made available in early 2007 and the other two galleries had been available since 2005. It may be inferred that though, professionally, the photo album was of little value, some website participants were very proud of their students and schools and eager to share photos of them.

Figures 6-31 and 6-32 display results of the two web-based surveys posted at SEB: website participant main area of interest and secondary area of interest. Website participant interests spanned the practice of special education in Bulgaria but with the greatest number of responses in the areas of intellectual disabilities and speech and language. This may be an indicator that the Bulgarian special education system, as a whole, has more practitioners and university students in these areas.

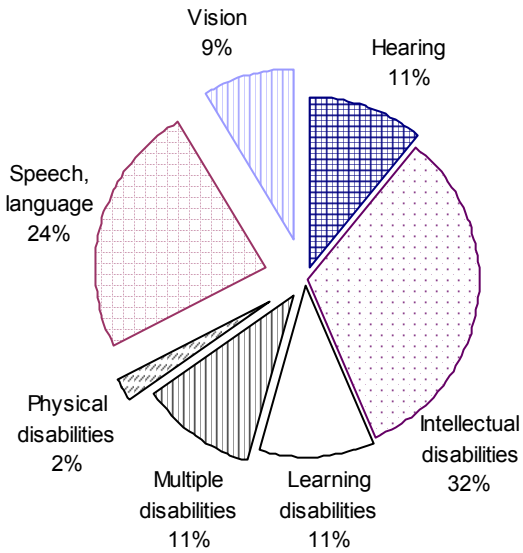

Figure 6-31. Website participant primary areas of interest in the special education field
N = 46

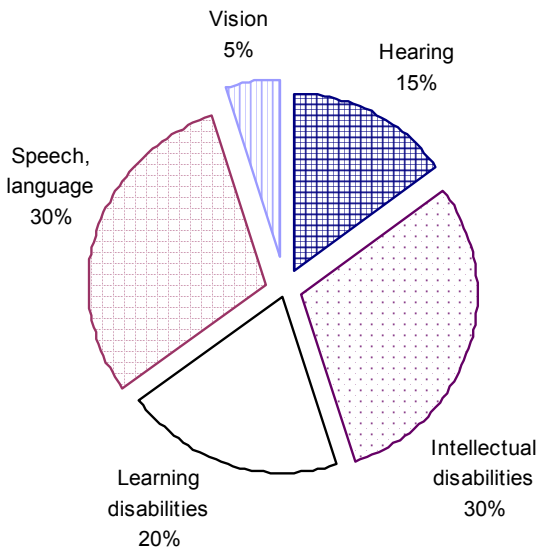

Figure 6-32. Website participant secondary areas of interest in the special education field
N = 20

NOTE: Integrated education was not an option listed in the surveys. Additional survey questions including "What is your professional or academic role in the special education field?" and "Are you the parent of a special needs student?" were posted to SEB too recently for results to be included in this thesis.

It is interesting to note the relatively high percentage of respondents interested in learning disabilities. This may be a result of the Bulgarian education system's organization of learning disabilities into the speech and language field (see Section 7.2.1, Speech and language / logopedics, on page 206). It may also indicate that there is a growing interest in learning disabilities because of their position of relatively low importance in the Bulgarian system in comparison to the EU. In addition, interest in multiple disabilities was relatively high. This may be an indicator that special educators are being faced with a greater number of students with more severe impairments due to increased integration, but more research is required to support this finding.

Results from the web-based and email questionnaires regarding respondent areas of interest in the field of special education were similar to the web-based survey results

shown in Figures 6-31 and 6-32. In addition to the survey responses, however, a small percentage of web-based and email questionnaire respondents expressed interest in the study and treatment of dyslexia. Questionnaire results also indicated that, in comparison to Figures 6-31 and 6-32, an even greater ratio of speech and language practitioners to the other professions may be present in Bulgaria.

The results of an email questionnaire question that asked respondents to what extent they felt like members of a community through participation with SEB are displayed in Figure 6-33. Results indicate that about half of website participants felt like a member of a community after registering and participating with SEB. It would be interesting to determine, with future research, to what level these respondents participated according to the criteria presented in Section 6.2.2.3, Active, peripheral, and repeat website users.

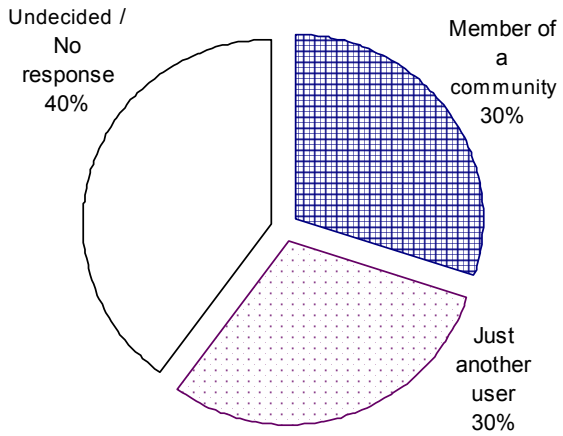

Figure 6-33. SEB members that feel like members of a community
N = 10

It is important to note regarding Figure 6-33 that none of the ten respondents met the researcher. This limited the impact of the *researcher effects* bias described by Miles and Huberman (1994, p. 265). For comparison, three additional subjects were asked the same question during interview sessions. All three reported that they strongly felt like members of a community. Though the sample size is very low, this may be an indicator of the researcher effects bias or may indicate that the act of meeting the researcher increased their feeling of belonging to a community. This finding requires further research for clarification.

Figures 6-34, 6-35, 6-36 and 6-37 exhibit the results of quantitative data collected during post-interview questionnaire sessions that were conducted after personal and usability interviews. The questions were asked verbally, and hence, responses were influenced to some extent by the researcher effects bias.

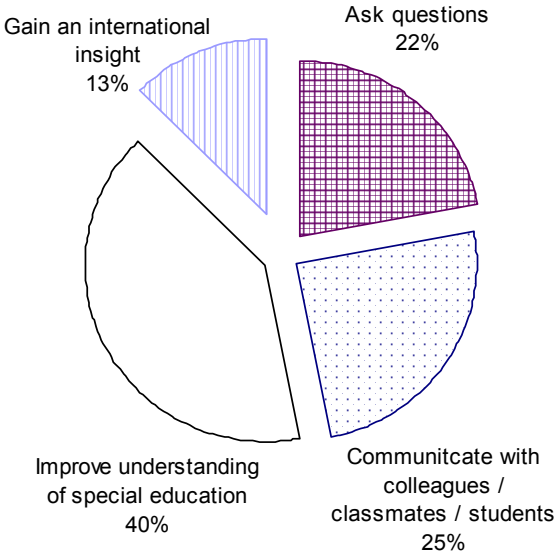

Figure 6-34. Why research participants would access the SEB community
N = 14

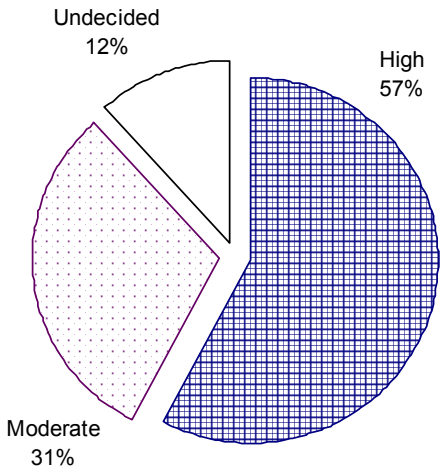

Figure 6-35. Interest level of research participants in the SEB community
N = 26

Regardless of possible bias, it is worth noting that a number of post-interview respondents reported that they would access SEB to 'gain an international insight' (see Figure 6-34). This was also a qualitative finding, with the 'international special education' code being applied 17 times to qualitative data units (see Section 7.2.1, Special education themes, on page 197).

Accounting for bias, it may be interpreted that 'undecided' and 'moderate' interest in SEB (see Figure 6-35) as well as 'maybe' and 'likely' to use responses (see Figure 6-36) could be translated into 'low interest' and 'will not use' responses. In fact, results indicate that research participants who met the researcher were not more likely to become active website participants.

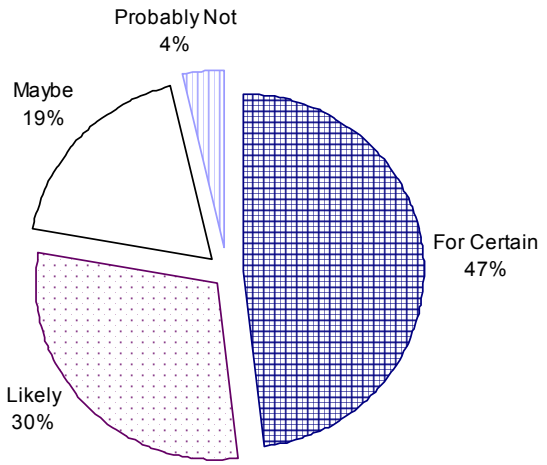

Figure 6-36. Research participants that reported they would use SEB in the future
N = 27

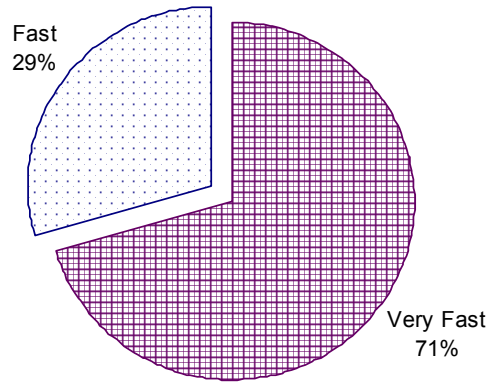

Figure 6-37. Speed of SEB website as reported by research participants
N = 17

Of the *core group* of 18 website participants, only three began as research participants (see Table 6-4, on page 175). Where the core group made up about 7.4% of the total 242 website participants from 2005 to 2007, the three research participants in the core group made up about 8.1% of the 37 participants interviewed. Hence, accounting for error, research participants who met with the researcher did not appear to be significantly more or less likely to become active website participants.

The assumption made in the previous paragraph is that interview participants got along well with the researcher and that interview sessions were mutually rewarding. Based on researcher observations, it can be noted that though all interviews did not return the same amount of useful data, all sessions were cordial and the subjects appeared to be interested and happy to participate. Hence, it was hypothesized that interview subjects might be more likely to participate with SEB than users that did not meet the researcher, but this does not appear to be the case. Nonetheless, there are other variables involved, including the fact that three of the interview participants were fully or partially blind. Further research is needed to substantiate this finding.

6.2.2 Website logs

Log data were collected automatically by Moodle as described in Section 4.4.6, Website log data, on page 89. The next section describes the steps taken to prepare the log data for analysis. The subsequent sections present the data in a series of charts along with description and analysis. The data discussed in these sections relates to research Goals 4 and 5: to develop and evaluate a community website; and evaluate the effectiveness of the

online community in terms of existing theoretical and design principles for Internet-facilitated CoPs.

6.2.2.1 Website log preprocessing, data display, and analysis

Website log data were exported from Moodle to a Microsoft Access database where it could be sorted by time, IP address, and username (see Figure 4-7, on page 90). It could also be sorted by action or a column that listed information describing the action. For example, the action recorded might have been 'forum add post' and the information recorded would have described to which forum a post was added, for example, the 'visual impairments forum.' Another example of an action might have been 'user login,' and the information recorded would have described which user logged in. Microsoft Excel was used for descriptive statistical analysis of smaller groups of data sorted out from the Access database.[1]

The data mining procedure followed was derived chiefly from an article by Srivastava, Cooley, Deshpande, and Tan (2000). Their procedures were substantiated by Thuraisingham (2003) and Markellou, Rigou, and Sirmakessis (2005). Figure 6-38 illustrates the three steps of website log data analysis followed. During step 1, the data were *preprocessed*. Irrelevant data log entries were sorted out and purged from the database. The types of logs purged, 20,300 in total, included:

- Login errors
- Forum mail errors
- Admin or research partner activity / website development activity

The majority of logs entries purged related to website development activity. These were easily identified by sorting the log entries by username. Research participant usability session logs were not purged from the data because they were few comparison to the total number of entries collected over two years. In addition, participants were not asked to perform any tasks out of the ordinary. Site registration and free exploration activities accounted for the majority of website access time during sessions.

Preprocessing left approximately 63,000 data logs. During step 2, *pattern discovery*, the remaining 63,000 logs were sorted into two separate Excel spreadsheets: activity

1. Excel 2003 was not designed to support more than 65,000 lines of data, but there were more than 80,000 SEB log entries. For this reason, Microsoft Access was required.

by users not logged in and logged-in user activity. These were further sorted as shown in Figure 6-38. Through the process of sorting and grouping data, patterns began to emerge that could be illustrated with descriptive statistics.

Please see print copy for figure 6.38

Figure 6-38. Stages of website log processing and analysis
Adapted from "High level web usage mining process" (Srivastava et al., 2000, p. 15), "Steps to mining" (Thuraisingham, 2003, p. 155), and "Phases of web usage mining" (Markellou et al., 2005, pp. 32-34)

During stage three, *data display and analysis*, data were sorted out for analysis with descriptive statistics. Some of the data used for analysis included:

- All website activity by month (63,000 log entries)
- Activity by users not logged in (50,200)
- Activity by users logged in (12,800)

- Discussion forum activity by users not logged in (11,000)
- Discussion forum activity by users logged in (3,900 entries)
- Discussion forum posts by month (159 entries)
- Logins by month (939 entries)
- New registrations by month (242 entries)

6.2.2.2 Posts to discussion forums and site repositories

There were a total of 159 posts under 32 threaded topics to the discussion forums with approximately 22,700 page views. Figures 6-39 and 6-40 exhibit the most popular discussion forums by page views and total postings, respectively. Theses results relate to Goals 1 and 7 of the SEB study: to document the practice of special education in Bulgaria; and to define paths for future research.

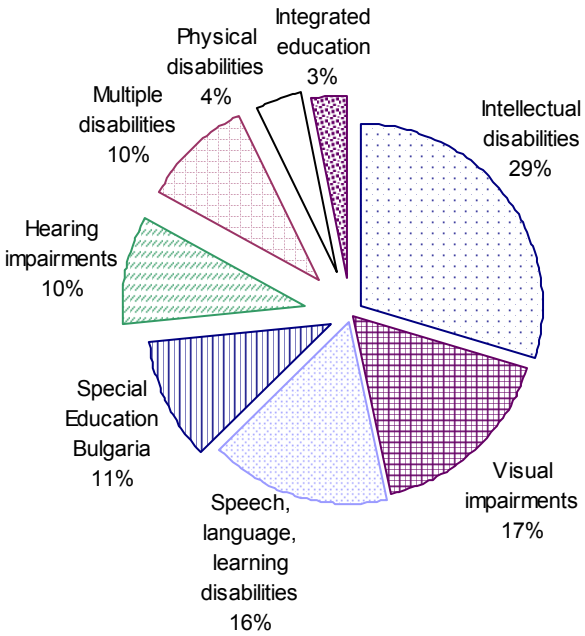

Figure 6-39. Most popular discussion forums by total page views

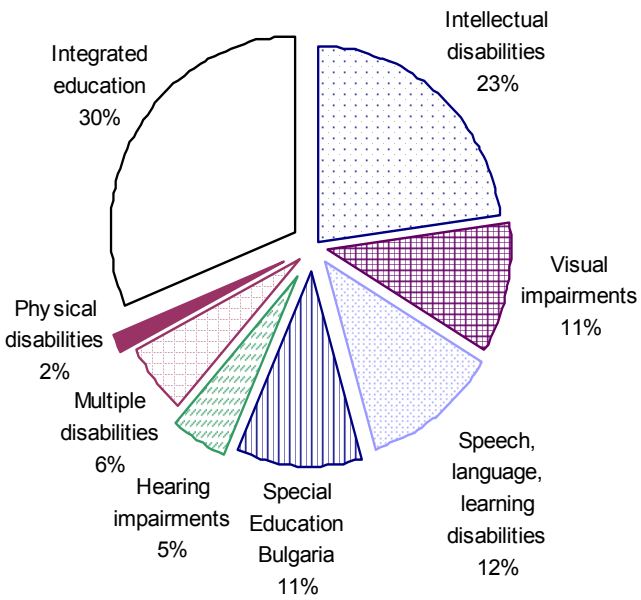

Figure 6-40. Most popular discussion forums by total posts

Figures 6-39 and 6-40 both indicate that the intellectual disabilities; speech, language, and learning disabilities; and integrated education forums were the most popular. This finding correlates with the web-based survey results shown in Figures 6-31 and 6-32 that indicate intellectual disabilities and speech and language are the areas in which website participants are most interested.

Figures 6-39 and 6-40 also show that visual impairments was a popular area of discussion, but this finding may have been biased because the researcher's associate supervisor in Bulgaria practices in this field. Figure 6-39 does not adequately display the popularity of the integrated education forum because this forum was created toward the end of the effectiveness evaluation, Phase 3, in mid 2007. Figure 6-40 more accurately depicts the popularity of integrated education discussions. In fact, qualitative analysis clearly indicates that integrated education was the most widely discussed topic across the forums (see Section 7.2.1, Special education themes, on page 197). For this reason, a separate integrated education forum was created during Phase 3.

Figures 6-41 and 6-42 display the most popular discussion topics by page views and total posts, respectively. The two figures indicate that the 'should we have special schools?' and 'special education studies' discussions were the most popular. Figure 6-41, which displays results by total page views, is somewhat misleading because it does not indicate the amount of time that certain discussions were available. 'Law no. 6 on integration,' for example, was first posted in December 2005 while the 'should we have special schools?' and 'special education studies' discussions were posted mid 2006.

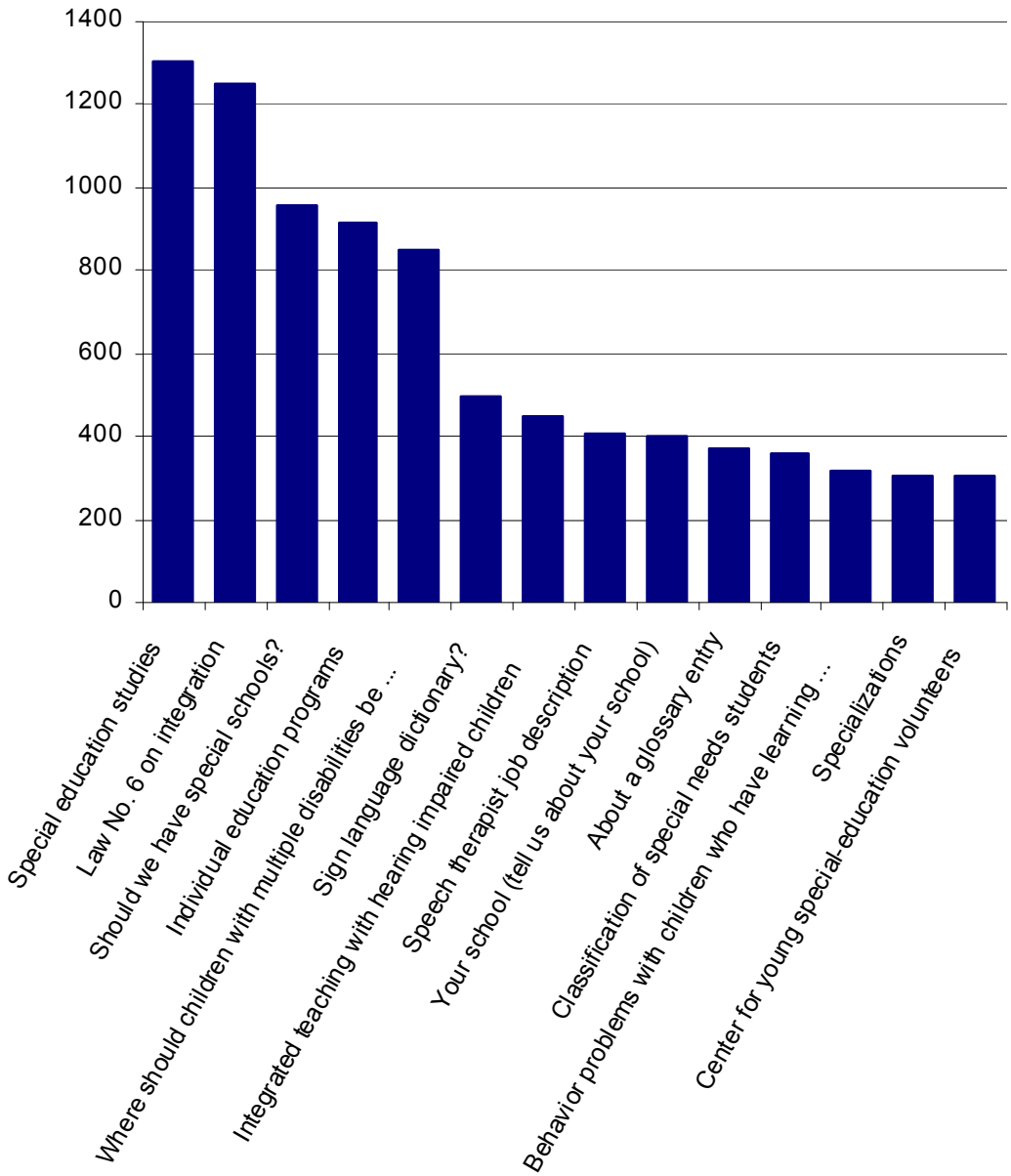

Figure 6-41. Most popular discussion topics by total page views

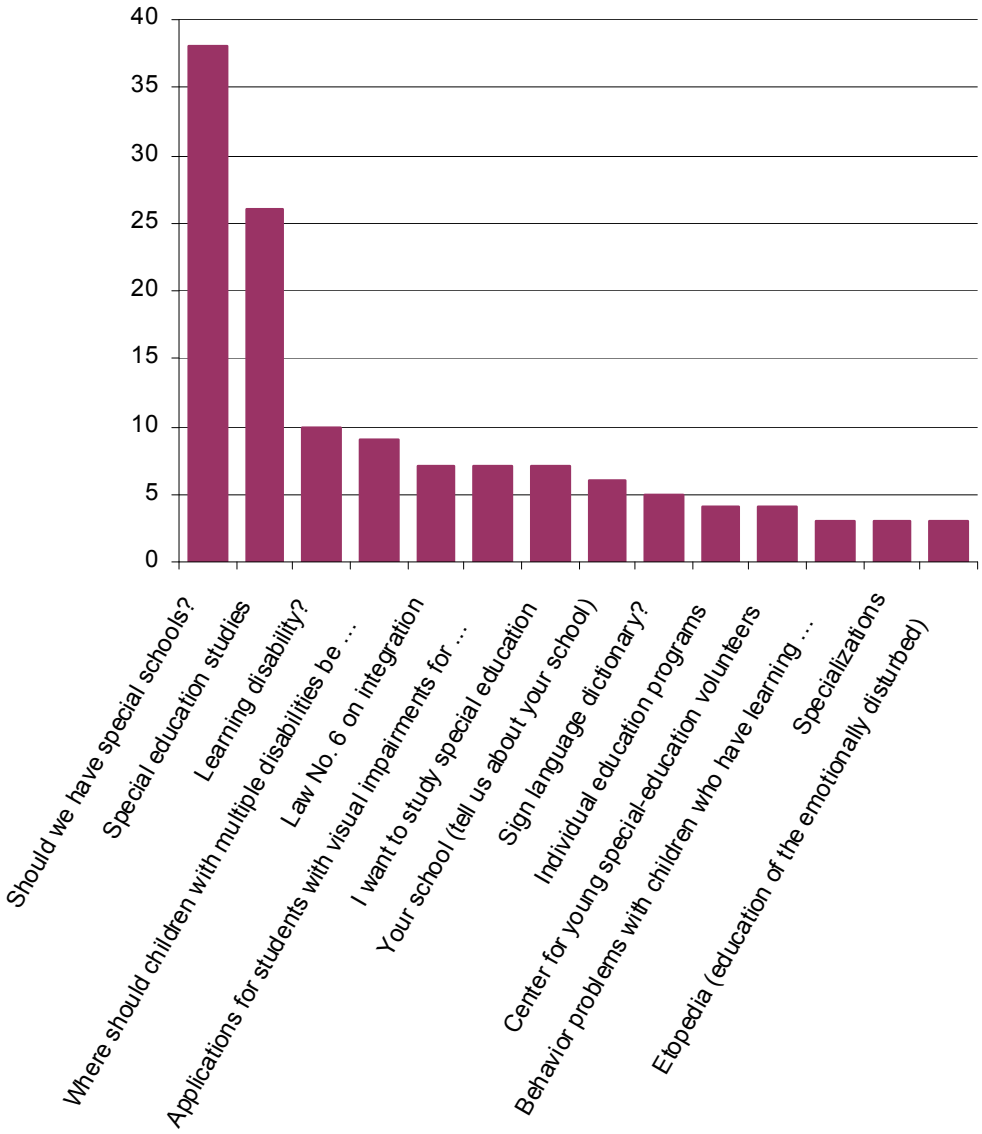

Figure 6-42. Most popular discussion topics by total posts

Using the additional data of when discussion topics were first posted, it can be inferred that the following topics, in order, were most popular:

1. Should we have special schools? first posted October 2006
   - This topic has to do with integrated education. At present, most special needs students are still taught in special schools. There is an intense ongoing debate among special educators in Bulgaria about how to transition from a system that focuses on the use of special schools to one that focuses on integration. See also the section titled, Integrated education, on page 210 that refers to the qualitative data collected.

2. Special education studies, first posted May 2006
   - It is believed that as many as 30% to 40% of website participants were university students studying special education, but the exact figure is unknown and impossible to determine without knowing the age and profession of all participants. Qualitative data also indicated that the codes ‘training in special education’ (see

Figure 7-2, on page 199) and "student involvement in community' (see Figure 7-10, on page 234) were commonly applied to data units.
- See also the discussion topic 'I want to study special education' in Figure 6-42, which was first posted in August 2007.

3. Where should children with multiple disabilities be taught? first posted September 2006
   - During communism, students with the most serious disabilities were completely excluded from the education system and society (Cholakova & Georgieva, 1996). As the integration process continues, the challenges related to the education of students with multiple disabilities will become increasingly apparent. It is anticipated that the need for teacher training in this area will continue increase. For more information about multiple disabilities in Bulgaria, refer to the section titled, Multiple disabilities, on page 202, which reviews the qualitative data collected.

4. Sign language dictionary, first posted November 2006
   - The posts under this topic had to do with participants searching for a Bulgarian sign language dictionary. It appears that this resource is rather difficult to find, which offers further evidence that there is an overall lack of special education materials in Bulgarian available.
   - See also the discussion topic 'dictionary for sign language for deafblind children' in Figure 6-43, which was first posted in March 2007.

5. Individual education plans, posted September 2006
   - The use of individual education plans (IEPs) is a relatively new concept in Bulgaria. IEPs have been in common use now for less than five years. They were first mandated in 2004 by the Bulgarian Ministry of Education in a legal document regarding integration (see also the section, Integrated education, on page 210 in Chapter 7). IEPs also appeared frequently in discussion forum searches (see Figure 6-44).

6. Your school, first posted October 2006
   - This topic was posted by the researcher to gather data about the special schools in Bulgaria and to see to what extent website participants were eager to share information about their schools. Results indicated that participants used this forum topic to voice issues about the new legislative requirements regarding integration. Participants of this forum unanimously agreed that SEB might be a good place to exchange information about integration with practitioners in remote towns and villages where there is a lack of special education teachers, psychologists, and other specialists to facilitate integration.

7. Center for young special-education volunteers, first posted October 2006
   - A website participant posted a question regarding the creation of a special center on integration that could be a place for mainstream students and special needs students to meet. In this place, mainstream student volunteers could be educated about integration and then have the opportunity to socialize with special needs

students while participating in activities such as folk dancing, going to the zoo, drawing, and crafts.

8. Law no. 6 on integrated education, first posted December 2005
   - A participant posted part of the 2004 policy by the Bulgarian Ministry of Education to spur discussion. This forum thread was one of many regarding integration. The contents of the discussion threads on integration are further discussed in the section titled, Integrated education, on page 210.

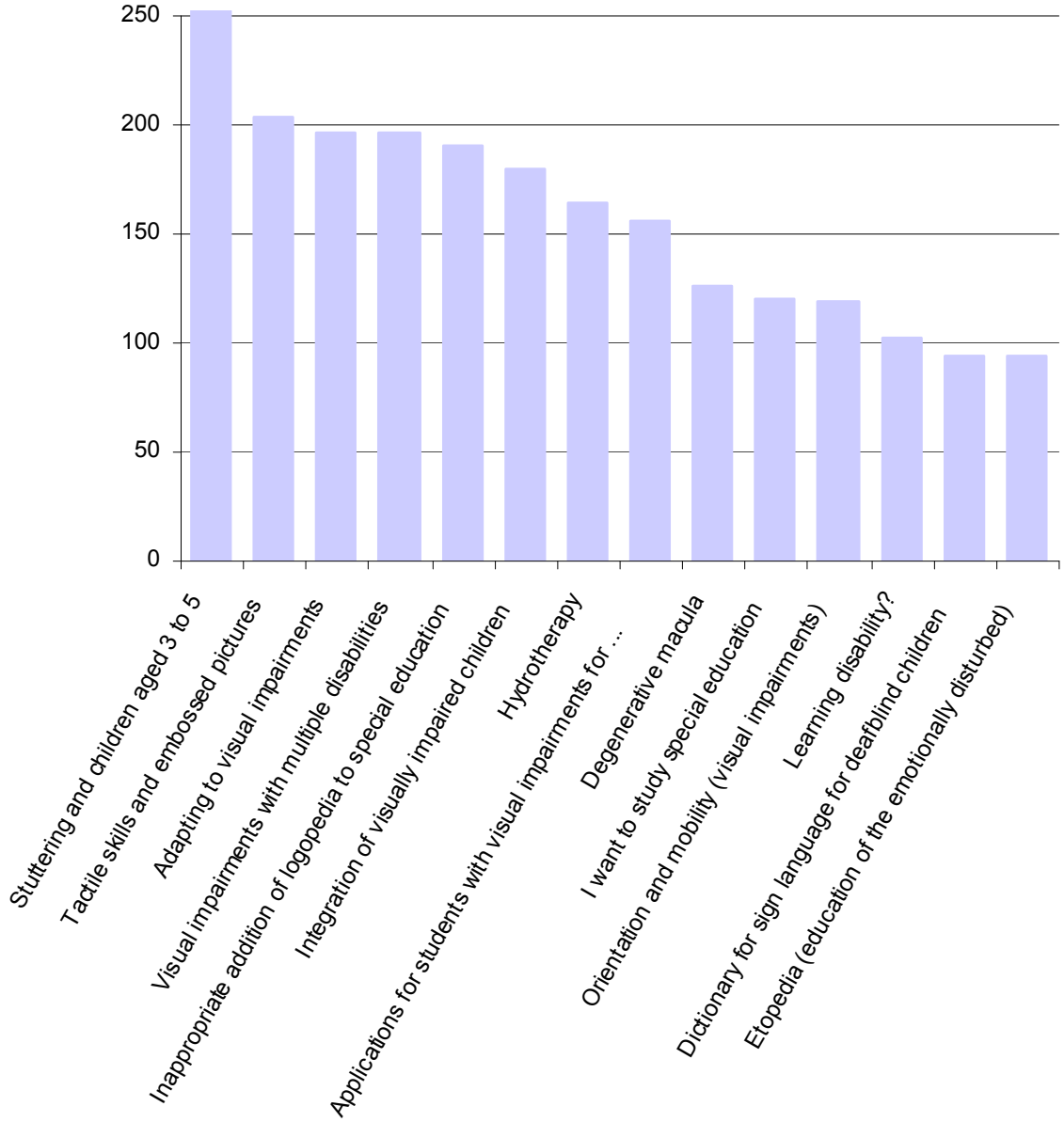

Figure 6-43. Other discussion topics by total page views

NOTE: The results from Figures 6-41, 6-42, and 6-43 are triangulated against qualitative findings in Section 7.2.1, Special education themes, on page 197.

Figure 6-43 exhibits additional discussion topics with significantly fewer pages views. By comparing the date when discussion topics were first posted with the total number of page views, the following topics were also inferred to be popular:

1. Etopedia, first posted August 2007
   - *Etopedia* is a Bulgarian term for education of the emotionally disturbed. The thread was posted by a practitioner who graduated in this field. A few other participants introduced themselves and discussions then appeared to move from the website to email and other forms of communication.
   - See also Figure 6-42, Behavior problems with students who have learning disabilities, which was first posted December 2006. A student wanted to discuss behavior problems with reference to intellectual disability and to learning disabilities. One result was a request to create a new discussion forum focused on behavior problems.

2. Applications for students with vision impairments for the university system, first posted May 2007
   - A website participant wanted help regarding testing services available for students with vision impairments planning to go to university. Several practitioners replied with helpful information about the testing process.

3. Learning disability? first posted December 2007
   - An adult posted information about their own problems related to attention and test taking. Several practitioners responded and a face-to-face meeting was eventually set up between one practitioner and the adult. Other qualitative data regarding learning disabilities is discussed in the section titled, Learning disabilities, on page 203.

Figure 6-44 shows the most frequent searches of discussion forum contents. Again, 'integrated education' is shown to be the most popular topic. The 'Ivan Rilski' search is also related to integrated education. Ivan Rilski is an NGO that manages a Bulgarian website about integration. 'Medical psychology' was also a common search. It may be that when translated into Bulgarian, this is a common special education term.

Figure 6-45 exhibits the most popular glossary terms by total page views. 'Intellectual disabilities' is again shown to be a primary area of interest to website participants. Second to this was the term 'logoped.' This term has to do with the area of speech and language, which is another primary area of interest to website participants (see Figures 6-31, 6-32, 6-39, and 6-40). Given the popularity of discussion forum topics on integration, it is surprising that a glossary definition of the term 'integration' was never posted. It is predicted that the first posting of a definition for integration would spur a great deal of debate in the forums.

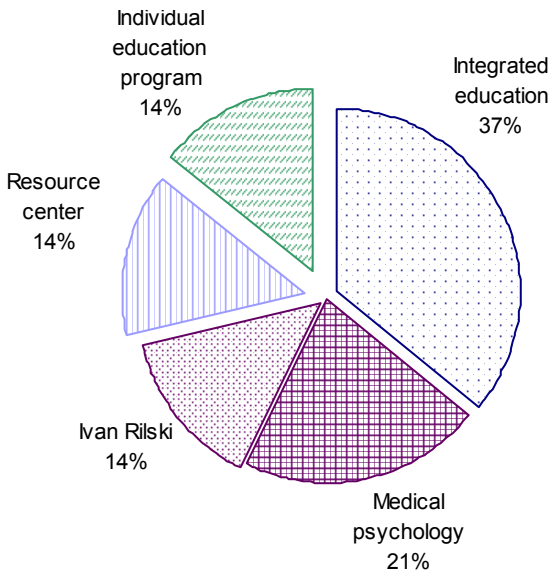

Figure 6-44. Most frequent forum searches

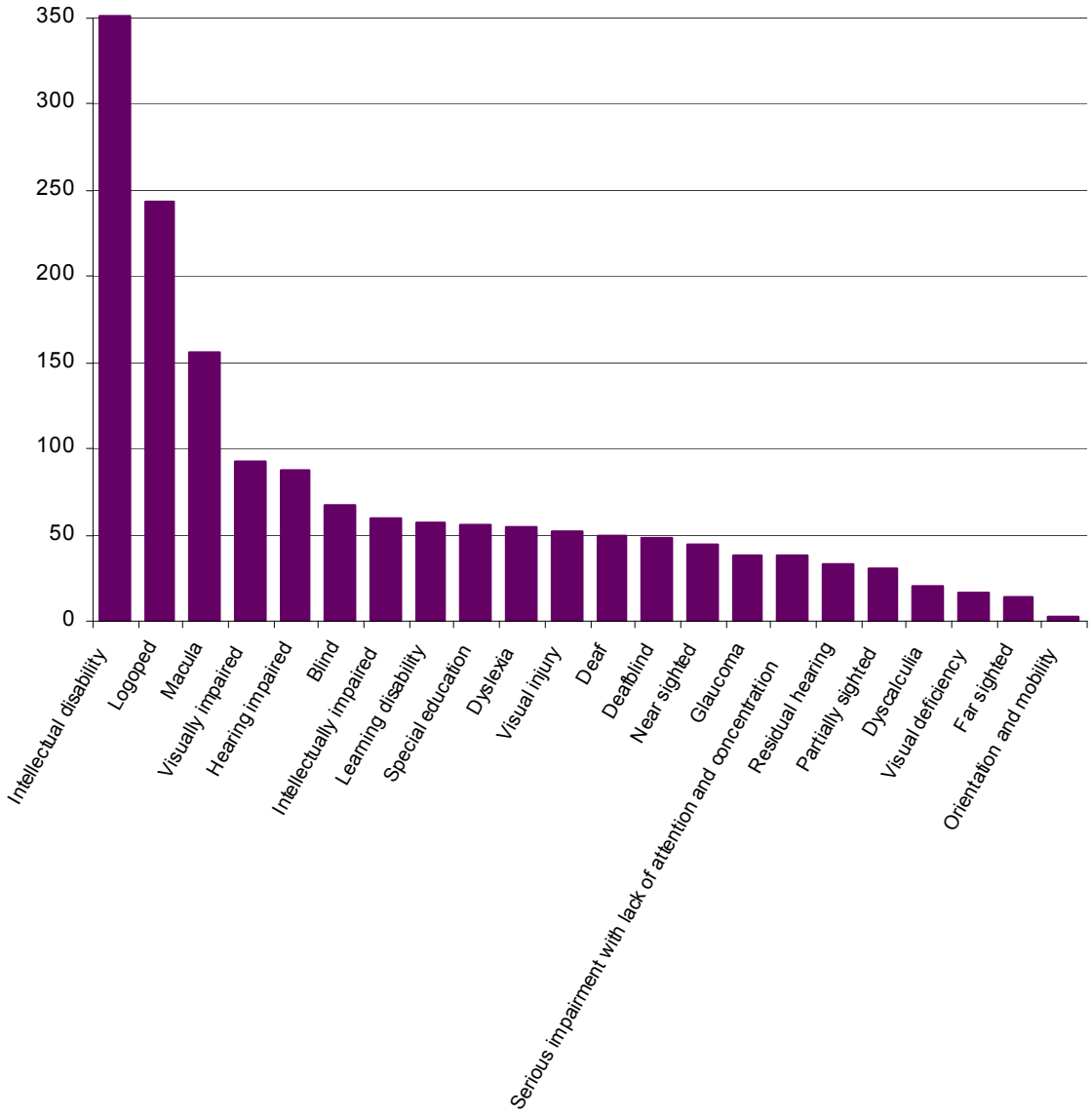

Figure 6-45. Most popular glossary terms by total page hits

Figure 6-46 exhibits the most popular website modules by page views, and Figure 6-47 exhibits the most popular website modules by total postings. The results exhibited by these two figures can be compared to those shown in Figure 6-30, on page 156, which displays the best SEB features according to web-based questionnaire respondents. Analysis of the results presented by all three figures is provided in the text just prior to Figure 6-30.

Additionally, it can be noted that the chat feature was much less popular than anticipated. It scored low in total page views, Figure 6-46, and in total posts Figure 6-47. Though there were nearly 110 chat posts, this occurred during fewer than 25 sessions and each post was very short in comparison to discussion forum posts. The reason that chat-module page views were so much higher than total posts is that simply clicking the chat module to open it was still recorded as a page view in the website logs. Based on these findings, it is not surprising that chat sessions scheduled to start during the researcher's visit to Bulgaria in May 2006 and continue each week until each discussion topic had been the focus of a chat (see Section 5.3.2, Alpha site features, on page 113) did not result in any useful data. Further, the sessions were to be led by the respective discussion-forum moderator, but there was no record of the moderators ever logging in for the scheduled chat sessions. The level of moderator activity is further discussed in the following section.

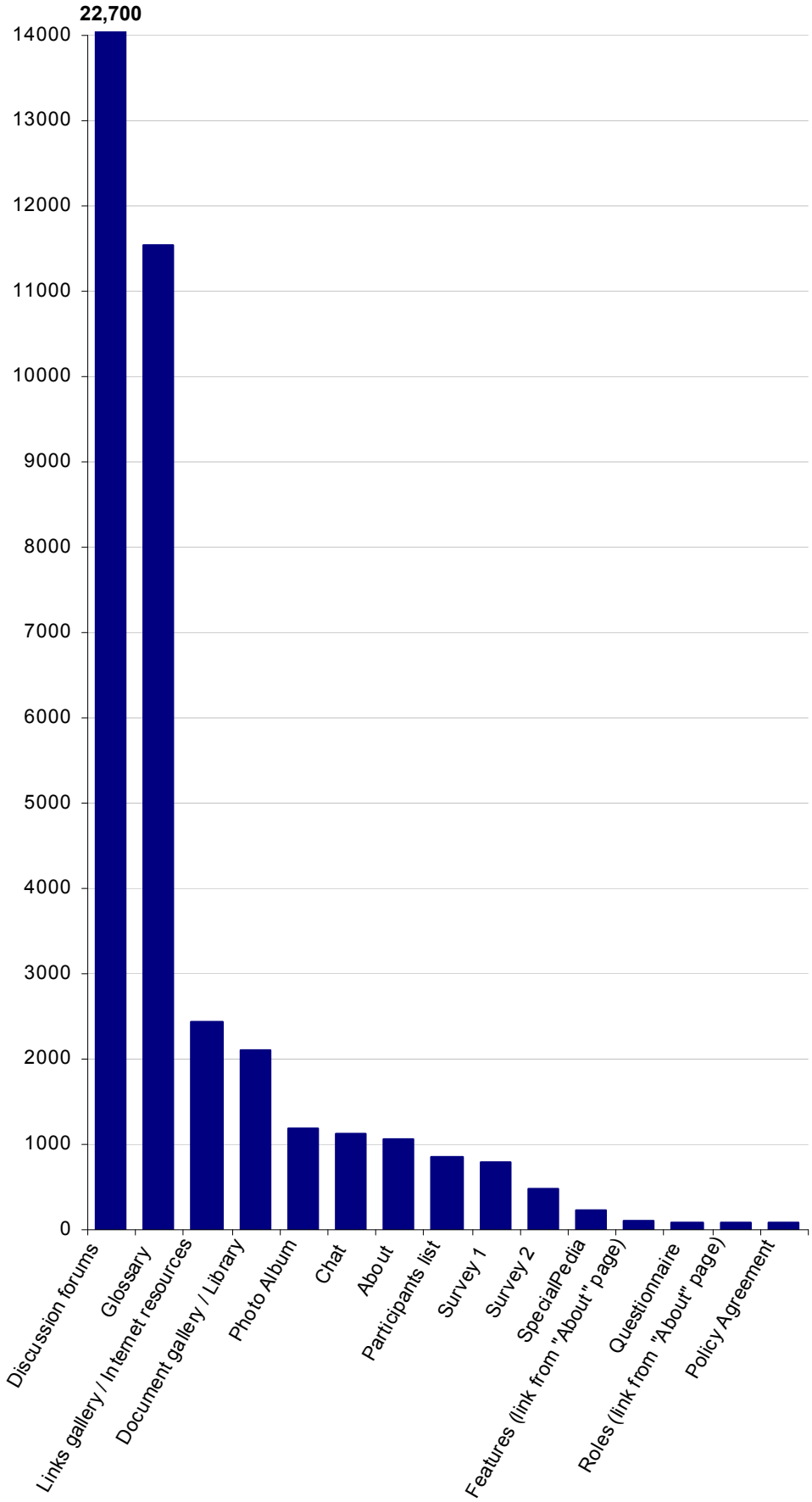

Figure 6-46. Most popular website modules by total page views

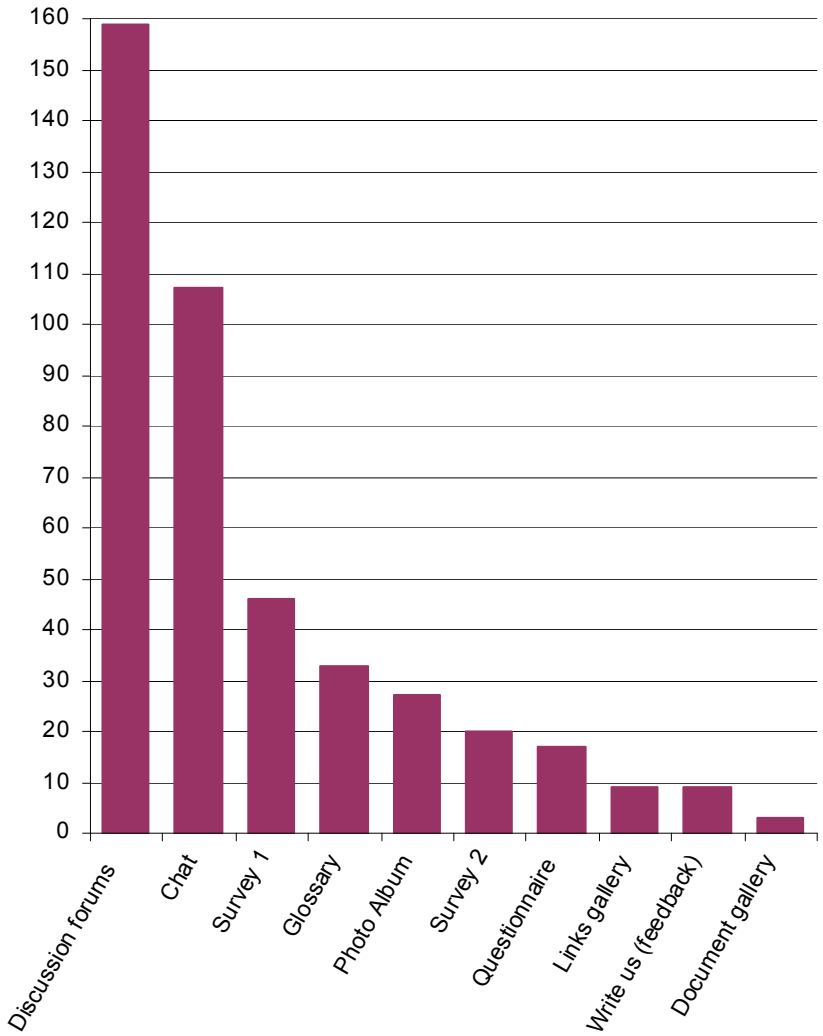

Figure 6-47. Most popular website modules by total posts

6.2.2.3 Active, peripheral, and repeat website users

A search of the literature was conducted for a method for rating the level of participation in online communities but non was found. For this reason, the following method was devised. A set of criteria to was needed to differentiate between highly active, moderate, and least active SEB website users. In addition, it was hoped that the CoP concept of *peripheral participation* could be gauged.

The criteria chosen were page views, logins, posts, and length of time registered for the community. Points were allocated as follows:

- Page view = 1
- Login = 15
- Post = 50

- Bonus for new registration within 1 month = 100
- Bonus for new registration within 3 months = 50

The following six categories were defined based on point totals of the criteria:

- *Highly active participant*: (view * 1) + (logins * 15) + (posts * 50) + (bonus) = ≥ 800
  - *Highly active peripheral participant*: (view * 1) + (logins * 15) + (bonus) = ≥ 800
- *Active participant*: (view * 1) + (logins * 15) + (posts * 50) + (bonus) = ≥ 400
  - *Active peripheral participant*: (view * 1) + (logins * 15) + (bonus) = ≥ 400
- *Repeat user*: (view * 1) + (logins * 15) + (posts * 50) + (bonus) = ≥ 200
- *Registered user*: (view * 1) + (logins * 15) + (posts * 50) + (bonus) = < 200

Users were grouped into a peripheral participant category if they logged in and accumulated page hits but did not post anything. A *post* was considered to be any content uploaded to the discussion forums, glossary, links gallery, photo album, document gallery, or web-based questionnaire that did not occur during an interview session and was not uploaded by the researcher. Web-based survey responses were not considered posts because they did not take a significant amount of time or thought to complete. The total number of registered SEB users assigned to each of the six categories is presented in Table 6-4.

Table 6-4. Active, peripheral, and repeat users of SEB

Participation category	Total
Active participants (core group)	9
Active peripheral participants	1
Participants (core group)	9
Peripheral participants	1
Repeat users	27
Users	195
Registrations	**242**

* The *core group* is argued to be made of the most active participants of online communities. For SEB, this means that 18 participants made up the core group.

Peripheral participants or lurkers?

It can be argued that the term *peripheral participant,* with regard to online communities, is synonymous with the term *lurker*. Preece (2000) defines a lurker as "someone

who does not participate; he observes what is going on but remains silent" (p. 87). The term *peripheral participant*, however, connotes a positive role in the online community while the term *lurker* connotes a negative role. For some developers, lurkers may bring to mind leeches that feed off the life blood of online communities because how can an online community exist if participants do not post content? Once someone registers for an online community and begins viewing its content, they are viewed, by this researcher, as a website participant.

Preece (2000), who acknowledges the negative connotation of the term, finds that lurkers "become so familiar with the community that they feel they belong to it in spite of their bystander behavior" (p. 87). Moreover, she finds that lurking is natural at first and can lead to the posting of content later. She says, "Newcomers to a community often opt to lurk for a while. They want to assess the community's ambience and get a feel for the style of interaction" (Preece, 2000, p. 100). They also can significantly benefit from lurking in terms of knowledge gained (McDermott, 2001). Lurkers help websites reach their *critical mass* by increasing the number of registrations and user profiles. Preece defines critical mass as "the number of people an online community needs to attract others" (Preece, 2000, p. 171). Moreover, if there are too many participants that post, a community can become chaotic, argues Preece.

Therefore, the website participants who chose not to post content but still logged into SEB on a regular basis were termed peripheral participants rather than lurkers. Table 6-4 indicates that SEB had two peripheral participants. The table, however, only shows the peripheral participants that could be identified. There may have been peripheral participants who frequently viewed SEB contents but never logged in.

Figures 6-48 and 6-49 indicate that discussion forum views far outnumber posts by logged in users. Since participants do not need to log in to view the forums, it is predicted that even more participants viewed the forums without logging in. Figures 6-54 and 6-55 also indicated that website activity was much higher than indicated by the logged in users alone. What is not know is which users frequently visited the website without logging in. Future research is needed to uncover a method for identifying such users. The findings regarding peripheral participants may offer additional proof that CoPs can exist online.

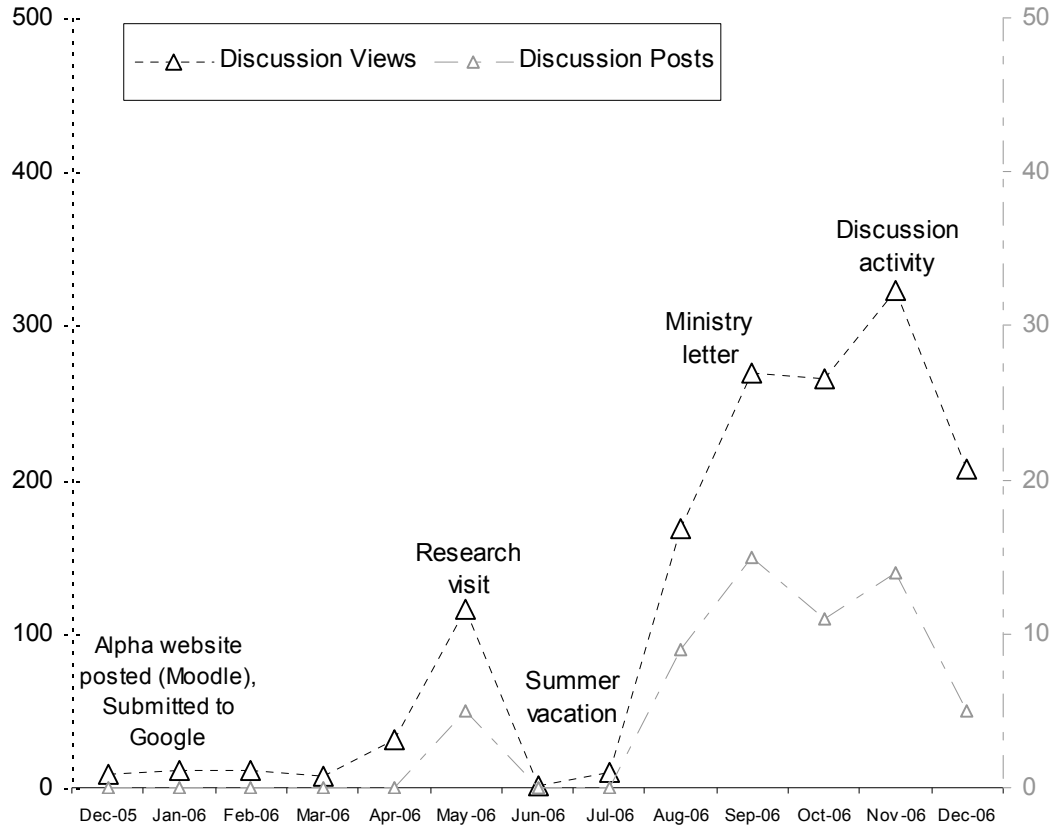

Figure 6-48. Year 1 website participant discussion views and posts by month

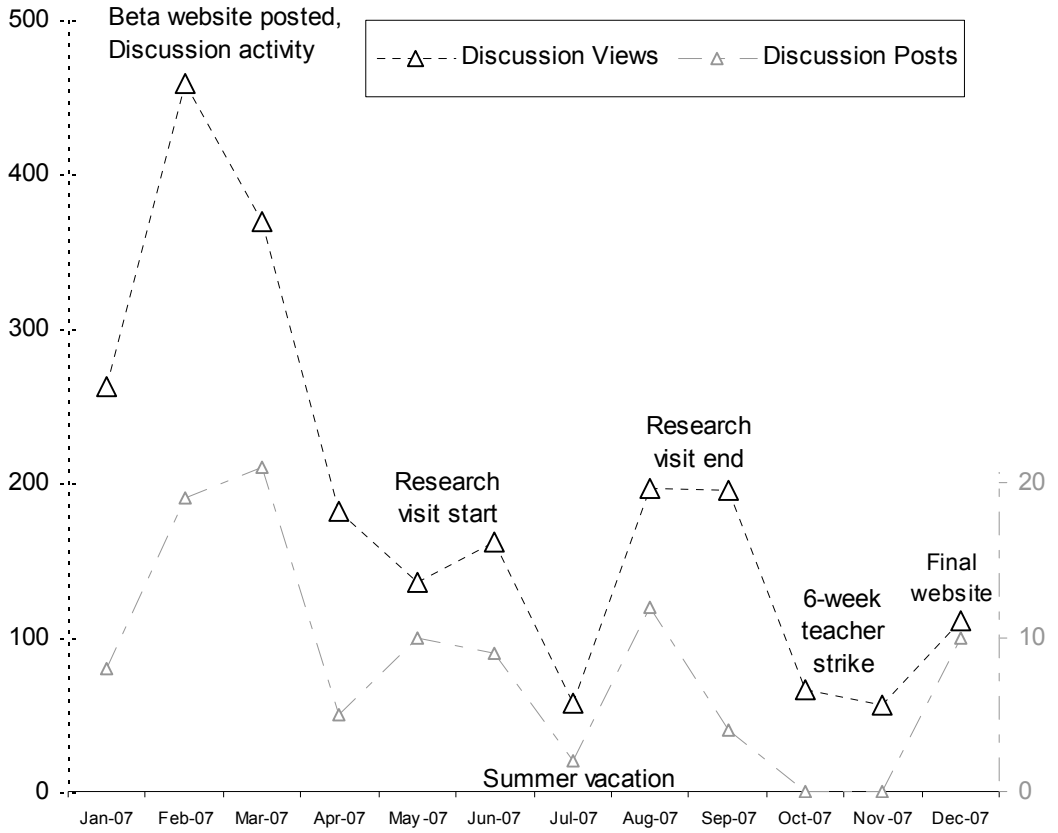

Figure 6-49. Year 2 website participant discussion views and posts by month

Moderators

The overall level of SEB moderator activity was much lower than anticipated. Only the SEB community coordinator, who was also the researcher's associate supervisor in Bulgaria, was an active discussion forum user. The rest of the moderators very rarely logged into the site. In one case, however, a moderator preferred to respond to discussion forum postings by email rather than post to the entire forum. When on a forum's mailing list, emails are sent automatically when a new post is submitted to the forum. The moderator found that it took too much additional time to go to the website and log in when the post was already available in her email. Once the moderator had logged into the site, it made more sense to them to respond to the poster directly as the emails are available in the poster's profile.

It is unknown to what extent other moderators shared this opinion or decided to respond directly by email rather than through the forum. In the future, it would be worth interviewing all of the moderators to see how much they used SEB and in what ways they fulfilled their roles as moderators. In addition, though the most active moderator posted new topics and answered participant posts with expert advice, they did not fully moderate discussions. According to Preece (2000), moderators facilitate to keep a forum on topic; merge and archive topics as needed; filter out inappropriate postings; generate discussion around new topics; market the forum to recruit new participants; and help ensure that people behave appropriately. For future iterations of the SEB community, it may be important to provide a moderator training session or to meet with moderators one-on-one to reassess their roles.

6.2.2.4 Website participant activity logs

Website log data were captured for a two-year period that began on December 1, 2005 and ended on December 31, 2007. The following figures exhibit SEB website usage activity for this period. Research milestones and other indicators argued to have affected website activity throughout the two year period are also displayed. The peaks and valleys shown in the figures indicate increases and decreases in various forms of website activity by month as follows:

- Figures 6-50 and 6-51
  - Logins
  - New registrations

- Figures 6-52 and 6-53
  - Logins
  - Discussion forum views and posts
- Figures 6-54 and 6-55
  - All website activity combined
  - Activity by users not logged into the site
  - Registered user activity—activity by users logged into the site
  - Discussion forum views and posts

Figures 6-50 and 6-51 display a stacked line chart that compares the number of website participant logins and new registrations by month. Year 1 and year 2 are separated in Figure 6-50 and Figure 6-51, respectively. These two figures, and each of the other figures listed in this section, have two Y-axes: one on the left and one on the right. This allows line charts with Y-axis variables that require different scales to be stacked over one X axis.

As an example, the total number of logins by month peaked at about 100 in February 2007 (see Figure 6-51). By comparison, the total number of new registrations peaked at about 30 in September 2006 (see Figure 6-50). To compare the patterns that emerge by charting total monthly logins and new registrations in one chart, two separate scales were required.

We can see that the number of logins increased when the alpha website was posted in January 2006, but there were not many new registrations. It can be inferred that new users were not finding the website on the Internet at that time. The site was first submitted to Google in January 2006, and it can take several months for new websites to be cached by the Google search engine. In March 2006, we can see that the website was successfully announced at a special education conference held in Kiten, Bulgaria. The number of new registrations spiked, but the number of logins did not.

Figures 6-50 through 6-55 can each be analyzed in a similar manner. The remainder of this chapter discusses the most noteworthy website activity with reference to the key monthly events listed on the figures.

NOTE: In Figures 6-50 through 6-55, the darkness and pattern of charted lines correspond to the applicable Y-axis scale. In addition, the lines described in the left column of the legend corresponds to the Y-axis scale on the left and the lines described in the right column of the legend corresponds to the scale on the right.

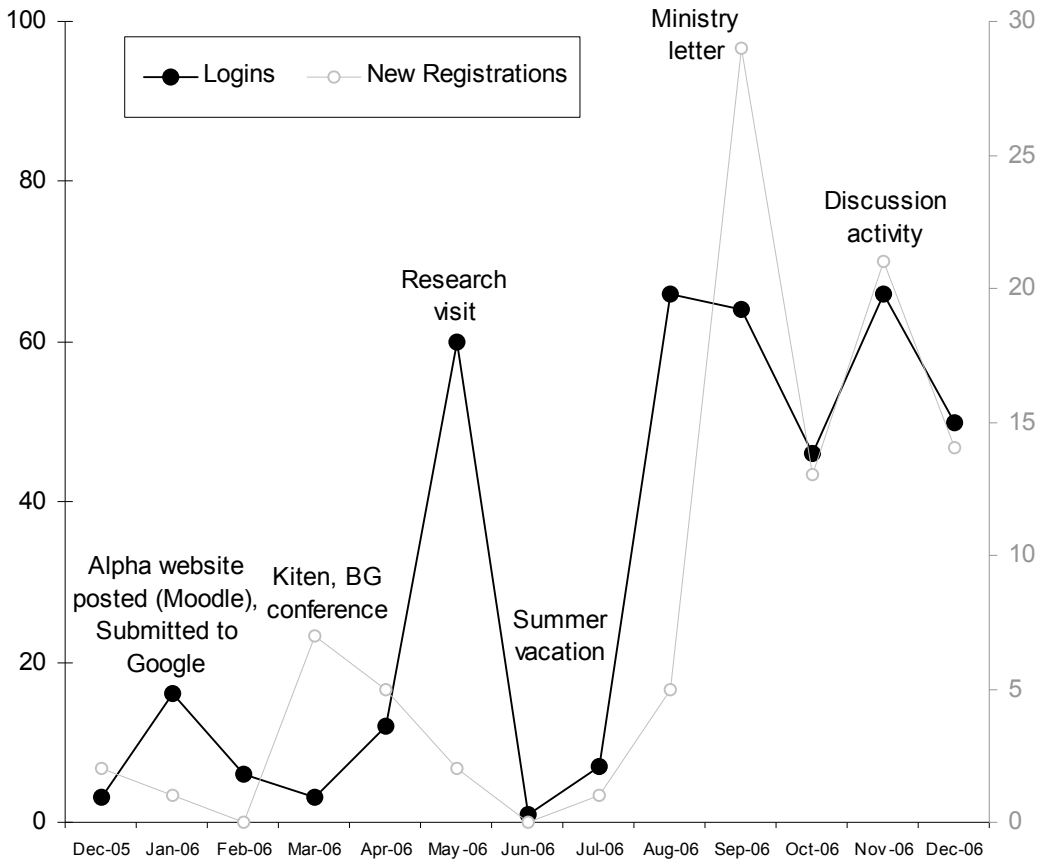

Figure 6-50. Year 1 website participant logins and new registrations by month

Though logins and new registrations began to spike in the early part of 2006 (Figures 6-50 and 6-51), discussion forum activity did not begin to peak until the Phase 2, formative evaluation, research visit to Bulgaria in May 2006 (see Figure 6-52). It can be inferred that the research participants were responsible for the bulk of discussion forum use at this time. Indeed, a review of the discussion postings at that time indicates that research participants, rather than website participants, were responsible for the discussion activity. One research participant posted a thread about university studies in the area of intellectual disabilities. The first post was a simple one-sentence request for a theme to discuss. This forum went on to be one of the most popular threads in the two-year period (see 'special education studies' in Figures 6-41 and 6-42).

It was surprising to find the sudden drop in website activity during June 2006 and June 2007. This can be seen in all of the website activity figures presented. This was due to a near evacuation of Sofia in June and early July as the temperature peaked and citizens flocked to the Black Sea coast or rural towns.

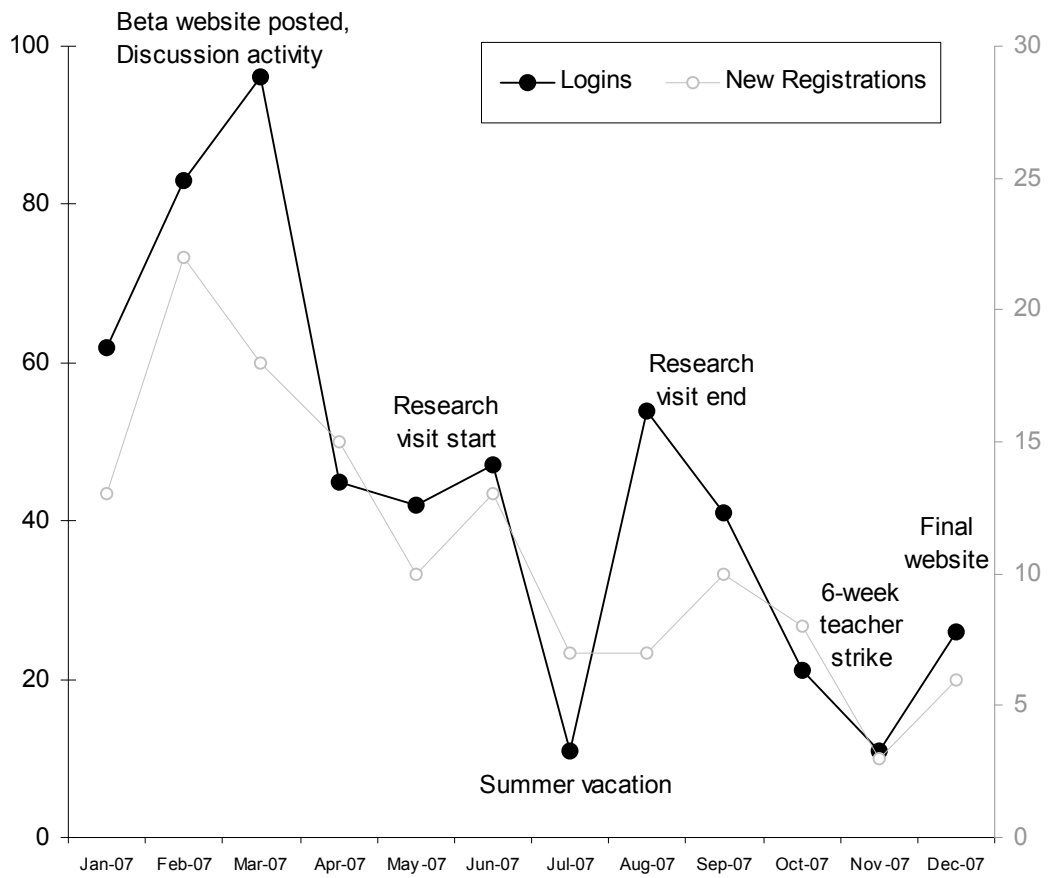

Figure 6-51. Year 2 website participant logins and new registrations by month

In Figures 6-50, 6-52, and 6-54, a spike in new registrations occurs during September 2006 when the Bulgarian Ministry of Education and Science sent out a letter announcing SEB to the regional heads of special education in Bulgaria. The letter is provided, in English, in Appendix B. Discussion activity also peaked at that time, which can be seen in the higher number of logins (see Figure 6-50). A discussion about where children with multiple disabilities should be taught received the highest number of page views and posts at that time.

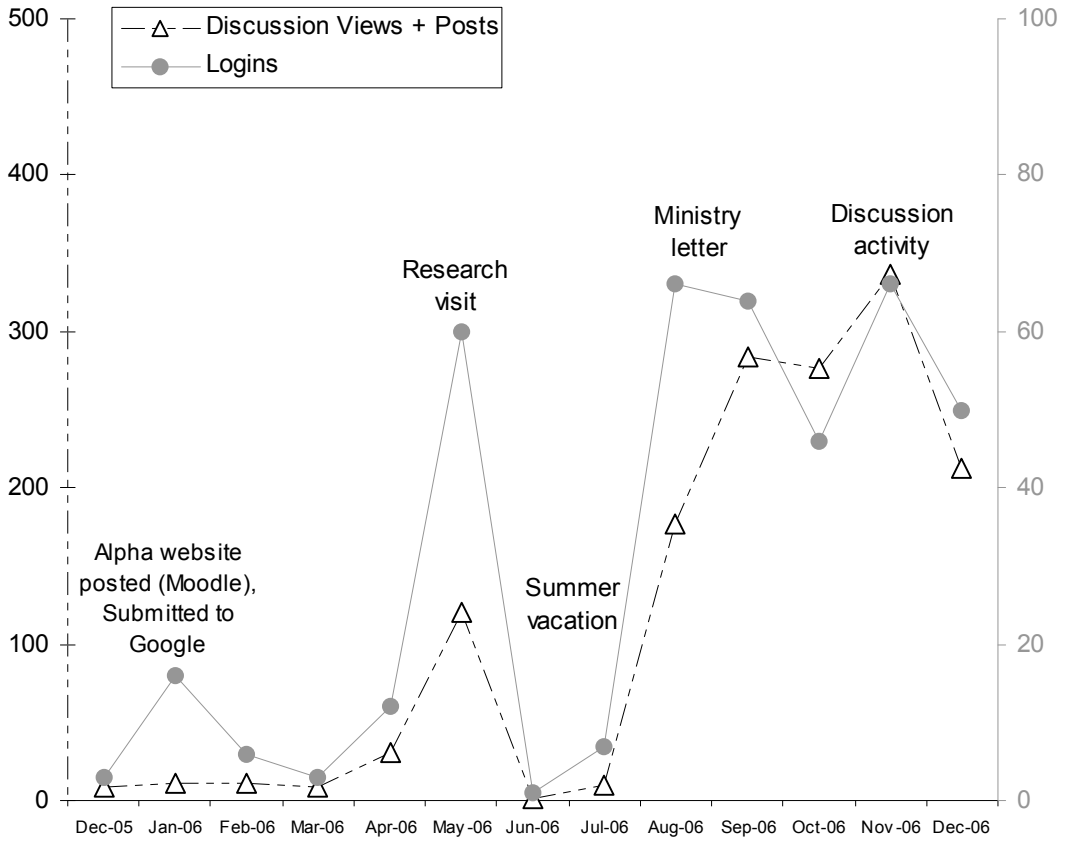

Figure 6-52. Year 1 website participant logins and discussion activity by month

Discussion activity peaked in November 2006 with one of the first posts on integrated education (see 'should we have special schools' in Figures 6-41 and 6-42). A post about finding a Bulgarian sign-language dictionary also prompted a significant amount of activity in November 2006.

In February 2007, logins, new registrations, and discussion activity spiked with the completion of the beta website. This is a strong indicator that the new site design attracted new registrations and also encouraged use of the forums. Integrated education continued to be the number one topic of discussion with the 'should we have special schools post' and also an 'individual education plans' thread receiving attention. Several posts related to speech therapy were also popular.

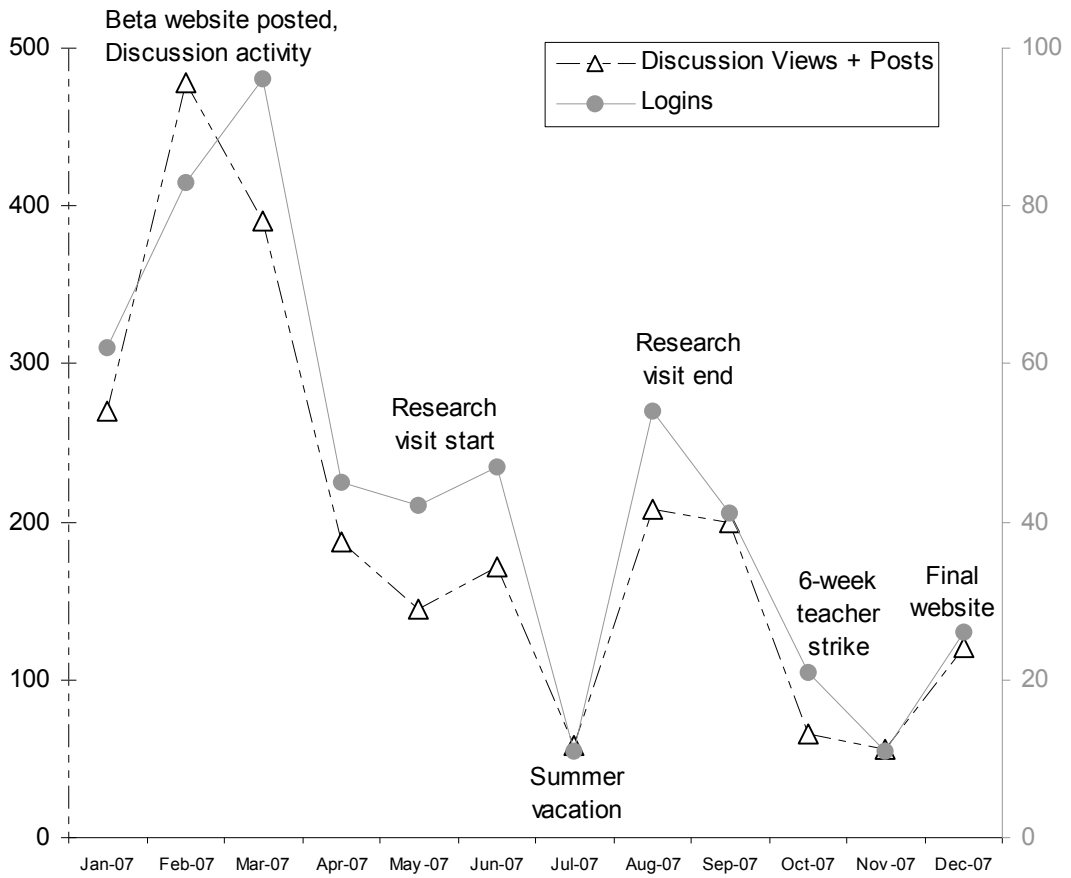

Figure 6-53. Year 2 website participant logins and discussion activity by month

Other than summer vacation, the only major event external to the research project that is thought to have affected website activity was a 6-week teacher strike that began at the end of September and continued through October 2007. The country-wide strike was one of the longest in Bulgarian history. Teachers demanded a 100% pay increase from an average of about 440 Bulgarian Leva (220 Euros) per month. The strike was temporarily resolved with a 25% pay increase and a promise to allocate more than 4% of the gross domestic product for 2008 to the education sector. Further wage increases in the education sector are demanded by teachers for 2008 ("Bulgaria education," 2007; "Bulgarian teachers start strike," 2007; "Sofia mayor proposes," 2007).

The demands made by teachers during the strike are less surprising given that the Bulgarian government announced a 3% gross domestic product surplus for 2008, and the EU has agreed to fund 88 million Euros to the Bulgarian education sector over the next three years (Bangieva, 2007; "Bulgarian parliament approves," 2007). Regarding the strike, several research participants noted that it was insulting to educators that taxi drivers make more money. Teachers make up one fifth of Bulgaria's 500,000 public

employees ("Striking messages," 2007). The minimum monthly wage in Bulgaria for teachers was 220 leva (110 Euros) as of January 2008 (Savova, 2008).

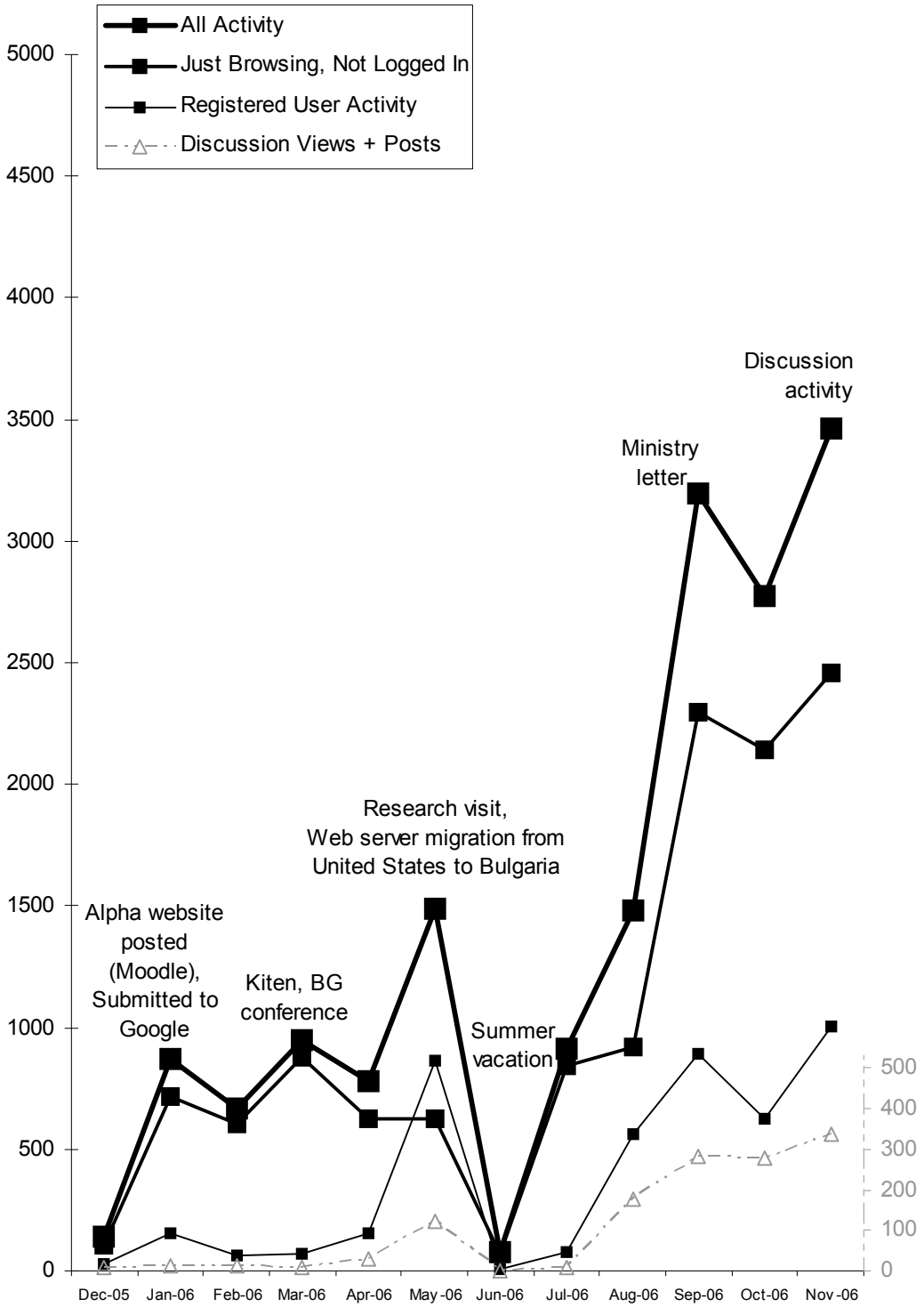

Figure 6-54. Year 1 total website activity by month

Figures 6-54 and 6-55 compare all website activity with the activity of website participants that are logged in and other website users who are not logged in. The combined number of discussion forum views and posts are also displayed.

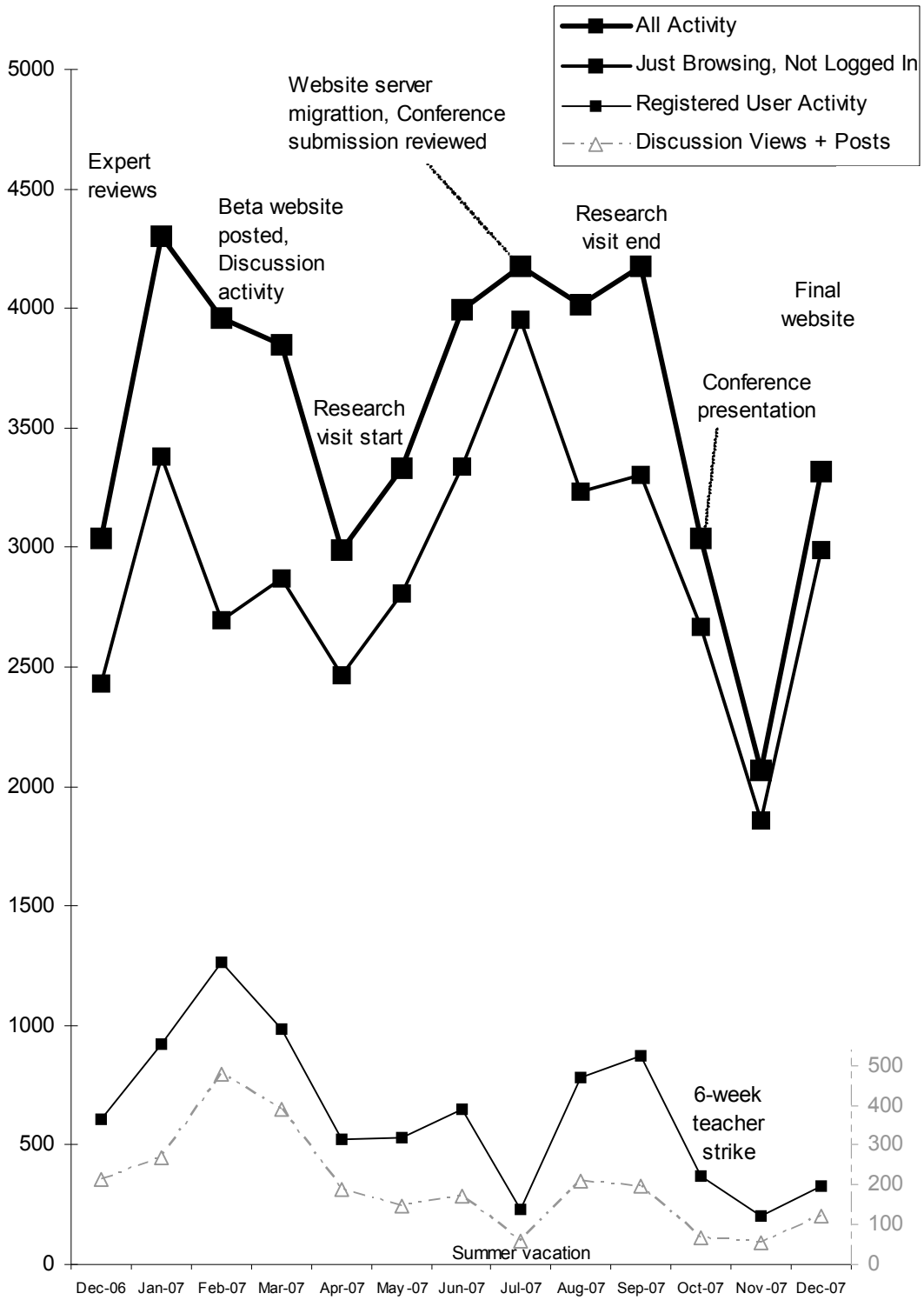

Figure 6-55. Year 2 total website activity by month

NOTE: In Figures 6-54 and 6-55, the sum of the three lower stacked lines is equal to the top line, which represents all website activity.

Figure 6-55 indicates that there was a peak in activity between June and August 2007, which spans the Bulgarian summer holiday season. The reason for this was a major upgrade to the website that took place at that time. The website server was changed to

allow for an upgrade from Moodle version 1.5 to 1.8. Immediately following the upgrade, many of the features available on the final website version were posted. In addition, a conference paper was submitted about the site, which might have prompted website visits by reviewers.

During the effectiveness evaluation, Phase 3, the researcher visited Bulgaria for six months beginning in April 2007. Usability interviews were conducted in May, August, and September, which accounts for some of the website activity. It is likely that additional activity during the research period stemmed from word-of-mouth advertising by research participants.

Toward the end of the six-month visit, two presentations about SEB were delivered: one at a TENCompetence workshop held in Sofia and another to the Department of Special Education at Sofia University. These events might account for some of the website activity in September 2007 as the presentations reached a combined audience of about 50 people who may have subsequently visited the site. In October 2007, the conference paper was presented at an annual ePortfolio conference in the Netherlands, which might account for additional website activity.

6.3 Summary

This chapter exhibited the results of participant sampling and quantitative data collected and provided analysis. Some of the key findings from this chapter included that research participant sampling was adequately representative of the website participant population and that there was sufficient Internet access across Bulgaria for special education stakeholders to participate in the SEB community. Findings regarding Internet access relate to Goal 3 of the SEB study (see Table 1-1, on page 9).

Quantitative results indicated that website participants did not realize they could upload content to the website's links, document, photo, and glossary repositories but that links and document galleries were two of the most desirable website features. The discussion forums and glossary were the most-used website features. The most popular forums related to integration and university-level special education studies. Survey results indicated that the highest number of website participants were interested in the intellectual disabilities and speech and language fields. These findings relate to Goals 1 through 7.

Website activity spiked and leveled at times that could be well explained by related research events as well as several events external to the SEB project. This finding substantiated the accuracy of website data logging. Of note, a letter from the Bulgarian Ministry of Education successfully led to an increase in new registrations, and the beta website design led to both new registrations and a climb in logins and discussion forum activity. The next chapter discusses qualitative results from interview, discussion forum, and questionnaire data. Chapter 8 presents expert consultation and usability results, and in Chapter 9, a discussion and synthesis of results from all forms of collected data is provided.

Chapter 7

7. Qualitative results

This chapter presents the results from qualitative data collected during interview sessions and from discussion forum posts and questionnaires. The first section explains the process of applying codes to collected data and then analyzing the coded data. The next two sections present the results of descriptive and interpretive coding, respectively. The analysis of qualitative results provided in each section references related quantitative results from Chapter 6 where possible. Each section provides the final list of codes along with charts that display the frequency that each code was applied.

Table 7-1 displays a summary of all qualitative data collected including the number of website posts, interviews conducted, and qualitative questions from the various questionnaire instruments. Though expert consultation sessions are included in the table, the data from these sessions were analyzed separately from other qualitative data. Expert consultation results are presented in Chapter 8.

Table 7-1. Qualitative data collected, all phases (12/2005-12/2007)

Website posts		
Discussion forums posts under 32 topics	159	13000
Anonymous feedback	9	400
Posts, words (total)	**168 posts**	**13400 words**
Interview sessions, hours		
Usability interviews	18	30
Personal interviews	19	
Expert consultations	4	5.5
Sessions, hours (total)	**41 sessions**	**35.5 hours***
Other coded qualitative data		
Web-based questionnaires		3 questions
Email questionnaires**		7 questions
Post-interview questionnaires***		6 questions
Questionnaires, qualitative questions (total)****		**16 questions**

* Approximately 22 interview hours were conducted in English and eight in Bulgarian.
** Follow-up email communications with respondents also provided data.
*** Post-interview questionnaires were collected during interview sessions. Responses were collected verbally.
**** For the total number of questionnaires returned (see Table 6-2, on page 138).

7.1 Coding the data

The majority of qualitative data were gathered during personal and usability interview sessions and from discussion forum posts. In addition, feedback forms submitted through the website and web-based, email, and post-interview questionnaires provided qualitative data. Follow-up email communication with email questionnaire respondents also provided qualitative data. All of these data were analyzed as one large data set in a *conceptually clustered coding matrix* as described in the following sections.

7.1.1 Conceptually clustered coding matrix

A qualitative coding matrix, adapted from the "conceptually clustered matrix" provided by Miles and Huberman (1994, p. 128), was prepared by building a complex table in Microsoft Word. Word's *auto-text* feature was used to speed up the coding process and to ensure that coding was consistent. Consistent spelling and word order was necessary for Word's *sort-by-column* feature to order data units correctly. As patterns and themes emerged, the code lists were revised accordingly and the matrix updated, usually with Word's *find-replace* feature or by sorting columns and *copy-pasting* to multiple table cells.

The first version of the conceptually clustered matrix did not make use of Word's auto-text feature. The researcher found that copy-paste was more time consuming, and fewer codes were applied to the data units. With auto-text, the researcher coded more freely and accurately. Additionally, QSR International's NVivo software was also investigated for qualitative analysis. It was decided that a matrix created with a Word table was a more flexible option. The matrix template is shown in Table 7-2 with a few data rows partially coded to serve as examples.

Table 7-2. Conceptually clustered coding matrix for analysis of qualitative data
Total data units / rows of data entered into matrix = 442

Progression	**Data Source**	Participant# User#	**Data unit**	**Descriptive Category: Theme**	**Descriptive Sub Theme(s)**
I II III	D# I# Q#	P# or U#	Discussion forum post … Interview dialogue … Questionnaire response …	Descriptive	codes …

NSEB NTENC	**FSEB FU**	**ECOP: HDJB LTU**	**ECOP: PP**	**ECOP: SSFCB**	**KI NINK NIKC**	Citation level	Deviance
Interpretive	codes …					A B C	0 1 2

The matrix includes columns with several terms that need to be defined. The term *progression* refers to the round in which the data unit was coded (see Table 4-4, on page 80). The *data unit* refers to the sentence or paragraph to be coded that was extracted from the body of qualitative data collected. The *data source* is a code that describes the source of the data unit. DHI13, for example, is the code for hearing impairment forum discussion number 13. The *participant number* is the number allocated to the research participant who provided the data unit. The *user number* refers to the website participant who provided the data unit. The *descriptive category*, *descriptive theme*, and *descriptive sub-theme(s)* refer to the hierarchy of descriptive codes. *NSEB*, *NTENC*, and other acronyms refer to a category of interpretive codes.

The *citation level* is a criteria that indicates the extent to which the data unit is an "explanatory exemplar" (Miles & Huberman, 1994, p. 65). The quality of the source was

also considered when applying a citation level. The criteria would later be used for "weighing the evidence" (Miles & Huberman, 1994, p. 267) based on the circumstances in which the data unit was collected and expertise of the subject. *Deviance* refers to the extent to which the list of descriptive and interpretive codes can adequately describe or interpret the data unit. It is a measure that helps to indicate *outlier data*—data that does not group well with the other data (Miles & Huberman, 1994, p. 269). The citation level and deviance were defined as follows:

- Citation level A = very high, B = high, C = average, D = low
- Deviance level 2 = highly deviant, 1 = deviant, 0 = not deviant

The following examples show how two data units were coded using the matrix:

- Example 1:
  - Progression: Coded during the second progression (II)
  - Data source: Hearing impairments forum discussion number 13 (DHI13)
  - Data unit: U1 requests a discussion about integrating students with hearing impairments into regular schools. U4 responds that she has been integrating such students for 20 years and provides details …
  - Descriptive codes applied:
    - Theme: IntegratedEd
    - Subtheme: Special schools, Transitioning role
  - Interpretive codes applied:
    - HDJB: Discussed issue about work, government policy
    - HDJB: Advice given / Expert accessed
    - SSFCB: Face-to-face meeting facilitated / Talk offsite
    - SSFCB: Quick response / mutual, cooperative exchange
    - KI: Frequent comment / Stressed importance
    - NIKC: Turbulent issue / Potential research area
- Example 2:
  - Progression: Coded during the third progression (III)
  - Data source: Speech, language, and learning disabilities forum discussion number 23 (DSSLD23)
  - Data unit: U1, from Sofia, asks for a speech therapist [logoped] job description. U2, from a city outside of Sofia, replies that they just started work as a logoped. Here is my job description …
  - Descriptive codes applied:
    - Theme: Speech and language
    - Subtheme: Logopedics
  - Interpretive codes applied:
    - NSEB: Access those not normally able / Great distance
    - HDJB: Advice given / Expert accessed

The acronyms *HDJB*, *SSFCB*, *KI*, *NIKC*, and *NSEB*, which were applied in the two examples, are interpretive code categories. They stand for *helps do job better*; *supports sociability, facilitates community building*; *key issue*; *need to transition SEB into innovative knowledge community*; and *need for SEB*.

7.1.2 Units of analysis

Unit of analysis refers to the length of the *data unit* coded. For some qualitative research, the unit of analysis might be as small as single words or as large as entire passages of text. For the SEB project, data units were generally one or more sentences in length and up to one or two paragraphs. Units were divided by meaning. A *unit of meaning* refers to an instance that represents what Herrington (1997) refers to as a "type of talk" (p. 230), either written or verbal, that occurred during an interview, was posted to a forum, or was submitted in a questionnaire. In some data units, the same *type of talk* may have been repeated several times, but the related code or codes were only applied once. The number of times that each code was applied is important because the frequency was counted during analysis as shown in the Sections 7.2 and 7.3.

Because of the length of some paragraph-size data units, multiple rows of code were sometimes required in the matrix. One paragraph could often be coded descriptively in more than one way. In general, when multiple descriptive codes were applied to a data unit, multiple interpretive codes were subsequently applied as well. According to Miles and Huberman (1994), "Any block of data—a clause, sentence, or paragraph—is generally a candidate for more than one code. … In fact, multiple coding is actually useful for exploratory studies" (p. 65). They also argue that coding data segments with both descriptive and interpretive codes can be useful since they are "legitimately two necessary levels of analysis" (Miles & Huberman, 1994, p. 65).

The data source was noted in the matrix to help understand the context of the data unit in terms of the data source as a whole as well as the specific text or dialogue from which the data unit was extracted. Reference to the larger data unit was achieved by copy-pasting larger segments of content into the conceptually clustered matrix and then highlighting the specific data unit with a different color or bold font.

7.1.3 Coding objectives

For the needs assessment, Phase 1, thematic analysis, the researcher was looking for the following content in collected data: statements about key issues regarding the practice of special education in Bulgaria and statements and observations that revealed clues about the need for or feasibility of implementing an online resource for special education in Bulgaria (see research Goals 1, 2, and 3 in Table 1-1, on page 9).

Special education issues were considered important the more often they were discussed by participants. The emphasis placed on issues by participants and the expertise of the participant were also taken into consideration. Regarding the website, information about the quality of computers available and Internet access across Bulgaria was important. The level of skill shown by participants with using the Internet, their responses to the Internet-use questionnaire, and their level of interest in the website were also important.

The next major analysis of qualitative data did not occur until the effectiveness evaluation, Phase 3. For this analysis, the researcher looked for data units that exemplified the various codes defined during the needs assessment, Phase 1. Patterns and themes were noted, primarily, by applying descriptive and interpretive codes to the data units and constantly comparing data units to each other. The constant comparison method is further described in Section 4.3.6, Qualitative code development, on page 78. During analysis, the codes were counted to help identify which issues were most important. The citation level criteria was also used to identify important issues and exemplary data units.

When a data unit could not be described by an existing code, it was marked as deviant in the conceptually clustered matrix (see Figure 7-2). Later, a new code was created or the list of codes was reorganized and the deviant codes were reanalyzed. This method of analysis also served to validate the list of codes. The strategy is termed "checking the meaning of outliers" by Miles and Huberman (1994, p. 269). Additionally, an extended set of interpretive codes was introduced for the analysis conducted during Phase 3. These codes related to Phase 2 and 3 research questions and goals.

Evidence was identified that both supported and negated interpretive codes. This technique, termed, "looking for negative evidence" by Miles and Huberman (1994, p. 271) was valuable for all of the interpretive codes that could be negated. For some codes, it was not possible to define a negative form. For example, the interpretive code 'partner identified / contacted' had no negative form because, in effect, every data unit that did not

discuss a potential partnership would be counted as a negated code. The same was true for such codes as 'preexisting relationships among participants,' 'networking / development of professional reputation needed,' 'peripheral participation,' 'newcomer to old-timer,' and others (Figures 7-10 and 7-11).

In addition to the finding that not all codes appeared to have a negative form, it was found that the researcher had a tendency to seek out data units that provided support for the research questions and goals. It follows that a greater number of codes were supported by the data rather than negated (compare Figures 7-10 and 7-11) due to the *holistic fallacy*—a tendency to interpret "events as more patterned and congruent than they really are" (Miles & Huberman, 1994, p. 263). For this reason, more weight was given to the negative codes during analysis even though fewer examples that negated the interpretive codes were found.

Conclusions drawn from quantitative results were corroborated with qualitative results wherever possible. For example, one questionnaire respondent indicated that in Bulgaria, website users were more inclined to search and read than to participate in discussion forums. This comment was compared to quantitative findings regarding the number of website page views versus the number of postings. Similar examples can be found in the analysis provided in the following descriptive and interpretive coding results sections.

7.2 Descriptive coding

Table 7-3 presents the final list of descriptive codes. The list changed both in length and organization throughout each of the coding progressions (see Table 4-4, on page 80). The final list of codes is ordered in a hierarchical tree. The highest level in the tree is the code *category*. There were three categories: special education, SEB website, and Bulgaria. The next level is the *theme*. The theme is followed by one or more *subthemes*. The terms *theme* and *code* are used interchangeably for data analysis. Themes and subthemes could both be applied as codes to data units. A theme might be applied as a code to a data unit with a broad implication. A theme and subtheme might be applied to a data unit with a specific implication. Every time a theme was applied to a data unit, a category was also applied. Every time a subtheme was applied, a category and a theme were applied.

Table 7-3. Descriptive codes and categories
Number of descriptive codes = 105

1) **Category: Special Education**
   a) **Theme: Integrated education**
      i. Subtheme: Special schools
         1. Subtheme: Function well
         2. Sheltered workshops
         3. Student-teacher ratio
         4. Transitioning role
            a. Still need them / But with restructuring
            b. Get rid of them
      ii. Minorities
         1. Roma
            a. Gypsyphrenia
         2. Turkish
      iii. Border intellect
      iv. Reverse integration
      v. Special daycare centers
      vi. Poor treatment of children
      vii. IEPs (Individual Education Plans)
      viii. Resource teachers
         1. Playing role of many specialists
      ix. General teachers
         1. With special students
         2. Training in special ed
      x. Normalization / Self-determination
      xi. Access to higher education
   b) **Multiple disabilities**
   c) **Equipment / Use of technology**
   d) **Early intervention**
   e) **Visual impairment**
   f) **Hearing impairment** (sign language)
   g) **Intellectually disabled**
   h) **Adults with special needs**
   i) **Physical disabilities**
   j) **Speech and language**
      i. Logopedics
   k) **Gifted and talented**
   l) **Specialists**
      i. Psychologists
   m) **Learning disabilities**
      i. Dyslexia
      ii. ADHD
   n) **Autism**
   o) **Behavior, emotionally disturbed**
   p) **Training in special ed**
   q) **Nonprofit organizations**
   r) **International special ed**
   s) **Parental and family involvement**
      i. Active / Volunteering
      ii. Inactive
   t) **Unsupported / Poorly supported**

1) **Category: SEB (Special Education Bulgaria website)**
   a) **Theme: Challenges with site**
      i. Subtheme: General challenges or aversions
      ii. Lack of community
      iii. Forums
         1. Options
         2. Emails from forums
         3. Topic not in competence area or lack of confidence
         4. Content too simple, only answer others questions
         5. Disrespectful behavior, tactless
      iv. Copyright
      v. Translation
      vi. Impersonal
   b) **Site usage / Interest**
      i. General praise and interest in site
      ii. Forums use or praise
         1. Speed of responses, reliability of responses
         2. Heated debate
         3. Bulgarian language used
      iii. Connect to colleagues from distance
      iv. Participant profiles
      v. Networking
      vi. Mentoring
      vii. Accessed experts
      viii. Resources, links, documents shared
      ix. SpecPedia
      x. Glossary
      xi. Calendar
      xii. Portfolios
   c) **Desired features**
      i. More resources, links, documents
      ii. More participation
      iii. Online training
      iv. Access to experts
   d) **TENC**

2) **Category: BG (Bulgaria)**
   a) **Theme: Ed system (Bulgarian education system)**
      i. Subtheme: Special education system in transition
         1. Russian system remnants
      ii. Geographically dispersed
      iii. Technology
         1. Available
            a. Training needed / Unused
         2. Unavailable / Not enough
      iv. Policy and politics
         1. Lack top-down support for special educators (government, managerial)
         2. Low pay
         3. Corruption
         4. Poor funding, materials, resources
         5. EU (European Union)
         6. Social integration
            a. Cities vs. villages
            b. Economic implications
   b) **Culture**
      i. Hofstede
      ii. Public attitudes toward special education
      iii. Disabled access

Figure 7-1 exhibits the descriptive code categories by percentage. The figures presented in the following section display the frequency that each descriptive code was applied. Exemplary data units and a summary of findings are provided for the more frequently applied descriptive codes.

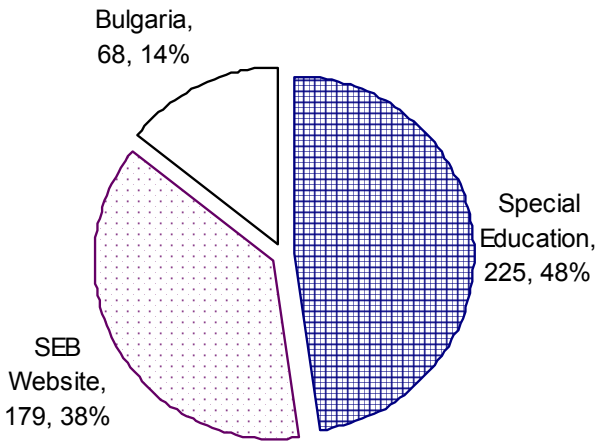

Figure 7-1. Descriptive codes: Categories by percentage
Number of times that descriptive codes were applied = 472

7.2.1 Special education themes

This section discusses data units related to Goals 1 and 7 of the SEB study: to document the practice of special education in Bulgaria; and to define paths for future research. Figure 7-2 lists the themes and subthemes under the 'special education' category by frequency from lowest to highest. The least applied descriptive codes under this category included 'gifted and talented,' 'early intervention,' 'physical disabilities,' 'specialists / psychologists,' 'adults with special needs,' 'unsupported / poorly supported,' 'autism,' and 'behavior / emotionally disturbed.' The data units to which these codes were applied are discussed briefly in the following paragraphs. The subsequent sections discuss the more frequently applied descriptive codes under the category 'special education.'

Regarding the 'gifted and talented' code, results indicated that gifted and talented students were either not identified as being exceptional or were not otherwise included in the special education system. Such students were not discussed during interviews, and the code was not applied to data units (Figure 7-2). 'Early intervention' was applied only a few times, but a keyword search of all data units indicated that it is still an important issue in Bulgaria. One interview participant explained:

> There is no connection or not enough connection between medical specialists and our specialists. And sometimes when a child is born in some small town, they diagnose a disorder very, very late. So the therapy is started very late.

Another interview participant explained that early intervention along with more services for the multiply and more severely disabled, needed to become the focus of special schools as the education system continues to transition to meet the demands of integration.

'Physical disabilities' were rarely discussed in the qualitative data. It seemed that the term was sometimes confused with 'multiple disabilities' among participants. The main reason that 'physical disabilities' were discussed had to do with the requirement for transportation listed in the latest version of Bulgaria's individual education plans.

NOTE: Apostrophes are used to help identify codes as they are mentioned in the text. For example, when the 'specialists (psychologists)' code is discussed, it is in apostrophes.

Several interview participants argued that the role of psychologists and other specialists, see 'specialists (psychologists)' code, needed to increase in special education. Where possible, psychologists currently assist only with diagnoses at the beginning and end of the school year. Research participants felt that 'psychologists' needed to play a greater role in helping students throughout the school year with children's "thinking, imagination, and psychic development." The most acute shortage of psychologists is found in rural areas of Bulgaria.

The topic of working with adults with intellectual disabilities (see the 'adults with special needs' code) came up in the forums when a website participant was searching for information to help them at their new position at an institution. In another case, an adult received help from speech therapists using the discussion forums (refer to the passage titled, Learning disability, on page 170 in the quantitative results chapter).

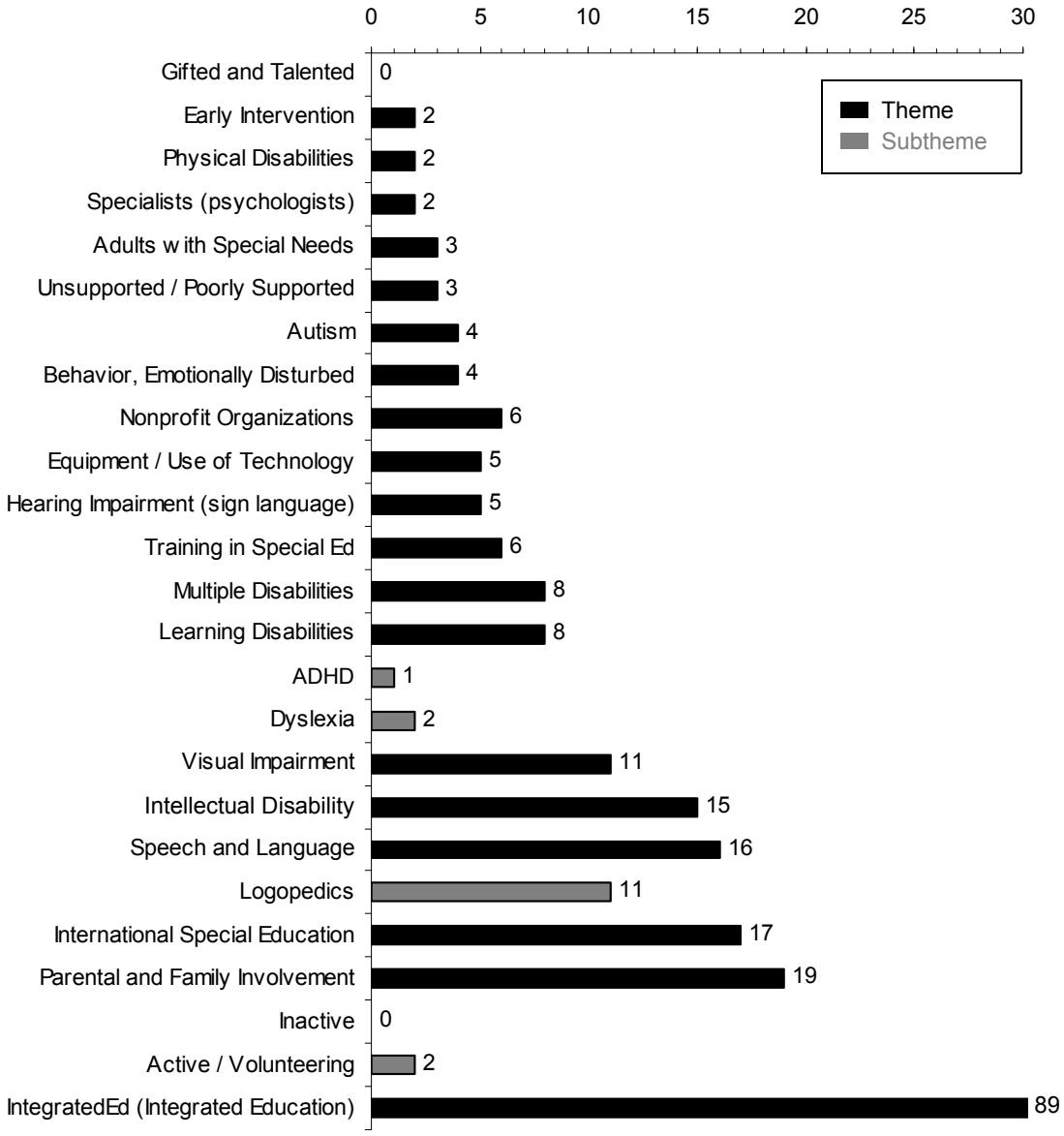

Figure 7-2. Descriptive codes: Special education themes by frequency
Number of times that special education codes were applied = 225

NOTE: The number of times that subtheme codes were applied to data units is included in the total times that the theme code was applied. For example, the 'speech and language' code was applied 16 times. Of the 16 times, the 'logopedics' code was applied 11 times (see Figure 7-2). As another example, the 'parental and family involvement' code was applied 19 times. Of the 19 times, the 'active / volunteering' code was applied twice. The 'inactive' code was never applied.

Some of the conditions reported to be poorly supported in Bulgaria included 'attention deficit hyperactivity disorder (ADHD),' 'learning disabilities,' and 'autism.' Autistic children in Bulgaria are often improperly diagnosed and taught in groups along with the children with intellectual disabilities. The education of students with 'behavior problems' came up once in the discussion forums but was not discussed by interview par-

ticipants (refer to the passage titled, Etopedia, on page 170 in the quantitative results chapter).

Nonprofit organizations

The 'nonprofit organizations' code was applied to data units that included information about NGOs in Bulgaria. One example is the Ivan Rilski organization's Portal Integration website (Portal Integration Project, 2005). This site was started about the same time as SEB by Bulgarian volunteers. It contains a great deal of information about social inclusion and the integration movement in Bulgaria. The site was cross-posted on SEB and multiple discussion threads were started with links to various pages hosted by Portal Integration. One of the most frequent SEB discussion forum searches was for the keyword "Ivan Rilski" (see Figure 6-44, on page 171).

Another example is the NGO called the First National Centre of Dyslexia Bulgaria. An employee from the Centre responded to SEB's email questionnaire and later agreed to host a SEB discussion forum about dyslexia. Postings to SEB's Internet Links gallery included links to the Union of the Hearing Impaired in Bulgaria and the Parents Association for Children with Hearing Impairments.

One discussion forum post was made by the Chair of an association that operates a Bulgarian center for children with disabilities who do not go to school. The Chair is very proud of the center where he reported that they welcome visits from children in the mainstream school system who teach those with disabilities how to draw and socialize. He argued that instead of trying to integrate children with disabilities into a group of 20 mainstream students, it is much better if one or two children with normal mental development visit the center.

Equipment / use of technology

The 'equipment / use of technology' code was applied to data units that described how students and adults with special needs used technology including screen reader and instant messaging programs used by a blind woman who was also the technology instructor at a school for children with vision impairments in Sofia. At the same school, several students with vision impairments were building the school's home page. While discussing the website, the father of one of the students called his son to confirm the version of the Dreamweaver website development software used and to ask some question about the JAWS (Freedom Scientific, 2008) screen reader software.

The researcher attended a session regarding cochlear implants at a school for children with hearing impairments in Sofia. During the session, a speech therapist demonstrated how to teach a young Bulgarian girl to speak. The girl had recently received cochlear implants. Though no qualitative data was collected or coded from the session, it indicated that there is access to such technologies in Bulgaria.

Hearing impairment / sign language

Discussion topics regarding a Bulgarian sign language dictionary came up several times. In one post, a participant requested information about where to find a dictionary. Under the discussion forum titled, "Sign language dictionary?" the participant said, "I need a dictionary of gestures and mimic language." Two website participants responded with information about where and how to find the reprint of an older dictionary and informed her about the expected release of a new dictionary in June 2007.

In another forum posting, respondents discuss an official format for Bulgarian sign. They compare the Bulgarian version to an official version in English and argue that the English version could be the model. One forum respondent said, "Happy I am to return a request to vote online for idea number 916 3A for a legal format for sign language with nice drawings to teach both a little and a lot (or both small and large) of sign language." A second responded:

> I think that truly we have a need for something like this. I remember that for English speaking there was something like this, and it was applied to computer, not paper, and electronic versions. A lot inspires me about this because there would be a large group of users, not only deaf, but friends, family, and everyone that associates with them.

A third website participant responded:

> I have admiration for what you are trying to do. This is a very beautiful idea, and it is well that it comes from you. You have my support if there is assistance for us. God will be with you and the deaf for us to realize this idea! It is certain it will be very expensive, but I know that it will stand one day. Success!

During an interview session, it was explained that though Bulgaria has an official sign speech standard, there are many sign language gestures used that are unofficial. More research is needed to standardize Bulgarian practices. More research is also needed in Bulgaria regarding how to use sign language as a first step toward oral communication.

Interest among participants in this topic can be corroborated with quantitative findings that revealed a relatively high number of posts and page views in a forum discussion about a dictionary for Bulgarian sign language (see Section 6.2.2.2, page 168).

Training in special education

The 'training in special education' code was applied to data units regarding website participants interested in studying special education at a university. In most cases, students posted a question about a course and existing students in the course responded. In other cases, students had questions about textbooks and course scheduling. In one case, a senior academic had a question about how to run a volunteer program for her students to a local day center for children with disabilities. The academic posted to the discussion forums:

> Some of the practical classes of our students take place at the day centre for children with disabilities (founded eight years ago). We are in the process of forming a group of volunteers who will teach the children how to draw, to dance, etc. [We] will take them to the zoo, to a sweet shop or even visit them in their homes on the weekends or during vacations. They are eager to do lots but lack much experience, and [we] would gladly take advice [about] how to proceed.

Quantitative findings also indicated a significant level of interest among participants regarding training in the practice of special education (see Section 6.2.2.2, page 167).

Multiple disabilities

The education of students with multiple disabilities is an area that research participants found to be poorly supported in Bulgaria. One participant, a university lecturer interviewed in September 2005, explained that it was only 2001 or 2002 that the first regulation regarding their education was established. Prior to this, students with multiple disabilities "just stayed home or lived in institutions." The participant continued, explaining that only students:

> With very mild disabilities, lets say mild visual or mild hearing problems that could be easily overcome in class with a hearing aid or something like this [are integrated], but severely handicapped, multiply handicapped [students], they still go to special schools. So their needs are not so well met at the current point.

Most students with multiple disabilities and more severe handicaps in Bulgaria are taught at regional day centers. Some students have parents that take the them back at the end of the day and others live at the center. According to the documentary, *Bulgaria's abandoned children* (Blewett, 2007, November 18), "Bulgaria has the highest number of physically and mentally disabled children growing up in institutions anywhere in Europe." This finding is supported by a report published by UNICEF (UNICEF Innocenti Research Centre, 2005). The conditions in some of the institutions are well below acceptable standards (Blewett, 2007, November 18; Rowling, 2006).

Research participants of the SEB project, however, did not mention any of the most serious details regarding the institutions. The extent to which participants knew that such institutions existed or how poorly children were treated in them is unknown. It may also be that they did not feel comfortable discussing the institutions with the researcher, preferring to point out more positive aspects of the Bulgarian special education system. The following quote is the only statement from an interview participant that made reference to the fact that students in institutionalized care received less than adequate attention. The participant said:

> Take an example of a multiply disabled child, let's say intellectual disabilities, vision and hearing loss, trouble with some physical disabilities as well maybe seizures. Such a child probably would be kept at a home until he or she reaches school age. There are some day care centers, special day care centers the child can go to. There is no usual education taking place there.

During the formative evaluation, Phase 2, when an interview participant was shown a British newspaper article titled, *Plight of Bulgaria's lost children: Tied up and neglected in care homes*, (Smith, 2006), the participant simply nodded their head in understanding. There was no surprise.

Learning disabilities

Much of the discussion regarding learning disabilities had to do with its inclusion in the speech and language field. During an interview session, a senior academic in the area of speech and language in Bulgaria defined *learning disabilities* as, "specific educational impairments of the learning abilities." She explained that the exact Bulgarian translation of the term is not very precise.

The academic said that every third child in Bulgaria is reported to have a learning disability or "learning difficulty." These students receive special help from a speech therapist. There are two other classes of learning difficulties identified: "specific learning difficulties" and "severe learning difficulties." She said that students with specific learning difficulties have damage to a certain area of the brain that can generally be seen using a CAT scan. These students have a normal IQ in areas other than those affected by the region with brain damage. She did not define severe learning disabilities, but it is assumed that this referred to students with a low IQ in multiple areas or an IQ that approaches the classification for having an intellectually disability.

Other research participants reported that learning disabilities were one of the least treated areas of special education in Bulgaria and that most speech therapists focused only on speech-related difficulties. The Bulgarian letter 'R,' for example, is very difficult for many children to pronounce. There are studies, said interview participants, that link this difficulty to genetic inheritance.

Though spelling is said to be easier in Bulgarian because every letter in pronounced, in practice and by observation, the senior academic interviewed found that spelling mistakes were still common though perhaps less frequent than in English. She also found, "In speaking informally with colleagues, ... that Bulgarian pupils suffer more from writing problems and not so much from reading. But in English speaking countries, students suffer more from reading problems instead of writing problems."

Visual impairment

The 'visual impairment' code was likely applied to data units a few more times than it would have if the researcher's associate supervisor in Bulgaria practiced in a field other than visual impairments. The researcher's associate supervisor in Bulgaria was the most active discussion forum moderator. One of the topics that she posted related to tactile intelligence and the creation of relief pictures. She had hoped to discuss techniques for creating relief pictures in the forum but responses were quite limited. Another topic that she posted had to do with organizing a follow-up meeting to a 2004 orientation and mobility conference held in Bulgaria. Again, the response rate was low. She had the most success responding to various participant postings with expert advice.

An interview was also conducted with a senior academic who was a pioneer in the area of integration in Bulgaria. Prior to the fall of communism in 1989, he had begun to

integrate students with vision impairments into mainstream classrooms. He explained, "Very quiet, I spoke with inspectors at the Ministry of Education, and they told me that they knew I had a Western orientation. They gave me permission to start integrated education, but asked that it was done without noise, no noise." In other words, they wanted him to keep it quiet. The Ministry did not want trouble to start among other practitioners in Bulgaria or with representatives from the former USSR. Today, he said, there are more students with vision impairments integrated into mainstream schools than from any other area of special education.

At a special school for children with vision impairments in Sofia, the researcher discussed the national parents association for children with vision impairments with a participant. The parents pay 1 Leva (0.50 Euros) per month for membership, which helped pay for student transportation to and from school. The association, of about 600 parents, is most active in Bulgaria's larger cities. Parents in the association can take courses in Braille and English, and they help the special schools pay for technical aids including software, computers, and talking books.

Intellectual disabilities

The intellectual disabilities discussion forum was one of the most active (Figures 6-39 and 6-40 on page 164, in the quantitative results chapter). One of the topics discussed was about hydrotherapy for children with cerebral palsy. Another posting was a request for information about didactic games for children with intellectual disability.

One of the reasons that the intellectual disabilities forum was so active is that many university students posted topics related to their academic studies. A topic about integration was also posted. It had to do with the negative attitude that mainstream teachers have toward students with intellectual disabilities. The participants discussed how integration is difficult when mainstream teachers do not want to work with the children. One respondent stated:

> In my job, I have met a fifth-class student who can't read and write, a seventh-class student who can't add two plus two without counting it on her fingers, etc. In my opinion, had not their parents refused to send them to a subsidiary school, they would have learnt at least to read and write. Most teachers have a negative attitude towards integrating mentally retarded students. They don't mind working with physically disabled children but are not inclined to do it with those with intellectual disabilities. There is still a long

> way to go on the road to real integration. Let's do it not just parroting imported experience but step by step in the interest of children.

Many of the topics related to intellectual disability led to a discussion about integration because the care and education of students who have intellectual disabilities takes place, primarily, in special schools. The teachers at these schools are worried about what will happen when the students are integrated. In many cases, they are worried about losing their jobs.

One Bulgarian researcher interviewed found that "there is a real negative reaction from special educators in schools for the students with intellectual disabilities. I guess they are just afraid for their jobs. Because if all the children will be integrated in regular schools, what will happen with the special school." The researcher interviewed, however, did not think that this was a very realistic problem "because all of the populations of multiply or more severely impaired will substitute for those kids." The researcher argued that "the same is happening with our schools for the blind. We send many students away with visual problems only, to a regular school, but then we have many, many students admitted visually impaired with additional disabilities." The researcher found that most special educators in "the other special schools, for blind and for hearing impaired, they had some sort of positive and some sort of negative attitude toward integrated education, but they were more open to it."

Speech and language / logopedics

The 'speech and language' code had one subtheme code titled, 'logopedics.' In Bulgaria, the term *logopedia* is used instead of the term *speech pathology*, which is used in many Western countries. Logopedics or logopedia can be defined as the scientific study and treatment of speech disorders and defects. A specialist practicing in the logopedia field is a logoped. A senior academic interviewed explained:

> Speech pathology equals logopedics, exactly, and this is in the field of health, science, and rehabilitation. … Special education is under the classification of education. … Usually a special educator is helper of integration of children with special educational needs or is teacher or resource teacher. Here, we teach only one option and that is for speech therapy, which may be in a clinical setting or a team approach.

A website participant defined the work of a logoped in terms of speech pathology. The participant wrote, "Speech-language pathologists or speech and language therapists address people's speech production, vocal production, swallowing difficulties and language needs through speech therapy in a variety of different contexts including schools, hospitals, and through private practice." The participant explained in a discussion forum post that he was disappointed with the still widespread belief in Bulgaria that speech therapy belongs in the special education field.

In Bulgaria, the field of speech and language therapy generally includes the treatment of learning disabilities as well. The combination of these two distinct areas is currently a topic of heated debate. Logoped specialists argue that this is an organizational structure from the Communist era that is in urgent need of change. The debate was brought up several times in the discussion forums. One of the postings included a link to the EU minimum standards for speech therapist training. A senior academic stated, "It must be changed. You cannot say that you are teacher and you are medical doctor. You cannot be both at the same time. It is the same with speech therapy and special education."

The researcher found that the practice of special education in Bulgaria focused only on the most serious physical and intellectual disabilities, such as blindness and severe visual impairments, deafness, and mental retardation. It may be for this reason that learning disabilities, including dyslexia and dyscalculia, were still included in the speech and language field.

In a response to a web-based questionnaire, one participant asked if it would be possible for SEB to host online seminars regarding therapeutic approaches to communicative impairments. Another participant responded that SEB would be more helpful to her if it hosted scientific articles about logopedia. Participants also reported that speech therapy was one of the areas of special education in which they were most interested (see 6-31 and 6-32 on page 158, in the quantitative results chapter).

International special education

Several interview participants, all of whom were university students in special education, indicated that they were most interested in how special education was practiced internationally. One participant hoped that SEB would host links to information about study-abroad programs in special education. They also suggested, "Add links to other special education portals with discussion forums and such from around the world, espe-

cially those in English." Another participant was interested in meeting practitioners from abroad in SEB's discussion forums. The number of post-interview questionnaire respondents that indicated they would access SEB to gain an international insight on the practice of special education is presented in Figure 6-34, on page 160.

It is interesting to note that modern Bulgarian special education policies are generally modeled after those from abroad. The individual education plan forms used, for example, were modeled after foreign versions from the United States, United Kingdom, and Germany. Special educators in Bulgaria, especially those who have been practitioners since the twentieth century, still frequent Russian websites on special education. There is a great deal more information available in Russian than in Bulgarian on the Internet. The new generation of special educators, however, generally speak English rather than Russian.

In discussions about integration, comparisons were often made to the integration process in Western countries including Belgium, Denmark, Italy, and the United Kingdom. In one discussion, a comparison was made between the social inclusion of the blacks in the Southern United States and the inclusion of Roma in Bulgaria. Another interesting discussion about integration began with the following post:

> My cousin lives in Belgium. His son, who is six, was diagnosed with autism. I know the child well, many months almost continuous with him, and I think that he is one radiant and intelligent child and very pampered. For him, it is not possible to build something on his own. Ordinarily, you must persuade him for everything. It confuses me that in a class of 22 children, three are autistic (boys). And in the entire school, in every 20 to 25 children, 2 to 3 are diagnosed as autistic. What is this in Belgium? epidemic or fashion! Or they understand about autism something else?

Parental and family involvement

During the needs assessment, Phase 1, several participants asked why parents were not specifically targeted as an audience of the SEB website. It was initially thought that SEB should be focused on a more specific group and that including parents would make the community to broad. During Phases 2 and 3, the target audience was altered to include parents. The general information posted to describe SEB to new users was changed to reflect this decision. It is still unclear what effect this had on the community. It is clear that some parents were active in the discussion forums, but it seemed, on the

whole, that these parents were also practitioners in special education. It is not possible to determine how many parents visited the website or how many registered. A new web-based survey was posted to SEB to address this topic, but the posting was too recent for results to be included in this thesis.

According to one of the senior academics interviewed, the role of parents in education in Bulgaria has steadily changed since the end of communism. To help explain, they said, "There is even a saying when a student is doing something bad and someone is trying to correct them. … Is this what they teach you in school?" They argued that this mentality needed to change and that parents needed to more fully understand their role in the education of their children. The academic conducted some research on integration and found that:

> Parents are very much open to this idea because they would like to keep children with disabilities at home and not to send them away, far away, usually to a different town, to a different city, to see them only a couple of times a month or per semester. So they are pretty much open.

Several website participants posted discussions specifically to address the changing role of parents in special education. These discussions led to comments regarding the role of parents in early diagnosis and in organizing learning, work, and play activities in the home. In one of the few Blog posting to SEB, a website participant started a list:

> Advice for Parents: What could parents do in the home to facilitate and help their children: (1) organize effective daily cleanup duties that are accessible for completion; (2) alternate preparation of housework with time for creation and play, don't overload the child and it will be more effective; (3) grade and arrange for important textbook assignments for the day, too much of this will not bring success or motivate the child.

Integrated education

The most frequently applied code by far was 'integrated education' (see Figure 7-2). 'Integrated education' also had the largest number of subthemes, so many in fact, that they could not all clearly be displayed in the same figure as the other descriptive codes. For this reason, Figure 7-3 was also created. The 'special schools' code was the most applied subtheme under 'integrated education.' This subtheme had several additional subthemes as shown in Figure 7-4. The 'minorities' code also had additional subthemes (see Figure 7-5).

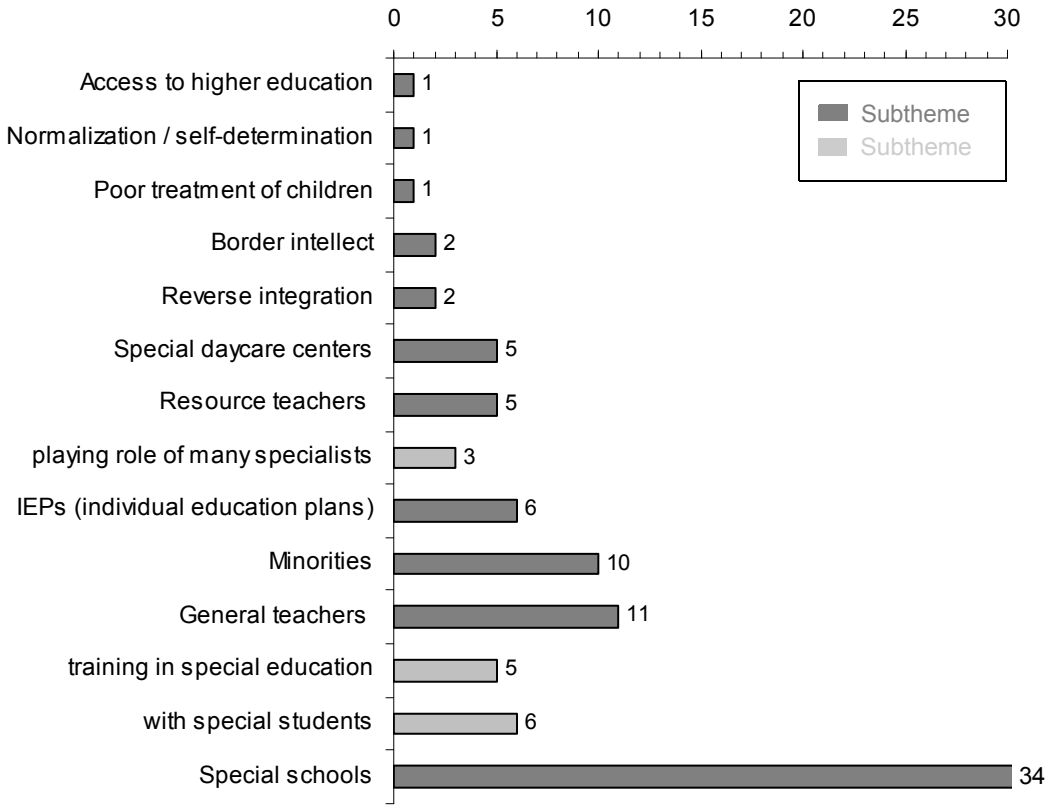

Figure 7-3. Descriptive codes: Integrated education subthemes by frequency
Number of times that Integrated education codes were applied = 78

NOTE: The number of times that subtheme codes were applied to data units is included in the total times that the theme code was applied. In addition, the numbers displayed on the comparison bars are included in the total number of times that the related subtheme code was applied. For example, the 'transitioning role' subtheme code was applied 27 times (see Figure 7-4). Of the 27 times, the 'get rid of them' code was applied three times and the 'still need them' code was applied 11 times. It can also be noted that the frequency with which the 'get rid of them' and 'still need them' codes were applied can be directly compared.

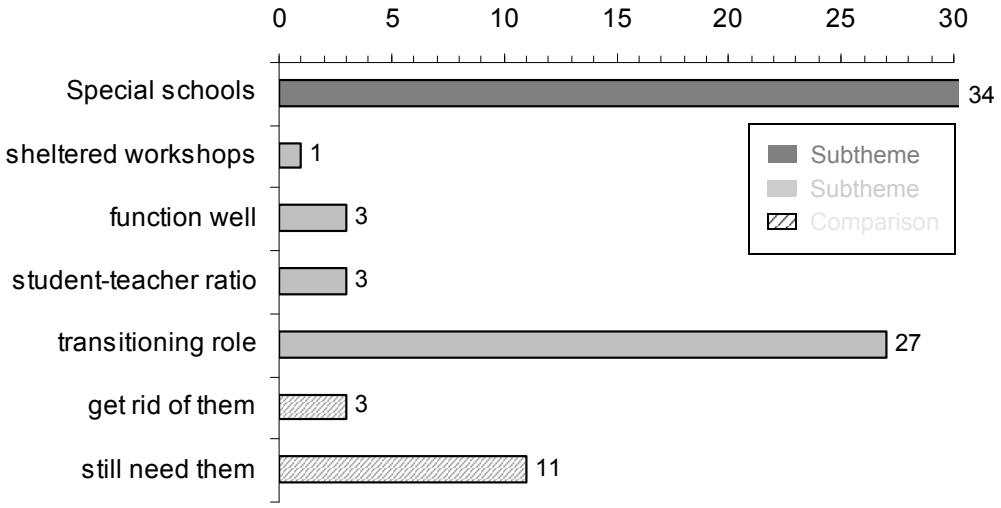

Figure 7-4. Descriptive codes: Integrated education, special schools subthemes

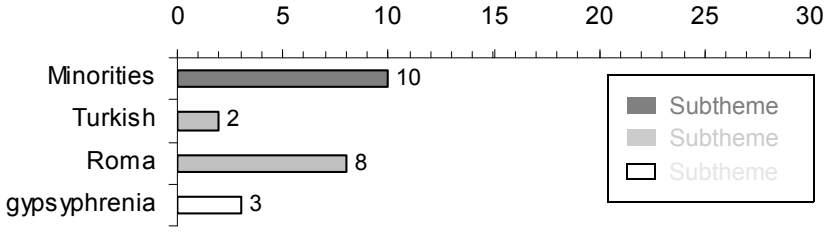

Figure 7-5. Descriptive codes: Integrated education, minorities subthemes

It is clear from interview and the discussion forum data that the Bulgarian special education system is in a state of transition. At present, the country's system of special schools appears to be receiving the most attention. An impassioned ongoing debate about what to do with the special schools carried over from 2006, ran through 2007, and continues to spur discussion in SEB's forums. The main forum thread was titled, "Should we have special schools?" (see Figure 6-42, on page 167, in the quantitative results chapter). In addition to discussions about special schools, website participants discussed individual education plans; a potential new center for young special-education volunteers; a recent Bulgarian law regarding integration; and applications for students with vision impairments to attend university. These discussion threads, all of which are related to integration, were some of the most popular in the forums (see Figures 6-41 and 6-42 on page 166).

At one of the special schools for students with intellectual disabilities in Sofia, interview participants reported that about 70 children are now integrated into ten local public schools and one kindergarten. At a school for students with intellectual disabilities in Vratsa, 60 children were reported to have been integrated. Similar integrations had

occurred in the towns of Blagoevgrad and Sliven. At the time of the interview in May 2006, the students in Vratsa had been integrated for about one year. A total of 700 students with all different forms of disability, were reported to have been integrated into mainstream schools across Bulgaria at that time. Further integration was expected across Bulgaria in 2007.

Under the 'special schools' code, there were several subthemes. The 'sheltered workshops' subtheme (see Figure 7-4) was applied to a data unit that stemmed from an interview question about the *principle of normalization*—making available to all people with disabilities the conditions and rhythm of everyday living that are as close as possible to regular ways of life. The senior academic said:

> We do more and more, like deinstitutionalization. … Closing social institutions and taking people, either children or adults, out from there. I believe that this is one of the factors, you know showing that the principle of normalization is really happening. We are trying to do more about employment for people with disabilities. We still have the sheltered workshops for them, and I believe we have to keep them. … [The workshops] are places, usually where people with disabilities can get a job. For example, such sheltered workshops exist under the head of the unit for deaf and unit for blind. … [The workers there] produce whatever is required or needed right now by the market. In the past, the sheltered workshops for the visually impaired were producing suitcases, bags, things like this.

The other subthemes under 'special schools' related to participant opinions about how well the special schools function and if they should be kept open. The codes indicated that the majority of research and website participants felt that the special schools must remain open but that the manner in which they were operated must also change (see Figure 7-4).

Under the 'minorities' code, there were three subthemes: 'Turkish,' 'Roma,' and 'gypsyphrenia' (see Figure 7-5) According to one interview participant, for Turkish children, "the big question is to teach them Turkish as a second language at school or not." By law, it is required that Bulgarian is taught as the first language in schools, but the Turkish minority "wanted to be able to learn Turkish as a second official, maybe not exactly official, but as a second language at school. … There is an ongoing debate about this. There are still some schools only for Turkish children where the [region's] popula-

tion of Turkish people is very high." Participants reported that the Turkish minority represented greater than 10% of Bulgaria's population.

Another large minority group in Bulgaria is the Roma.[1] According to *the Economist* ("Europe's Roma," 2008), There are 800,000 Roma living in Bulgaria, which makes up about 10% of the total population. Bulgaria has the second largest population of Roma in Europe.[2] Eighty-four percent of the Roma in Bulgaria live below the poverty line. Many Roma children are taught in Bulgaria's special schools regardless of their physical and intellectual health. The following two sections discuss some of the arguments for and against closing Bulgaria's special schools. Many of the arguments for closing the schools are directly related to the schools' Roma population.

Special schools

When asked what changes in the Bulgarian special education system were expected in the next five to ten years, the majority of interview participants replied that progress toward integration would be made. When asked what the Bulgarian special education system does well, the majority of interview participants responded that the special schools system was well run. It was not surprising then that the largest debates discussed in SEB's forums related to whether Bulgaria's special schools should remain open or be closed and in what ways the schools must change to help meet the requirements of integration.

Participants arguing that special schools must remain open outnumbered those that said they should be closed by a significant margin (see Figure 7-4). One of the more frequent discussion forum users argued:

> Yes, we must have special schools. There they can react adequately and correctly to needs. … There should be a resource center in the special school to help prepare children for integration, and there must also be a delegate in the mainstream school.

1. Roma are a people believed to have originated in India but now live in countries throughout the world. The term *gypsy* is often used with reference to the Roma because of their close cultural and physical similarities. They were traded as slaves in parts of the Balkans in the 19th century, leading to comparisons with America's black population of the same period. Democracy and capitalism has not improved and in many ways led to worse treatment of the Roma in Eastern Europe. Their way of life leaves them few prospects in a market economy ("Europe's Roma," 2008).
2. Romania has the largest population of Roma in Europe, 2.5 million, which makes up more than 10% of the country's total population ("Europe's Roma," 2008).

A respondent to his post replied:

> You do not have a clear notion of what a resource center is. The resource center is not to prepare children, but to make available resources from a specialist, one that is used at a general school where they conduct integration. … Right now, the resource centers in general schools are way too crowded to be effective. Closing the special schools should direct more funds to the resource centers in the general schools.

To this, the original poster replied:

> For seven years I have worked at a special school with integrated students, and I clearly understand what a resource center is. I am convinced that without special schools there will be no success with integration. In the United Kingdom, the integration process has been going on for thirty years and still continues to use special schools. I have a friend who is the director of a special school there, www.greenside.herts.sch.uk.

Other postings related to how the concept of integration gave parents an unrealistically optimistic view of the abilities of their special needs children. A participant, who reported that they had directed a resource center at a special school for 15 years, recommended that the integration process not be hurried. The participant said that they used to be more enthusiastic until they saw how many ambitious parents of children with severe disabilities decided to use the new opportunities related to integration and in this way unintentionally created many new problems.

Still another participant was skeptical about the success of attempts to close special schools and integrate children with intellectual disabilities because "it is a costly process and our state institutions are not inclined to foot the bill." Other participants agreed, stating that there are not enough resource teachers to assist mainstream teachers with integration and that mainstream teachers are not prepared to work with the integrated students. In addition, it was explained by several participants that resource teachers in mainstream schools are expected to work with students that have all forms of disabilities. More specialists are required rather than resource teachers with very general training. And many special educators are worried about the possible negative behavior associated with the meeting between students with disabilities and mainstream students.

One participant, who works in a special school for children with multiple disabilities argued that, in her opinion, the most important thing for such children is to become

part of some social environment instead of staying at home. On the other hand, she did not recommend the environment of a mainstream school where the other children might be cruel. She cited the impression of a child who, after having attended regular school for two years, told his mother in the evening of the first day in a special school, "There nobody offends me."

One senior academic interviewed said, regarding special schools:

> It is theoretically very strong. … At the special schools education is very positive. According to me this is the right model, having special schools but integrated education depending on the population and depending on the child, the degree of disability. The severely handicap, they should be in a special school.

Another university lecturer agreed:

> What works well about our education system, the special schools function very well. They have traditions. They have nice resources over there, highly qualified specialists and professionals working there. So I would say our system of special schools is functioning very well. The special schools are doing very well with this transition period. Because of integrated education, many students with only one disability will leave the special setting and go to regular school. This leaves a big gap in special schools, and they will start admitting a new population, the multiply disabled. I think they are doing very well with this transition. … For example, I can give you statistics for a school for the blind. Twenty-five percent of the students of schools in Sofia and Varna, are multiply disabled. So 75% are visually impaired only. And the trend is for the multiply disabled number to go higher.

The director of a special school with 90 students and 22 teachers also said that the special school system was strong, though they were short on learning materials including workbooks and textbooks. She said:

> We have very good system to work with these children because we have good parent teachers for them. And they know the problems of the children and what they need. We know which way to help the children, and we have many activities, like music and dance and painting.

In addition to the shortage of learning materials, she also said that the teacher-student ratio was poor and the special schools were too crowded. Grades 1 to 4 are in class from 8:00 to 13:30 and grades 5 to 8 from 13:30 to 18:00. In addition, though the classes are separated by grade, students with intellectual disabilities, autism, and psychological problems, including schizophrenia, are all educated in the same classroom.

Roma

The Roma are Europe's largest "stateless minority" ("Europe's Roma," 2008, p. 35). Estimates of the total number of Roma in Europe, "range between 4m and 12m—loosely labelled as Roma or Gypsies, that is life: corralled into settlements that put them physically and psychologically at the edge of mainstream existence, with the gap between them and modernity growing rather than shrinking" ("Europe's Roma," 2008, p. 35). One research participant reported that the Roma have their own language, but it has no written form. For this reason, they have difficulty with other languages. The participant said that there are still a very high number of segregated schools only for Roma children.

Additionally, more than 30% of children in Bulgaria's special school system are reported to be of Roma origin (Carter, 2005; Kolev, Krumova, Metodieva, Bogdanov, & Zahariev, 2007). Researcher observations at special schools and research participant responses, however, indicate that the actual number could be much higher. What is troubling is the intersection that research participants said occurs with the placement of both children with intellectual disabilities and healthy Roma children under the same institutionalized care. In this environment, normal Roma children achieve at levels far lower than they are capable and may even exhibit signs of mental disability—a condition termed *gypsyphrenia* by some Bulgarian educators.

One of the senior academics interview said, "The schools of mentally disabled are very old. They are very closed. … The children are isolated. … They accepted so many mistakes because they accept the children who are not mentally disabled. For example, the children of Gypsies."

According to the research of another senior academic interviewed:

> Socially disadvantaged groups, minorities, usually like the idea of special education in special settings because you know, for economic reasons. If there are, say, ten children in a family, it is nice to send one away and someone else

> will take care of the child. This [view] applies very much to the Roma families.

According to one of the most active discussion forum participants, "90% of the subsidiary schools should be closed down, because they are full with poor Roma children." He argued that the situation is harmful and even dangerous to the children with disabilities as well as to the Roma children. He said, "Mentally handicapped children could be integrated much easier in a regular school. These children ought to be prepared to live among 'regular' people. Their isolation in the company of other handicapped children constitutes an infringement of their rights."

Another participant agreed that there are many children in special schools who should not be there but argued that attempts at integrating Roma children very often end in failure. They just drop out of school, because they are ridiculed and maltreated by their classmates. The participant said that among the Roma children in special schools, there are also many with intellectual disabilities. The factors that lead to intellectual disability, which include early pregnancy, malnutrition, incest, and others, are typical in the Roma population.

In response, the participant who made the initial post said that the possible negative attitude towards the Roma minority in some mainstream schools should not lead to the conclusion that the Roma must be isolated in ethnically segregated schools. He continued:

> Because of the large percentage of newborns of Roma origin, if we don't start to integrate them now, very soon it will become very difficult, if not impossible. Almost all the Roma in subsidiary schools are not intellectually disabled, their retardation has social etiology. In conversations with colleagues, one could hear the horrific term *gypsyphrenia* used to designate the retardation due not to impairment of the central nervous system but to social neglect. The only solution to this problem is to allow the Roma into Bulgarian schools.

This section discussed data units that yielded descriptive information about the practice of special education in Bulgaria. The main areas discussed included hearing impairments and sign language; multiple disabilities; learning disabilities; visual impairments; intellectual disabilities; speech therapy; parental and family involvement; inte-

grated education; and the Roma minority population. The next section discusses themes related to the use of the SEB website.

7.2.2 SEB website themes

This section discusses data units related to Goals 2 and 3 of the SEB study: to report on the need for an online community and professional development opportunities for special education stakeholders in Bulgarian; and feasibility of developing an online community and providing online professional development opportunities. Data units regarding Goals 5, 6, and 7 are also addressed: to evaluate the effectiveness of the online community in terms of existing theoretical and design principles for Internet-facilitated CoPs; define design principles for the establishment of online communities for special education in countries or regions with cultural dimensions similar to those found in Bulgaria; define paths for future research. Figure 7-6 lists the themes and subthemes under the 'SEB website' category by frequency from lowest to highest. The descriptive code applied least often under this category was 'TENC.' This code is discussed briefly in the following paragraph. The subsequent sections discuss the more frequently applied descriptive codes under the 'SEB website' category.

The 'TENC' code was applied to data units that implied that it would or would not be feasible for SEB to partner with the TENCompetence project or that SEB would or would not benefit from such a partnership. It was also applied to data units that specifically referred to TENC. In one case, during a department meeting, a faculty member of the Department of Special Education at Sofia University asked the researcher how much the Moodle software, SEB website, and TENCompetence custom software cost. The researcher replied that they are all free, that they can take a significant amount of time to work with but are otherwise free to access and use. The staff at the meeting also questioned whether special education training through TENCompetence would have equivalence in other EU countries. The researcher replied that this was one of the very questions that TENCompetence intended to address. See also Section 7.3.4, TENCompetence and SEB, on page 245, for interpretive coding results regarding TENC.

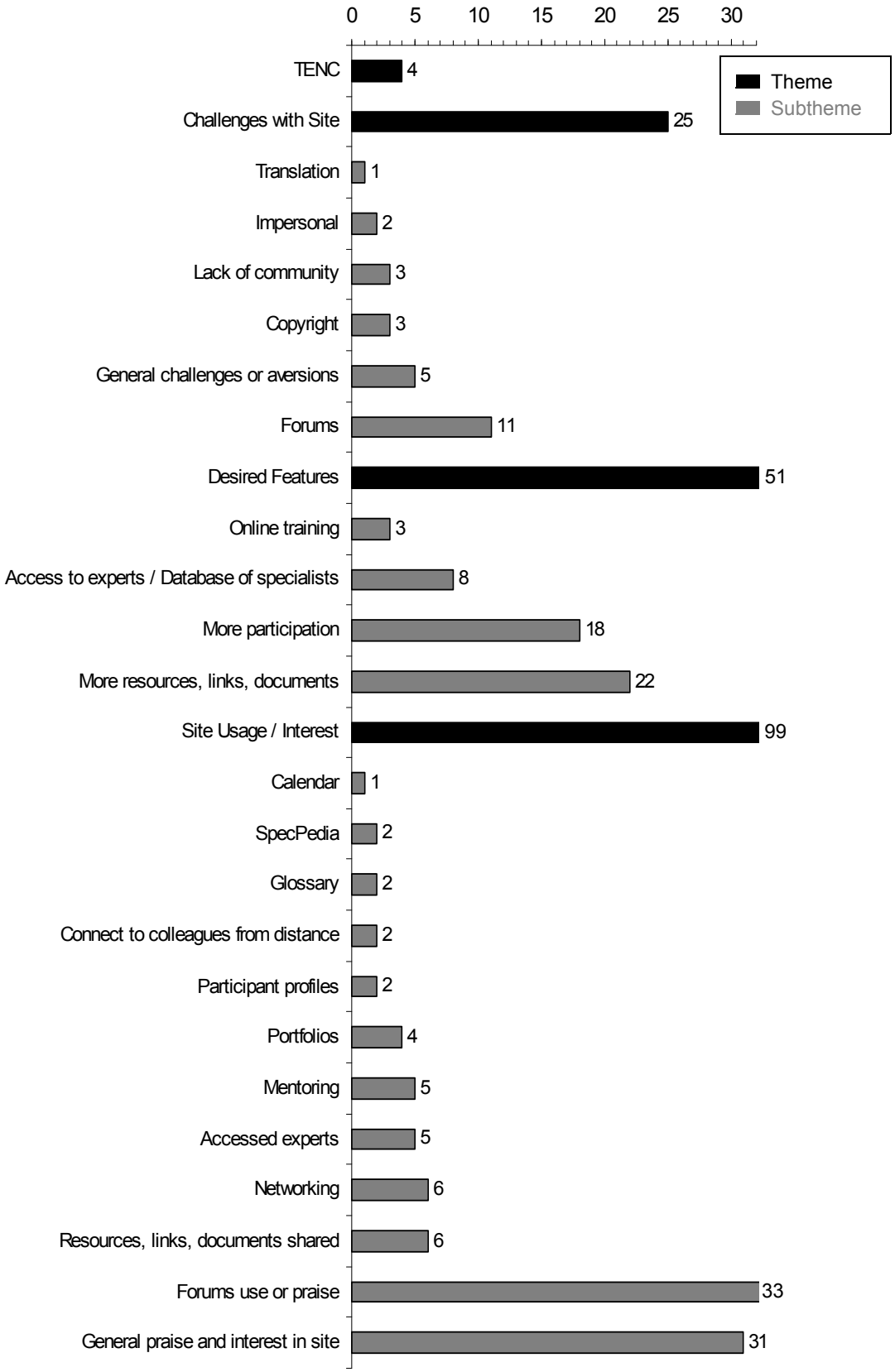

Figure 7-6. Descriptive codes: SEB website themes and subthemes by frequency
Number of times that SEB website codes were applied = 179

Challenges with site

There were six subthemes under the 'challenges with site' theme (see Figure 7-6). The 'translation' code was applied to a data unit from a usability interview where the participant explained that they were disappointed with the main content of the site because of mistakes in the Bulgarian language. It was the thing that they liked lease about the website. The issue of copyright only came up once in the discussion forums. A user requested content from a circulation-based special education journal published by Sofia University. A respondent, a student in the university's Department of Special Education, responded that they would request permission from their teacher to see if they could post it. The content was never posted, and it is unknown if permission was ever sought.

Regarding the special education journal, the idea to post exemplary articles on SEB came up during interview sessions with lecturers from the Department. It appeared from participant responses that the idea would be approved. It was thought that it might be good advertising for the journal not to mention a good potential resource for site users. Nevertheless, the idea never took shape. It is still a possibility. It might also be possible to link SEB to a site that would allow participants to pay for subscriptions. It would be a good objective for future iterations of the website. At present, only the table of contents from the journal is available on the Internet.

Two interview participants reported that the SEB site was too large and 'impersonal' (see Figure 7-6**).** One explained that they had a lot of information to share but that they did not want to waste their time in discussion with people that did not care to the extent that they did about certain special education topics. The participant said:

> I sometimes respond to certain discussions on the site, but I have so much more knowledge and information than I could share. The SEB group is so large. Perhaps if there was a smaller group that I could participate in. I want to speak with people that really try, with a much higher level of special education.

The second interview participant said, "The site feels very impersonal right now. I do not feel very close to it. I can only discuss in the site but never really know who I am discussing with. Maybe with chat, ... but I have not really used it so far." The 'lack of community' code was applied to data units that indicated that the participant had not met anyone using SEB. In retrospect, it might have been better to combine this code with the 'impersonal' code

The most applied subtheme codes related to the 'challenges with site' theme referred to the discussion forums. The 'forums' code had several additional subthemes as shown in Figure 7-7. The 'content too simple, only answers others' code was applied to a data unit from a personal interview with one of the more frequent website participants. The participant found that the content discussed in the forums was too simple. They said that they only answered others questions. Several email questionnaire respondents simply stated that the site had not yet helped them professionally. One email questionnaire respondents stated that "using the website in a more high-level way would be more useful. This could be achieved with the library on the website and greater activity in the forums. It would be especially beneficial to include parents of the children with special needs in the forum." An interview participants said, "it would be helpful to have a real case of a child from a school, if a teacher could write it on the forum and ask for help."

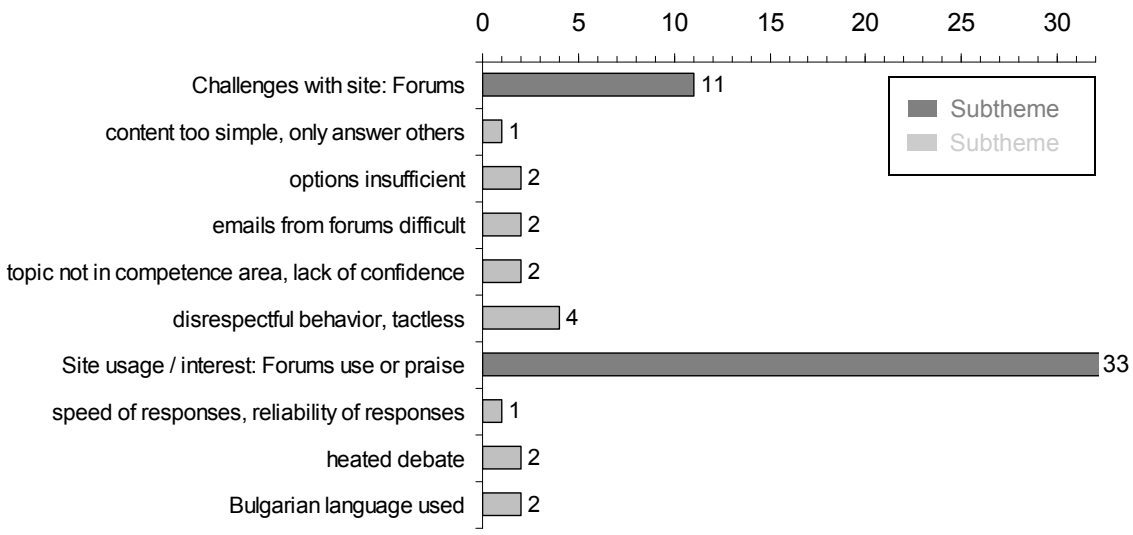

Figure 7-7. Descriptive codes: Discussion forums subthemes

NOTE: The 'site usage / interest: Forums use or praise' code was applied 33 times. Of those 33 times, its three subtheme codes were only applied five times (1 + 2 + 2). See Figure 7-7.

Some participants felt that it was difficult to post something new to the discussion forums because it was too embarrassing or they simply lacked the confidence. They reported that it would have been easier if the moderator played a more active role in getting discussions going. The 'topic not in competence area / lack of confidence' code (see Figure 7-7) was applied to data units of this kind. One email questionnaire respondent explained, "The argued themes are not in my competence area, and though I would not participate in the forums, I read them."

Some of the forums had examples of slightly disrespectful or tactless behavior, which might also have discouraged participation. Such examples were most frequent with regard to discussions about integration, where some participants had very strong feelings. The 'disrespectful behavior / tactless' code (see Figure 7-7) was applied to these data units.

One of the challenges reported regarding the forums had to do with the emails received. Some participants did not understand why it was necessary to log into the website to respond to the forums. They argued that it would be easier just to respond from their email inbox. Other participants found that the options provided by the Moodle discussion forums were insufficient or that the forums were cumbersome to use (see the 'options insufficient' code in Figure 7-7). A website participant, who reported that they had some experience in the development of online communities, suggested that another open-source software package be investigated. They had investigated Moodle and decided that its forum options and layout were inadequate for their needs.

The same participant reported that they had found poor success with the creation of online communities in Bulgaria. They argued that the process of online community creation may be more difficult in Bulgaria than in other countries. The participant said:

> The creation of Internet communities is my interest, but I have an observation that in Bulgaria this process is more difficult. [Bulgarians] are slower entering the information technology age, missing PCs. They lack the motivation, the ones who search information on the Internet. They are motivated to search information but not to exchange. That is to say, they prefer that the process is one-sided. They are passive.

It is not known to what extent the participant's comments were validated by research, but it is known that they had worked on a website focused on integration and social inclusion

in Bulgaria (Portal Integration Project, 2005). Such comments were coded with the 'general challenges and aversions' code (see Figure 7-6).

The participant's comments relate to the discussion on lurkers and peripheral participation presented in Section 6.2.2.3 on page 175. It was clear according to the SEB project's quantitative data that there were many more website visitors than could be accounted for by user registrations and logins. SEB's features, other than the ability to upload or post content, were open to guest users. Though outside the scope and funding for this study, it could be interesting to investigate how website activity is affected as more useful content is made available on the site.

Interview participants reported that there is not much special education information available on the Internet that is in Bulgarian. Many participants said that they search for English or Russian websites instead of Bulgarian ones. If SEB were to host more information, the increase in traffic might be much greater than for a comparable special education website that is available in English. This would be because of the lack of competition from other special education websites.

Further, many participants found that the main problem with SEB was the lack of resources. One participant said, "I think that the idea of this site is wonderful, it just needs more activity and a larger team supporting it. It needs more content and available materials." The researcher asked another interview participant, "Do you think that people will use the new databases for documents, links, and photos?" The participant responded, "Yes, I think that they will use them a lot. … There are a lot of documents about laws, about new special school activities, about lots of things regarding integration." It is anticipated, however, that greater website administrator activity would be required for more content of this nature to be posted. At present, website users are relied on to post most content.

Desired features and site usage / interest

Under the 'desired features' theme, the codes 'more participation,' and 'more resources, links, and documents,' were most frequently applied (see Figure 7-6). These codes were applied to some of the same data units discussed at the end of the last section regarding the 'challenges with site' theme. One data unit coded 'desired feature, more participation' was from a participant that was interested in the daily chat concept but said that they doubted anyone would be there when they logged in. In another data unit, an email questionnaire respondent stated, "The site is not popular enough and few people know about it. To begin with, it will require the registration of more people. But to accomplish this, it must offer something original for it to attract more participants, for example, resources for [each of] the [discussion] themes."

The 'access to experts / database of specialists' code was applied to six data units (see Figure 7-6). It was a common finding that research and website participants were interested in ways to find and contact experts in special education. To an email questionnaire question regarding how SEB could be more useful to participants, a respondent stated, "If it had referral methods." Another participant stated, "With personal contacts with specialists." And another, "If it had more commentary on the themes from specialists in the field."

Regarding online training, the director at a special school for students with intellectual disabilities said that "SEB would be useful for the training of normal teachers regarding integration. For this, it is a "very good idea." A website participant posted to the forums that they had recently appointed two special educators at their mainstream school due to a program sponsored by the Ministry of Labor and Welfare. They felt that the two educators, as well as others at the school, still had much to learn, however, and they hoped that SEB would be useful in this regard.

The 'site usage / interest' theme had the greatest number of subthemes under the 'SEB website' category. The least applied subthemes under the 'site usage / interest' theme included 'calendar,' 'SpecPedia,' 'glossary,' 'participant profiles,' 'portfolios,' 'connect to colleagues from distance,' and 'mentoring' (see Figure 7-6). The 'calendar' code was applied to only one data unit. In this case, the researcher explained the calendar feature to an interview participant, and they expressed interest. They stated, "Yes, add it. It could be useful. … Put the date that the *Special Education* journal comes out each quarter." The 'SpecPedia' code was applied only twice. In one noteworthy case, the

interview participant stated that their favorite site feature was the SpecPedia. At that time, the SpecPedia was linked to the special education entry of the Bulgarian Wikipedia website (see Section 5.4.2, Final site features, on page 128).

Though the 'glossary' code was only applied twice, the two interview participants both stated that it was a favorite feature. One participant, a university lecturer, said, "The idea of a dictionary for special education is very, very good." The second, a graduate student, stated, "I like very much this glossary because I can put definitions and every person to the site can make comments. I really like it." Quantitative data also indicated that the glossary was popular (refer to Figure 6-30, on page 156 and the analysis provided in Section 6.2.1, Questionnaires and surveys).

The 'participant profiles' were also one of the features that interview subjects felt was beneficial. In one of the formative evaluation, Phase 2, usability interviews, there was a problem with user permissions and the subject could not access the 'participant profiles.' They were quick to display their disappointment. The usability problem was quickly resolved so that other users would not have similar difficulties. At the end of the interview session, the subject stated that they liked most, "the glossary, then discussion forum, and the profiles."

The 'portfolios' were not ready for use in usability interviews until the very end of Phase 3, effectiveness evaluation, data collection. One interview participant stated, "Yes, very nice. It's very nice you can search for others with portfolios. A portfolio for each participant. Certainly that I would use it. 100%."

The 'connect to colleagues from distance' code was applied to data units similar to the following post to the forums: "Hello colleagues! I am a resource teacher from Varna. I have need of your help. I must find a program for individual education. Please let me know of a good place to look. Thank you in advance." The 'accessed experts' code was also applied to this data unit because of the advice given in response to the posting. The 'mentoring' code was applied to data units similar to those to which the 'accessed experts' code was applied. In one case, a university student posted that they were impressed by a document written by a professor at their university and invited others to discuss it. A university lecturer responded with interest and asked her to elaborate on what impressed her.

The ‘networking’ code was applied to data units that indicated that participants contacted each other using the site for professional networking. In one case, a participant at a special school simply posted that they were a teacher at a special school and offered their email. They noted that they were eager to exchange information about their experiences. In another case, a participant wrote in the forums that they “would thank you to connect me with someone that has inside knowledge and methods in teaching and suggest someone with good practices of this kind. Also a school in Europe, where I can exchange information and practical experiences both ways.”

The ‘forums use or praise’ code was the most applied subtheme under the ‘site usage / interest’ theme. It had several additional subthemes as shown in Figure 7-7. It was applied to data units that indicated that participants benefited from the discussion forums. One email questionnaire respondent stated, “The forums and the themes of the arguments very much interest me in reading them after they are sent, I even discuss them in lectures.” An interview participant, also the director of a special school, said, “We have many problems, and we must have this [SEB] to discuss. … We have many things from the practice we can share with the others. We are all very different from each other, and this is good to write what we do and the others to see what we do.” Another interview participant, a university lecturer, was happy that the site was available in Bulgarian (see ‘Bulgarian language used’ code in Figure 7-7). The participant generally used discussion forums about special education that were only available in Russian. One forum she used, Medscape (Medscape, 2008), was only available in English.

The ‘heated debate’ code was applied to data units such as one in which a participant criticized another participant’s understanding of a recent Bulgarian regulation about integration. A university classmate defended the criticized participant stating, “I am also a student in the area of intellectual disabilities and also study this regulation. I don’t know it by heart but definitely have a large understanding of it, enough to write about it.”

The ‘general praise and interest in site’ code (Figure 7-6) was the second most applied code in the ‘SEB website’ category. One interview participant, a university lecturer, said, “I want to say that what you are doing is very pioneering. I am not aware of anyone that has created such a website.” During another interview, a participant stated, “I like the whole idea [referring to SEB]. It’s difficult to say that I like one thing more than others. Just the whole idea is great.” A third participant said, “I like the website. I visit it with pleasure.” A fourth interview participant stated:

> It’s, I think, very useful, and I would say it’s a great idea. There is nothing like it so far in our country. I really believe and truly believe that it will help professionals to connect with each other, instead of using phones, instead of emailing to each other, we can just meet in the discussion forum or just find information over here instead of going through the whole net, which sometimes takes forever. So this can be a very useful and nice source for information and connecting with each other.

A fifth interview participant said:

> I feel like a member of a community, and I think that others do to, but not because of the site or the content or the features, simply because of the feeling that others are out there working on this just like me. I mean, a bus driver would not feel like he is in a community here, right? Only those from special education.

This section discussed data units that yielded descriptive information about how the SEB online community was perceived and used by participants. The main areas discussed included challenges with the site; desired features; and site usage or interest. The next section discusses data units regarding the Bulgarian education system and culture.

7.2.3 Bulgarian education system and cultural themes

This section discusses data units related to Goals 1 and 7 of the SEB study. Figure 7-8 lists the themes and subthemes under the 'Bulgarian education system / cultural' category by frequency from lowest to highest. Under the 'Bulgarian culture' theme, there were two subthemes: 'disabled access' and 'public attitudes toward special education.' Regarding 'disabled access,' the researcher observed that there was a clear lack of handicapped parking spaces, public toilets for the disabled, wheelchair ramps, and other basic facilities for people with disabilities in Sofia—Bulgaria's capital and largest city. Even in major public areas of the capital city and the largest tourist locations, facilities were not made wheelchair accessible. In other cities, the situation was worse.

Regarding 'public attitudes toward special education,' many website participants remarked that Bulgarian society was simply not ready for integration. One participant posted to the forums that Bulgarian society is not yet prepared to accept the presence of children with disabilities next to their own children. They recalled the words of one of their university lecturers who said, "For 45 years no one in Bulgaria has even mentioned the existence of children with abnormalities, so how could we now show them, talk about them, and expect that they will be accepted by everyone?"

The 'Bulgarian education system' theme had many more subthemes than 'Bulgarian culture' (see Figure 7-8). The subthemes covered such topics as the remoteness and isolation of rural schools in Bulgaria; the special education system's transition to western educational philosophies, the availability of computer technology to students and teachers, and the political climate regarding special education.

Though Sofia is a relatively well-developed city with many modern features, the Bulgarian countryside, in many places, is very poor. The schools in these areas are remote and poorly funded. In some rural areas, groups of students with various disabilities are identified, and young special education graduates are sent to these towns to work. During an interview session with a university lecturer, the Ministry of Education called to get recommendations for a recent graduate to move to a remote village where eight blind students had been identified.

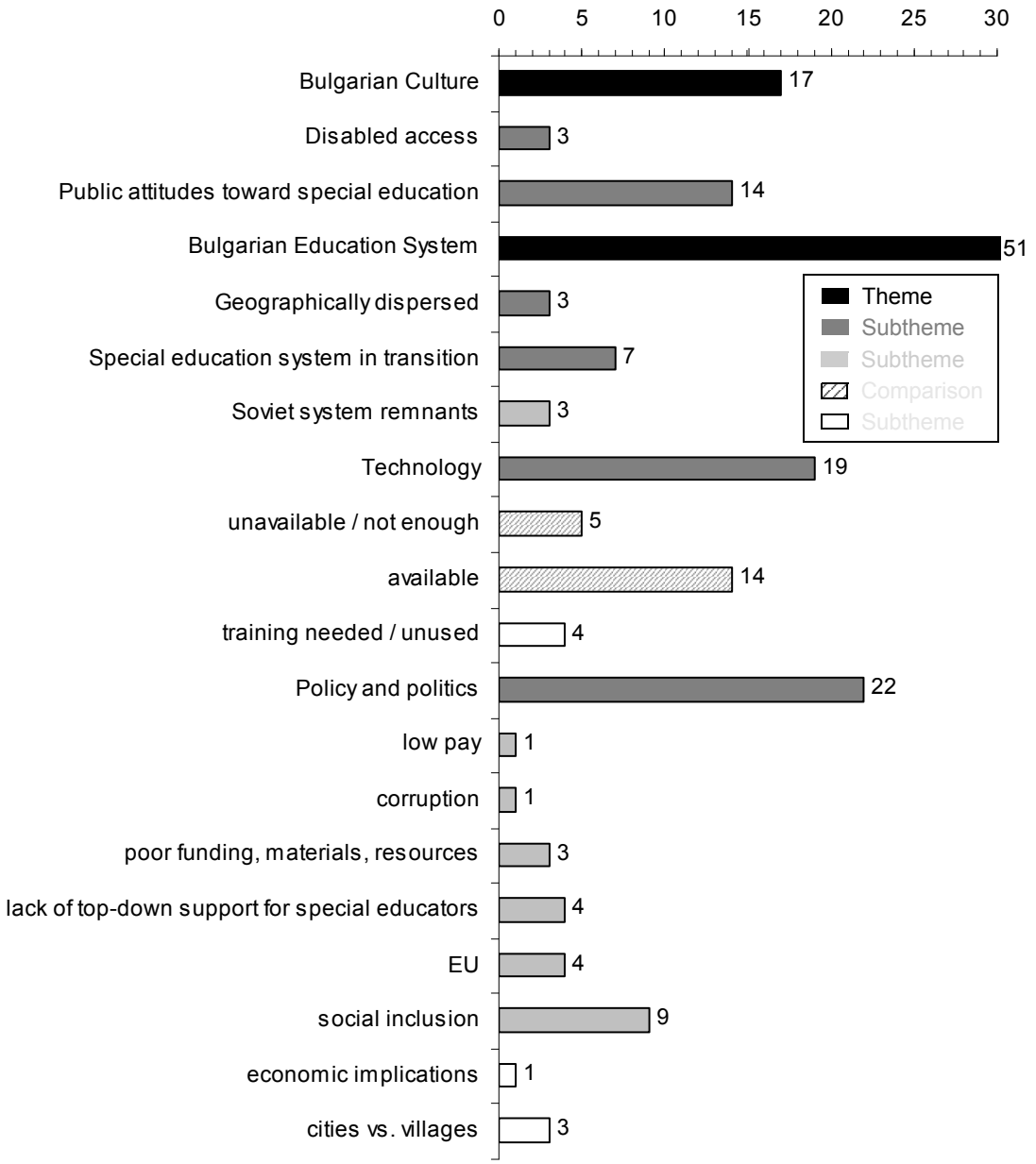

Figure 7-8. Descriptive codes: Bulgarian education and cultural themes by frequency
Number of times that Bulgaria codes were applied = 68

NOTE: The number of times that subtheme codes were applied to data units is included in the total times that the theme code was applied. In addition, the numbers displayed on the comparison bars are included in the total number of times that the related subtheme code was applied. For example, the 'technology' subtheme code was applied 19 times (see Figure 7-8). Of the 19 times, the 'unavailable / not enough' code was applied five times and the 'available' code was applied 14 times. The frequency that the 'unavailable / not enough' and 'available' codes were applied can be directly compared.

Remnants of the communist education system can still be seen in Bulgaria from the terms used for various special educational needs to the organization of areas in the practice. The most discussed remnant by participants was the organization of learning dis-

abilities under the speech therapy field. The communist system also tended to isolate students with disabilities from the mainstream, but the old system is slowly making progress towards a system of integration as noted in the section titled, Integrated education, on page 210.

The availability of computer and Internet technology in Bulgaria was much higher than anticipated. The number of qualitative codes that indicated the technology was available (see figure Figure 7-8) can be corroborated with similar findings from the quantitative data (see the section titled, Researcher observations regarding computer access, on page 152). The qualitative data also indicated, however, that computers were still a new feature in Bulgarian schools and that many teachers did not how to use or teach with them (see 'training needed / unused' in Figure 7-8). In addition, qualitative data indicated that in 2005, computers had still not been delivered to the more remote schools in Bulgaria.

The 'policy and politics' subtheme had several subthemes as well. An example of the effect of 'corruption' on Bulgaria's education system was illustrated by the opinion of interview participants regarding the country's NGOs. One participant said, "There are many projects connected with deaf children. But I don't see many improvements after these projects here in Bulgaria. This problem is connected with the NGOs." The researcher then clarified, "The politicians are connected to the NGOs. The NGOs get grants and nothing happens. This is the result. The money goes somewhere and nobody knows where that is." The two participants in the session agreed with this clarification.

Because of Bulgaria's recent 2007 entry into the 'EU,' the integration process was accelerated to some degree. Some mainstream schools, suddenly, had children with visual and hearing impairments and other disabilities integrated. Thus far, website participant commentary has indicated that results have been poor. The main reason is that mainstream teachers were not prepared for integration. One participant said, "In spite of the understanding of the new requirements displayed by our management and the attempts to create favorable work conditions for resource teachers, not all of the general teachers have a positive attitude towards us and our tasks."

The web-based questionnaire asked if website participants felt isolated at work. One respondent said, "Sometimes, because it is considered not prestigious and insignificant and is low-paid." Another talked about the old stereotypes of children with special needs. One respondent simply replied, "Low pay." It can be noted that these responses

were recorded just a few months prior to a six-week teacher strike in 2007 when teachers held out for a 100% pay increase.

Another respondent said that they felt isolated at work because of the integration process. To explain, they said, "Because in my opinion, the work is done piecemeal and not in a centrally coordinated way. There ought to be full time experts on the school staff." In a discussion forum post, a recent university graduate reported that they highly appreciated the modern qualifications they received at their university but said that in their new job at a special school they felt like the "ugly duckling" among the long-time employees who often misunderstood their efforts. Quantitative results regarding the extent to which website participants felt isolated at work are presented in Figure 6-27, on page 154.

Regarding the integration process in 'cities versus villages,' participants indicated that there were not enough specialists in remote areas to facilitate integration into mainstream schools. Regarding the economic implications of integration, one discussion forum participant said, "Although good integrated education is much more expensive than education in special schools, it leads to better results economically; being integrated into society, these people might find jobs."

This section discussed data units that yielded descriptive information about the Bulgarian education system and culture. The main areas discussed included public attitudes toward special education and people with special needs; the availability of computer and Internet technology; politics, NGOs, and the EU; and administration and management of the Bulgarian education system. This section concludes the analysis of descriptive coding results. The next section presents findings from interpretive coding.

7.3 Interpretive coding

Interpretive codes were organized into a hierarchical tree by research phase and then by category as shown in Table 7-4. The first category, 'key issues' is discussed in the following paragraphs. The subsequent sections discuss the codes and coding results under each of the remaining categories.

Table 7-4. Interpretive codes and categories
Number of interpretive codes = 40

Phase: 1 Needs Assessment
- **a) Category: KI**
  - i. Code: Frequent comment / Stressed importance / Government policy or social change needed
- **b) NSEB**
  - i. Access those not normally able / Experts / Great distance
  - ii. Central document, links repository / Glossary needed
  - iii. Real-world exposure needed
  - iv. Networking / Sense of Community / Enhance professional reputation
  - v. Place for parents to access special education resources needed
  - vi. Place for students to access special education resources needed
  - vii. Place to discuss key issues and concerns needed
  - viii. Professional development needed
  - ix. Calendar of events
- **c) FSEB**
  - i. First of its kind / No competition
  - ii. Interest among managers or teacher trainers
  - iii. Participant Internet skill / Experience
  - iv. Partner identified / Contacted
  - v. Positive feedback / Stakeholder interest
  - vi. Preexisting relationships among participants
  - vii. Technology available

Phase: 2 Formative Evaluation
- **a) Category: FU**
  - i. Code: Features offered are sufficient
  - ii. Moodle best choice
  - iii. Works fine, no complaints
  - iv. Works well but could be better

Phase: 3 Effectiveness Evaluation
- **a) Category: SSFCB**
  - i. Code: Supportive communication / Empathy shown
  - ii. Conveys credibility
  - iii. Face-to-face meeting facilitated / Talk offsite
  - iv. Quick response / Mutual, cooperative exchange
  - v. Moderator facilitation / Introduction to site
- **b) PP**
  - i. Peripheral participation
- **c) HDJB**
  - i. Direct effect on special needs student
  - ii. Discussed issue about work, government policy
  - iii. Advice given / Expert accessed
  - iv. Knowledge construction, building (not same as "learning")
- **d) LTU**
  - i. Critical mass reached
  - ii. Partnership confirmed
  - iii. Newcomer to oldtimer

Future Research
- **a) Category: NTENC**
  - i. Code: Competency definition needed
  - ii. Personal space for resumes and accomplishments needed
  - iii. Specific professional development request via website
  - iv. Timing / EU pressure
  - v. Training on technology needed
- **b) NIKC**
  - i. Turbulent issue / Potential research area

Categories: KI = key issue; NSEB = need for SEB; FSEB = feasible to establish SEB; FU = facilitates usability; ECOP = effective community of practice; NTENC = need to partner with TENCompetence; NIKC = need to transition SEB into innovative knowledge community

The 'key issue' category did not have any subthemes or additional codes. It was applied as a code to data units that referred to issues that repeatedly surfaced in the qualitative data. If a government policy or social change was required or the participant otherwise stressed the importance of the subject, it was also coded as a 'key issue.' Data units coded as a 'key issue' related to Goals 1 and 7 of the SEB study.

An example of a data unit that was coded as a key issue was from an interview session where two participants discussed the extent that many special schools in Bulgaria were isolated. The researcher asked, “Do you have other ideas about how to advertise the website? word of mouth, colleague to colleague?” One participant replied, “Yes, maybe because we are only five schools [in Sofia]. I can call the other schools.” The second participant then followed, “In Sofia, yes, but in Bulgaria, this is a very big problem. We don’t have information about the schools in Bulgaria. They are very isolated.” The researcher then asked, “Why is that? You don’t communicate with the other schools?” The second participant responded, “How? How can we communicate?”

The ‘key issue’ code was the most frequently applied interpretive code; so much so, that it began to lose its meaning. For this reason, it is not listed in Figures 7-9, 7-10, or 7-11. The frequency that descriptive codes under the theme ‘special education’ (see Section 7.2.1) were applied was a more clear indicator of key issues.

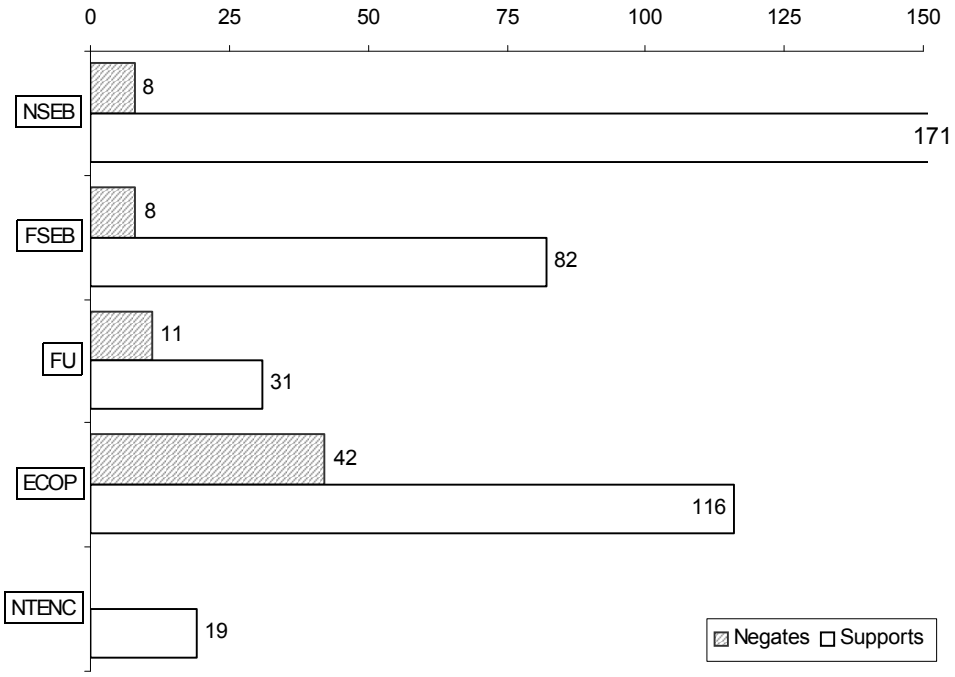

Figure 7-9. Interpretive codes: Categories, negated / supported
Number of times that interpretive codes were applied = 488

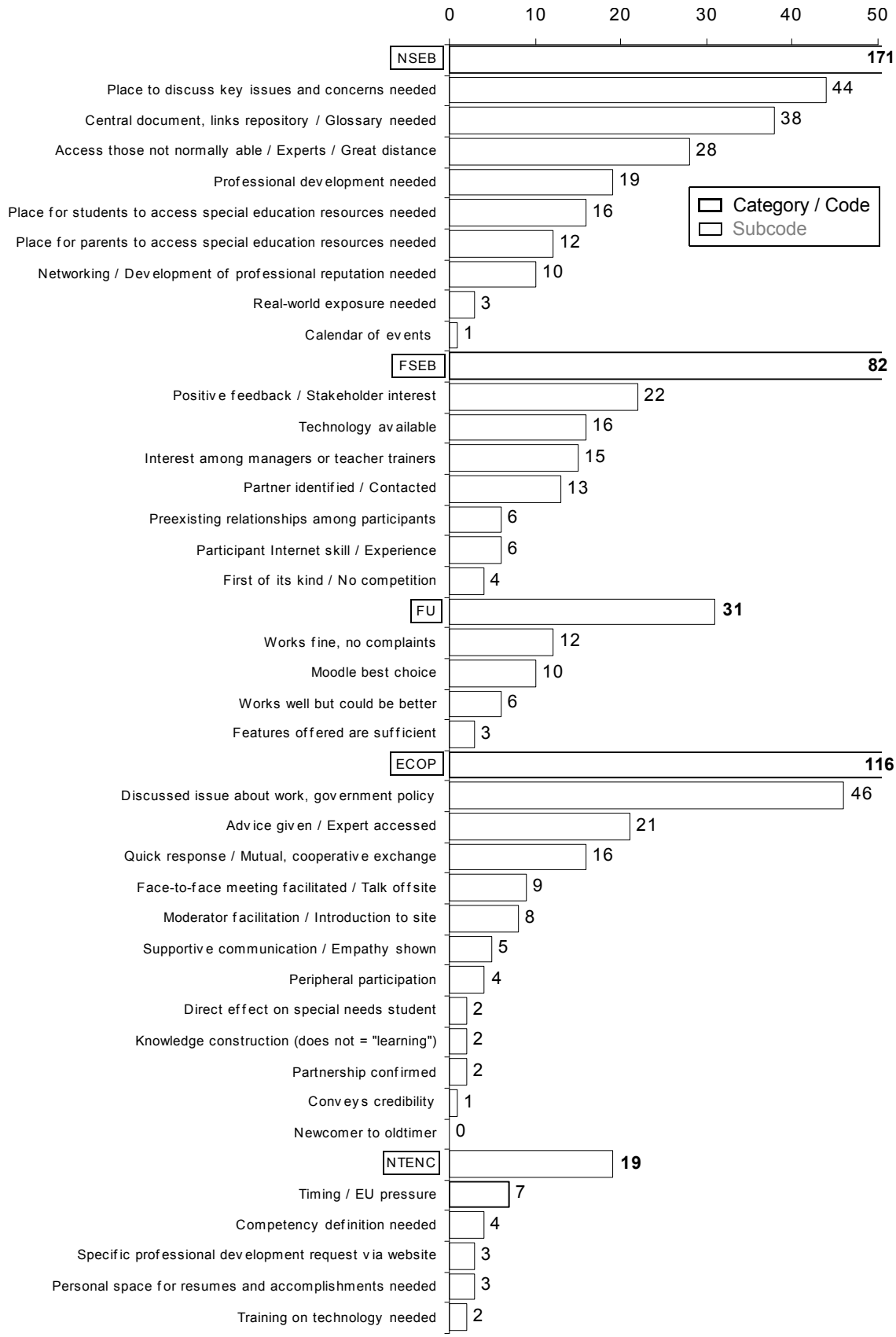

Figure 7-10. Interpretive codes: Supported
Number of times that interpretive codes were supported = 419

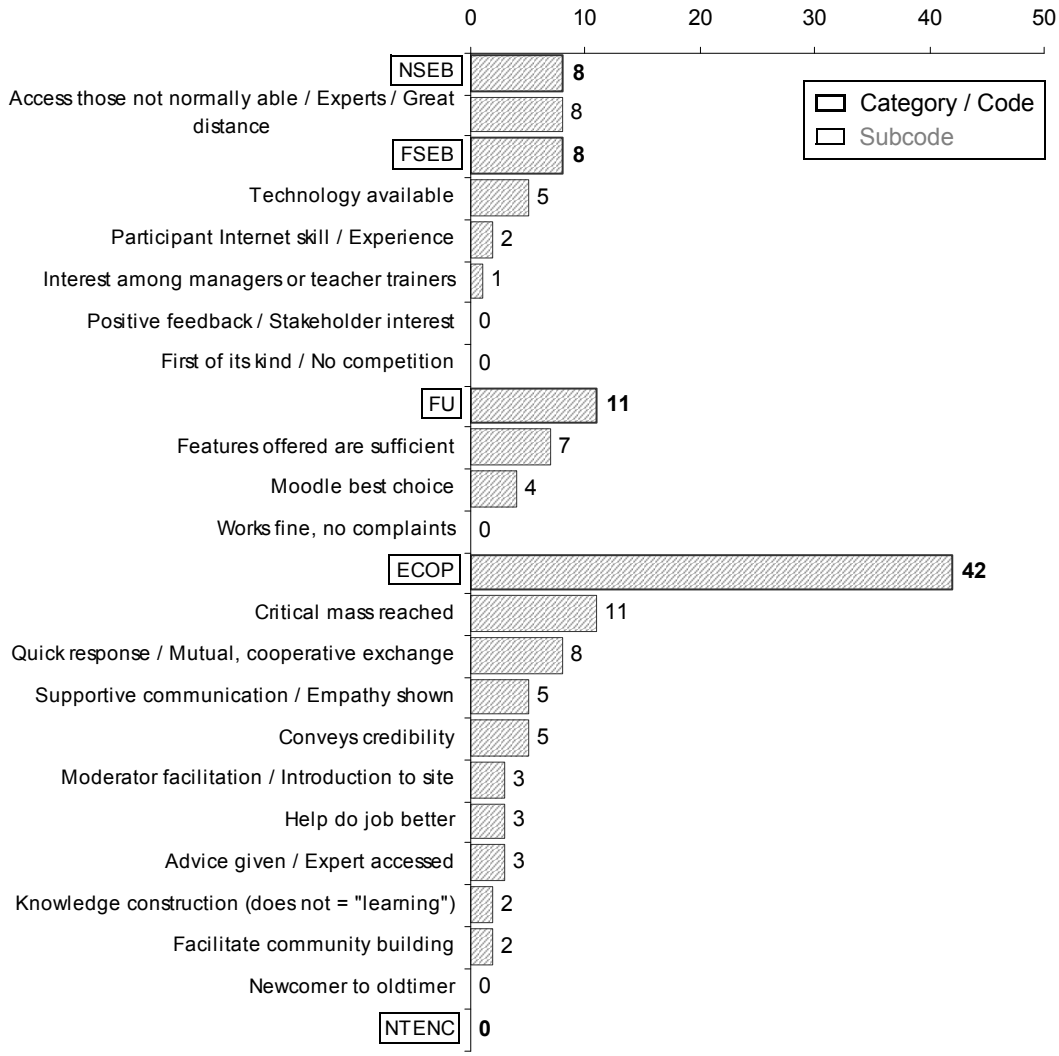

Figure 7-11. Interpretive codes: Negated
Number of times that interpretive codes were negated = 69

NOTE: Though there was a significantly greater number of codes that were supported (Figure 7-10) than negated (Figure 7-11), more weight was given to the negative codes during analysis. Not all of the interpretive codes had a negative form. Further, since the interpretive codes were created based on the research questions and goals, and the researcher had a tendency to seek out data units that provided support for the research questions and goals, it follows that a greater number of codes were supported rather than negated. See also the *holistic fallacy* discussed in Section 7.1.3, Coding objectives, on page 194).

Data units that were coded as a 'key issue' were sometimes coded with the 'need to transition SEB into innovative knowledge community (NIKC)' code as well. This code was applied if the data unit indicated that a key issue was also a '*turbulent issue*,' meaning that it was the subject of intense debate or a 'potential research area' for future exploration. Innovative knowledge communities (IKCs) are a type of online community proposed by Hakkarainen, Paavola, and Lipponen (2004). They are intended to construct new

knowledge that is needed to address the most turbulent issues of a practice. IKCs are discussed in more detail in Section 9.2.4, From online community to innovative knowledge community, on page 301. The best examples of turbulent issues in the qualitative data were the data units related to integration (refer to the sections titled, Integrated education, Special schools, and Roma, beginning on page 210). Another turbulent issue was identified from the data units related to the distinction of speech therapy as a practice separate from the special education field and from the treatment of learning disabilities as noted in the section titled, Speech and language / logopedics, on page 206.

7.3.1 Need for SEB and feasibility to establish

This section discusses data units related to Goals 2 and 3 of the SEB study. Codes from the 'need for SEB community' (NSEB) category were applied to data units that indicated SEB was or was not needed by special education stakeholders in Bulgaria. For example, one participant requested help through the discussion forums regarding the integration of children with physical disabilities in mainstream schools. As they understood it, students with physical disabilities were not considered to have special educational needs in the Bulgarian system. They needed clarification from experts and wanted to know the opinion of parents on this matter. This data unit was coded as an example of a need for the SEB community. Many of Bulgaria's special schools are very isolated, and as a teacher in one of these schools, there are not many options for communicating with the people to whom they needed to speak.

As another example, a participant was interested in the effects of hydrotherapy on children with cerebral palsy. Again, if this individual worked at one of the many special schools in remote locations, there are not many places that they could go to find information about this specialized topic. Examples like these were interpreted to indicate that there is a need for an Internet presence such as SEB for special education stakeholders in Bulgaria. In fact, the NSEB code was the most frequently applied interpretive code and the number of data units that indicated that SEB might not be needed were negligible (Figures 7-9). One of the data units that indicated SEB might not be needed was about how the specialists at Sofia University are in frequent contact with Bulgaria's schools for children with vision impairments in both Sofia and Varna. These two schools work closely with university specialists via telephone and postal mail. Since research participants felt that their activities were already well coordinated, what was the point of SEB?

Other data units as well as researcher observation, however, indicated that telephone and postal mail services in Bulgaria are expensive in comparison to Internet access.

Overall, it seems clear from the qualitative data that SEB fills a need for the practice of special education in Bulgaria (see Research Question 1). As indicated by the most frequently applied codes shown in Figure 7-10, it fills needs for:

- A place to discuss key issues and concerns
- A central document and links repository and place to define standard terms
- Access to experts and others that would not otherwise be available
- Informal professional development opportunities
- A place for university students to access special education resources
- A place for parents to access special education resources
- A chance to network and build professional reputation

Qualitative data also indicated that it was feasible to establish SEB (refer to the 'feasible to establish SEB' (FSEB) category in Figure 7-10). FSEB codes related most to data from the needs assessment, Phase 1, which was collected at a time when it was unclear whether there was sufficient Internet access in Bulgaria or that special educators would be interested in using the website. 'Positive feedback / stakeholder interest' was the most applied code under the FSEB category.

One example of a data unit to which the 'positive feedback / stakeholder interest' code was applied is when an email questionnaire respondent stated that they would be willing to pay for the SEB site if it offered online training and had a more serious connection to university lecturers. It was also applied to data units that indicated participants were happy with the site's features and discussions and other contents available. Similar to the 'positive feedback / stakeholder interest' code was the 'interest among managers or teacher trainers' code. This code was applied if the participant who gave positive feedback about SEB was a manager or teacher trainer / university lecturer. It was thought that their opinion might hold more weight. In retrospect, however, the two codes could probably have been combined.

The 'technology available' code was applied to data units that implied participants had sufficient Internet access to participate in the SEB community. In one case, the par-

ticipant simply showed the special school's website to the researcher. This indicated that the school had an Internet presence and understood that this was valuable. In another case, the participant, who was blind, talked about how often she used chat and preferred it to email. It was inferred that with the JAWS (Freedom Scientific, 2008) screen reader software installed, chat was very similar to a free telephone call for her. For quantitative indicators regarding Internet access and participant skill with the Internet, refer to the section titled, Researcher observations regarding computer access, on page 152. 'Technology' was also a descriptive code (refer to the passage that begins, "The availability of computer and Internet technology..." on page 230).

In addition to positive feedback and the availability of technology, it was interpreted that the establishment of SEB as an online community would be feasible because it was the first of it kind. One participant noted, "This is an area of great interest to me, I feel like I am in the group, I feel like I am at home. This is my very great interest. There is no other site like this that addresses all areas of special education; where you can find specialists from all areas." At the time that this thesis was written, the most similar website to SEB identified was the Ivan Rilski Portal Integration site (Portal Integration Project, 2005), but it does not address any of the professional areas of expertise specific to special education. Rather than a competitor, it was a good choice for a partner and was cross-listed on SEB in several locations.

Overall, it can be inferred that the establishment of SEB as an online community was feasible because:

- There was a great deal of positive feedback and stakeholder interest.
  - Interest was shown among practitioners as well as special school directors, university lecturers, and university students.
- Adequate computer and Internet access was available and SEB users, on the whole, were sufficiently skilled at using the Internet.
- SEB is the first of its kind, and at present, there is no competition.
- Partnerships and alliances were made with Sofia University, the TENCompetence project, the Ivan Rilski Portal Integration website, and representatives from the First National Center of Dyslexia Bulgaria.

Moreover, the establishment of SEB as an online community was not only feasible—it happened. As an exploratory mixed-methods study, the entire SEB project

can be viewed as a success because of the number of registered website users; quantity and quality of data gathered from the website and interviews; and design principles for similar online communities.

Preexisting relationships among participants

Under the FSEB category, there is one additional code to discuss, 'preexisting relationships among participants.' This code was created because of prior research that indicated preexisting relationships could help in the development CoPs. The code was applied to six data units that indicated that website participants had met prior to accessing SEB (Figure 7-10).

As one example, a participant chat posting stated, "Nice posting 'Participant X.' I am happy to see that you and others are starting to register for this website. I need to call you. There is a student we need to speak with." In another instance, a university student responded to a discussion forum post during a usability session because she recognized the student's name from one of her courses. As a third example, an email questionnaire respondent stated that they knew people using the SEB website from their work at a university but had not met anyone new using the site.

The most significant indicator regarding the effect of preexisting relationships on website activity was that at least nine of the 18 website participants in the core group (see Table 6-4, on page 175) already knew each other or were a student in one of the moderator's courses. It was concluded that preexisting relationships had a positive impact on website activity, but further research is required to clarify to what degree preexisting relationships were important. Another factor involved was the degree to which the forum moderators where known by the community. One of the forum moderators, for example, had a book published and was widely recognized in her field across Bulgaria. Future research is needed to address the relative fame of participants on online community activity as well.

7.3.2 Comments about usability

This section discusses data units related to Goal 4 of the SEB study: to develop and evaluate an community website (see also Research Question 2). The 'facilitates usability' code was applied to data units that provided information related to the website's usability. Though most data regarding usability was analyzed separately as explained in Section 8.2, Usability, on page 258, some participant quotes from usability interviews were captured for coding along with the other qualitative data. Though this form of usability analysis does not help to solve specific usability problems, it does provide some indication of the overall success of SEB from the viewpoint of functionality.

The code, 'works fine, no complaints,' was applied to 12 data units (Figure 7-10). This was interpreted to be an additional indicator of positive feedback regarding the website and the SEB project as a whole. The most applied code under this category was 'Moodle best choice.' Ten data units indicated that it was the best choice and four indicated that it was not the best choice (Figures 7-10 and 7-11). One email questionnaire respondent stated, "I am not certain that Moodle is the most suitable system to arrange contents, but if it [SEB] had online training, it would be the best." The data units to which the codes 'features offered are sufficient [negated]' (Figure 7-11) and 'works well but could be better' (Figure 7-10) were applied indicated that the site did not offer sufficient features. For future versions of SEB, it will be important to compare Moodle's features with the other open-source products available as well as to make use of Moodle's latest offerings.

7.3.3 Effectiveness as a community of practice

This section discusses data units related to Goal 5 of the SEB study. The 'effective community of practice' (ECOP) category had the greatest number of subtheme codes. It also had that greatest number of negated codes. When a code under this category was negated, it implied that SEB was deficient in some way as a CoP. The first part of this section discusses the data units that supported the ECOP category of codes. The second part of the section discusses those that negated the codes.

During analysis, it was found that several ECOP codes related to the extent to which SEB supported sociability and facilitated community building. Such codes included: 'quick response / mutual, cooperative exchange,' 'face-to-face meeting facilitated / talk offsite,' 'moderator facilitation / introduction to site,' 'supportive communica-

tion / empathy shown,' and 'conveys credibility.' The codes were grouped into the following subcategory for analysis: 'supports sociability, facilitates community building' (SSFCB). Miles and Huberman (1994) call this method of qualitative analysis "subsuming particulars into the general" or simply "clustering" (p. 255). Refer to Table 7-5 for a complete list of the ECOP subcategories defined. The subcategories are compared for analysis in Figure 7-12.

Table 7-5. ECOP (effective CoP) subcategories and codes

Subcategory		Codes
PP	Peripheral participation	- Peripheral participation
SSFCB	Supports sociability, facilitates community building	- Quick response / mutual, cooperative exchange - Face-to-face meeting facilitated / talk offsite - Moderator facilitation / introduction to site - Supportive communication / empathy shown - Conveys credibility
HDJB	Helps do job better	- Discussed issue about work, government policy - Direct effect on special needs student - Knowledge construction (does not = "learning") - Advice given / expert accessed
LTU	Long-term use	- Critical mass reached - Partnership confirmed - Newcomer to old-timer

* To link the ECOP subcategories and codes back to the research questions and goals, refer to Table 7-4.

The 'quick response / mutual, cooperative exchange' code was the most frequently applied in the SSFCB subcategory (see 7-10 and 7-11). It was applied to data units that indicated someone responded to a forum posting quickly or that there was a reciprocating interchange among users. In one case a website participant posted a question about studying special education at Sofia University. They asked, "Could someone give me more information about studying special education and what is required of candidates. I have already reviewed the Sofia University website, but it did not give me enough information about prerequisites." In just a few days time, a participant responded, "I am happy that you decided to study in this field. I am in my second year, and it is very interesting. We have studied many medical and psychological materials. It will be interesting for you. When do you begin candidacy?" The dialogue continued and other participants also posted information about their courses and experiences, scholarships, and entrance exams. A practitioner later offered to speak with potential and current students about their work by email. In another case, an email questionnaire respondent stated, "You must arrange for a little time, but always someone can help to answer your questions on the forums and to share knowledge."

In a few data units, sociability appeared to be supported but it was unclear if community building was facilitated. This occurred when face-to-face meetings were facilitated using the discussion forums or participants moved to private discussions by email or telephone. These cases were marked as supporting the SSFCB subcategory, rather than negating it, but it is unclear what might have been a better coding strategy. This could be an interesting area for future investigation.

The 'moderator facilitation / introduction to site' code, also in the SSFCB subcategory, was applied to data units that indicated the moderator played an active role in a discussion topic. In one case, the moderator simply posted a question regarding where students with multiple disabilities should be educated. This was one of the more popular discussion forum topics (refer to the passage titled, Where should children with multiple disabilities be taught?, on page 168 in the quantitative results chapter). An example of a data unit to which the 'supportive communication / empathy shown' code was applied is when a website participant used the forums to thank and congratulate another participant for their definition of a type of visual impairment. This posting went on to discuss how SEB as a whole needed more participation of this kind.

In the first coding progression, the 'peripheral participation' subcategory had several codes. By the time the third coding progression was completed, however, there was only on code left in the subcategory, and for this reason, the subcategory was applied as a code to data units. The PP code was applied to data units that indicated SEB had peripheral participants. For example, an email questionnaire respondent stated, "I have not yet used the site very much, but the forums and the themes of the arguments very much interest me. I even discuss them in lectures." Another respondent stated, "The argued themes are not in my competence area, and I would not participate in the forums but read them." A third respondent stated, "I do not know anyone from the site, but I read the commentary." And an interview participant replied, "Mostly I would just read," when asked how they would use the website.

The frequency that PP was applied to data units was relatively low (see Figure 7-12) because data units were only found in questionnaire and interview sessions. There was no qualitative indicator from the discussion forums of 'peripheral participation.' The most clear indication of 'peripheral participation' was in the quantitative data. There was a relatively high number of website visits and logins but a relatively low number of postings (see Figure 6-55, on page 185). There were also significantly more discussion forum views than posts by logged in users (see Figures 6-48 and 6-49). In addition, two of the core participants never posted content but frequently logged into SEB and viewed its pages (refer to the section titled, Peripheral participants or lurkers?, on page 175 in the quantitative results chapter).

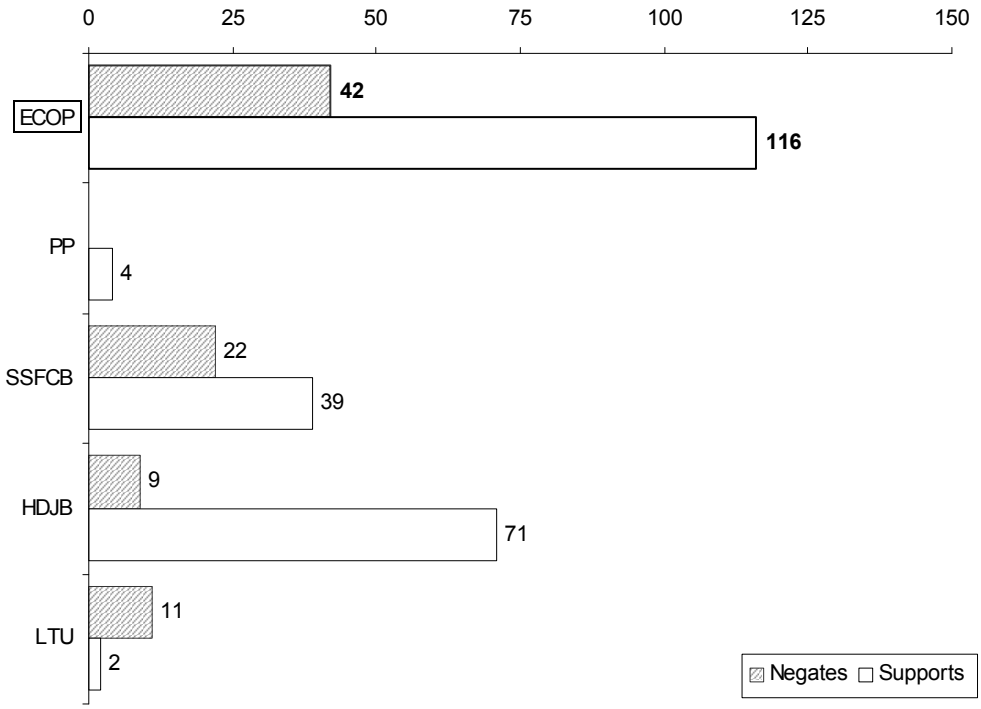

Figure 7-12. Interpretive codes: Effective CoP subcategories negated / supported
Number of times ECOP codes were applied = 158

Codes in the 'help do job better' (HDJB) subcategory were applied to data units that indicated how SEB helped or did not help participants professionally at work. The 'discussed issue about work, government policy' code was the most applied code in this subcategory (see Figure 7-10). It was applied 46 times.

The problem in terms of analysis is that this code accounted for the majority of evidence that supported SEB was an effective COP. While it may be true that important issues were covered in the forums, an effective virtual CoP is more than an online discussion forum. Hence, it is believed that the number of data units that support the ECOP

category is somewhat inflated. The 'advice given / expert accessed' code was applied 21 times (see Figure 7-10). The relatively high number of times that this code was applied, however, is a strong indicator that many of the questions asked in discussion forums posts were answered. There were only a few examples where questions asked by participants were not addressed by another participant (see Figure 7-11).

The 'knowledge construction, building' code was not added to the interpretive code list until the end of the effectiveness evaluation, Phase 3. It relates to the IKC concept (see Section 9.2.4, From online community to innovative knowledge community, on page 301). Data units that indicated participants were constructing new knowledge when discussing issues were marked with this code. It was not used to code examples where participants only appeared to have learned something new.

Thus far, the discussion of the ECOP category has dealt mainly with the data units that supported codes. Though the category had the second greatest number of codes that were supported by data units (see Figure 7-10), Figure 7-11 clearly indicates that the ECOP category also had the greatest number of negated codes. The most negated ECOP code was 'critical mass reached' (see Figure 7-11). This code was negated when data units indicated there were not enough website participants or content and resources on the site posted by participants. In most cases, the data unit coded came from an interview participant or questionnaire respondent who said that there was not enough participation on the site yet but that they had high hopes for future SEB growth and development. Having not reached its critical mass was perhaps the main reason SEB was not an effective CoP.

The 'critical mass reached' code was organized into the 'long-term use' (LTU) subcategory (see Table 7-5). Other codes in this subcategory included 'partnership confirmed' and 'newcomer to old-timer.' There were a few examples, namely email communications, that indicated a partner website would cross-post SEB on their site or participated in the SEB discussion forums. There were no examples of a new website participant transitioning into an old-timer role as described in the literature review chapter (see Section 2.2.4, Outcomes from online communities versus CoPs, on page 28).

Codes in the SSFCB subcategory were the most frequently negated under the ECOP category (see Figure 7-12). One of the main reasons is that quick responses were seldom found in the discussion forums. Some posts did not receive a response for months. Hence, the 'quick response / mutual, cooperative exchange' code was often negated (see

Figure 7-11). In addition, several data units indicated that there were mistakes in Bulgarian in the website's main content which led to negation of the 'conveys credibility' code. The low moderator activity and low number of resources in the repositories also led to the negation of several 'conveys credibility' codes. Examples of data units that negated the 'supportive communication / empathy shown' code included patronizing discussion forum responses to participant postings and sarcastic comments made during some of the more heated debates about integration.

This analysis has shown that even though codes in the ECOP category were the most negated of all the qualitative codes, there were still many positive examples of data units that indicated SEB had positive CoP attributes. Based on this analysis, it is concluded that SEB was an effective online community and exhibited certain CoP characterisitcs.

7.3.4 TENCompetence and SEB

The 'need to partner SEB with TENC' (NTENC) category included codes that were applied to data units that provided clues regarding the extent to which the SEB community would benefit from working with the TENCompetence project. None of the data units analyzed implied that SEB would not benefit from working with TENCompetence (see Figure 7-11). Data indicated that the timing to work with TENCompetence was good because the technology was available, TENCompetence representatives at Sofia University were interested in the SEB website, and special education was an area of concern regarding Bulgaria's succession into the EU. A web-based questionnaire respondent said, "The European Union membership will hopefully contribute to improvement in our field." The 'timing / EU pressure' code was applied to this data unit.

In addition, website participants had requested online training through SEB, and interview participants showed great interest in the e-portfolio concept (refer to the codes 'specific professional development request via website' and 'personal space for resumes and accomplishments needed' in Figure 7-10). Some data units also indicated that 'competency definition' was needed. In one case, a discussion forum participant talked about the necessity for updating the existing classification of speech impairments because of discrepancies between the Ministry of Education's outdated regulations and speech therapist diagnoses. The participant called for "special educators and researchers to ask for renewal of official titles of different speech disorders." Subsequent postings agreed

with this participant's request. Other postings indicated that though computers and Internet access were quickly becoming available, teacher training on how to use computers was still required (refer to the 'training on technology needed' code in Figure 7-11).

Several data units to which the code, 'professional development needed,' from the NSEB category, was applied also related to the NTENC category. These data units indicated that competency development was needed. For example, the researcher heard from several participants that there were too many mainstream teachers in rural areas and that they might need to be retrained for another profession or area of educational service. In addition, teacher professional development might be required because of the transition of management of Bulgaria's orphanage and special schools system from the Ministry of Education to the Ministry of Social Affairs and Labor. The change of management was due to a recent political change just prior to the researcher's visit to Bulgaria in September 2005. As another example, in an email questionnaire response a participant said, "Maybe this page [SEB] will create interest and useful discussions, which will convince us that combined we are strong enough to change our circumstances and to make successful decisions for our professional development." For all of the reasons discussed in this section, TENCompetence project objectives were found to be a good match to the goals of the SEB community and interests of SEB participants.

7.4 Summary

This chapter has presented results and analysis for all phases of qualitative data collection. The next chapter presents expert consultation and usability results and analysis. In Chapter 9, a discussion and synthesis of results from all forms of collected data are provided.

The central finding from this chapter was that the social inclusion process is a major catalyst for change in the practice of special education in Bulgaria. The country's special school system is the focus of attention for initial steps toward integrating minority students, namely of Roma origin, and special needs students into mainstream schools. As the special school system continues to evolve and more students are integrated into mainstream schools, the question of where and how to educate students with more serious and multiple disabilities becomes an increasingly pressing issue.

Additionally, the role of parents in special education continues to change since the fall of communism in 1989. Parents are expected, and in many cases demand, to play a larger role in the education of their children. Some simply prefer that their special needs children be able to attend schools within a reasonable distance from home. Learning disabilities are not well addressed by the current special education system. The treatment of learning disabilities is still organized under the practice of speech therapy, an organizational arrangement passed down from the communist era. The areas of special education most discussed by website participants included intellectual disability and speech therapy, which is referred to as logopedics in Bulgarian and Russian. These findings relate to Goals 1 and 7 of the SEB study (see Table 1-1, on page 9).

Regarding the SEB website, results indicated that it was effective as an online community in many ways and in some ways could be seen as an Internet-facilitated CoP. Since the creation of the alpha prototype version in 2006, website participants reported that they appreciate the website concept, the fact that it is available in Bulgarian, and that they have a "home" on the Internet that focuses on their practice. At the time this thesis was published, SEB was the only website of its kind in Bulgaria. Nonetheless, users continue to monitor the website for signs of increased participation and anticipate that once the glossary, document, and links repositories expand, the website will become invaluable. Regarding the next iteration, findings indicated that continued work with the EU's TENCompetence project will be of value to the SEB community. One of the key resources desired by website participants was access to online training. These findings relate to Goals 2 through 7 of the SEB study.

Chapter

8

8. Expert consultation and usability results

This chapter presents results and analysis from expert consultation and usability interview sessions. Section 8.1 describes how expert consultation data were analyzed and exhibits results. Section 8.2 explains how usability data were analyzed and discusses the usability problems observed and how they were solved. Charts are provided that exhibit the frequency and types of usability problems encountered.

The last two sections of the chapter refer to all of the data collected and reported in the three chapters of results: Chapters 6, 7, and 8. Section 8.3 describes some of the challenges encountered while collecting interview data, solutions enacted, and subsequent effects on the methods described in Chapter 4, Methodology. In Section 8.4, a discussion is provided regarding the validity, reliability, and accuracy of results.

8.1 Expert consultations

Expert consultations were a source of qualitative data, but the results were not coded as described in Chapter 7. Instead, sessions were transcribed and findings were organized into a *checklist matrix* (see Table 8-1). The expert consultations were especially helpful for two reasons: (1) the validation of the ideas already planned and (2) the generation of new ideas.

Table 8-1. Checklist matrix for analysis of expert consultation data

#	Date	Expert	Recommendation label	Reason (See 6 codes)	Importance (A-C)	Recommendation notes	Re test	Done / or X
1	yyyy-mm-dd	Name	- Brief description of expert recommendation	Functionality	A, B, or C	- Details about how or why to enact recommendation	Y or N	
2				Look & feel				/
3				TENCompetence				X
4				Usability				
5				Credibility				
6				Site management				

Heuristic evaluation checklists were created for experts to fill out at the conclusion of consultation sessions. A mixture of question formats were used including Likert and short answer. Experts were asked to add more topics as necessary. The complete checklists are provided in Appendix B. There was not enough time, however, for any of the experts to fully complete the checklists during sessions. In addition to time restraints, the SEB website was not fully translated into English, so the collection of comprehensive heuristic results from a checklist was not possible.

8.1.1 Consultation results

In this section, selected results from each of the consultation sessions is presented. The alpha website version was reviewed by experts with experience in Moodle website development; graphic and website design; CoPs and online communities; and the TEN-Competence project and e-learning. An expert from the field of special education was not consulted because a large number of special educators had already been interviewed during the course of the SEB study and more interviews were scheduled.

Most findings from the consultation sessions had to do with the look and feel of the website such as redesigning the SEB logo, updating color choices and the website theme, and improving the use of photos on the home page. This result was notS surprising given that more attention had been paid to the functionality of the alpha website version than graphic design. The second most common type of finding related to the addition of new tools to the site such as RSS feeds and *Web 2.0* features—services designed to encourage collaboration and sharing among website users.

8.1.1.1 Expert 1: Moodle websites

The first expert consultation completed was with the network administrator of a small, city college in Australia. The administrator uses Moodle heavily and is actively involved in the open-source Moodle community as a programmer and developer. The session lasted approximately 90 minutes. The most significant recommendations made, all of which were followed in the development of the beta website unless otherwise noted, are provided below.

The expert explained how Moodle could be used to support a web portal on special education. He gave a demonstration of the portal he created for the students at his college. He said:

> We wanted our site to be more than an e-learning system. We use our Moodle site as our entire student portal. So all student activities are done through this. This is essentially our online hub for online education. We wanted something that was more than just an object repository … for assessing student work or learning objects. We wanted something that encouraged interaction between teachers and students … and also allowed us to deliver resources and encourage discussion. It is particularly that second element [, encouraging discussion,] that led us to Moodle.

He noted that programming knowledge is not required to customize Moodle websites even though Moodle is coded in *PHP*—hypertext preprocessor, an open-source programming language for database driven websites. He said:

> Our whole website was built without editing any PHP. As custom as it looks, I have created a few blocks, but I have not edited any Moodle PHP. … For themeing, the secret is to take an existing theme, duplicate that folder, and just give it a different name. It will work. … Likewise with blocks, if you want to create a new block, copy and paste it and make your own.

He made the following comments regarding PHP, HTML, and *CSS*—cascading style sheets are used in conjunction with HTML and other markup languages to describe presentation aspects of a document or web page.

> I know no PHP. I may look at the code and may be able to modify it and change it, but I know no real PHP. So if I were to rate my skill 1 being worst 5 being best, I might give myself a 2 on PHP. My CSS is 4 and my HTML is 5. Whoever you are handing it over to, you must build to their tech level. If you know you are handing it over to people who are tech savvy then you can be more experimental. If they will not be that tech savvy, then it is useless for you to go down that path because they will not be able to manage it.

He made very clear that when working on a Moodle site, one must make sure that future upgrades to new versions are as simple as possible. Many times, things that were modified to work in an earlier version of Moodle, no longer worked with later versions. He explained:

> From a technical aspect, I have not edited any Moodle core code, which is essential for us. … It just takes you right outside the upgrade path. … Open source, more than anything else, does evolve and evolve quite rapidly. In four years we have grown from [Moodle version] 1.2 to 1.7. The amount of background code changed is maybe 60% to 70% rewritten in that time. None of that has been noticeable to the end user other than it created more functionality and improves security. So the more you change the source code, when a patch comes through you find it hard to upgrade.

He recommended making a new folder for custom blocks and modules instead of modifying the original ones. Copy the original blocks and modules into a custom folder that can then be transferred to new versions of Moodle after an upgrade. When it comes

time to upgrade, "go to the Moodle website, download the zip file and then just overwrite the files, … but of course, backup the files and database first!" For backups, he said:

> The built-in Moodle backup is really just course level so that teachers can backup their own courses manually. It also allows any teacher with one click to backup their course to their own hard drive. [You can also go to phpMyAdmin and just export the entire database.] And that is a perfectly good way of doing it. There are advantages and disadvantages to both. With the level of backup that you are doing, if a teacher was to come up to you and say that they accidentally deleted this one file, the kind of backup you have done makes it very difficult to do a granular backup, to just restore that one specific item. The advantage of the Moodle backup system is that you can restore one individual item.

He did not recommend placing additional navigation bars across the top of Moodle websites. Instead, he argued to stick with the main menu block that is standard to Moodle. He conducted usability testing with the college's site and found that the Moodle main menu block was sufficient. He offered an example:

> Here is an example of a site with the navigation (http://www.automotive-academy.com/lms). None of that is dynamic. It is all hard coded. So if you add a new course it does not automatically appear in a dropdown menu, … so it would be a pain to manage.

The expert also encouraged the upgrade from Moodle version 1.5 to 1.6 and then 1.7 as soon as possible. The problem was that Sofia University host servers were not yet compatible with these versions of Moodle. Sofia University updated their servers a few months after the consultation, and the upgrade to Moodle 1.7 was then possible. Moodle version 1.6 was a very significant upgrade. Unicode text was finally standard in Moodle, which would help solve some problems related to Cyrillic texts. Moodle 1.7 offered a variety of new features including a database module that could be customized to serve as a document, links, and photos repository. The Moodle glossary module had been used on the SEB website to power such repositories but was not very effective.

One of the most noteworthy recommendations from the Moodle expert was to consider using the e-portfolio program Elgg. This was a completely new idea for the SEB site. The Elgg e-portfolio program (Elgg community, 2007) would soon become compatible with Moodle. The expert felt that this would be a nice feature to offer CoP members.[1]

8.1.1.2 Expert 2: Graphic and website design

The second expert consultation completed was with an Australian senior academic with expertise in graphic design and website development for the field of education. The session lasted approximately 80 minutes. Some of the most significant recommendations made had to do with the SEB logo (see Figure 8-1.). The expert said:

> A logo only works if it reflects what the site is about. Even if it is a nice logo. … This [current alpha website logo] doesn't really say 'Special Education Bulgaria.' I thought it was for dance. There is sort of a lot of movement there, there are a lot of bodies, and so I saw dance the minute I saw it.

Figure 8-1. Alpha website logo (upper left), beta website logo (second from upper left)
Other logos, found using Google Image Search, were only used as examples during consultation sessions

He recommend that the new logo should show a community forming or growth and people joining together. He said that the books logo, which is shown in Figure 8-1, looked like it could be used for any generic educational purpose. He also said: "We are talking about technology here so you want to avoid books. It does imply education but lately you will find very few sites that have an apple and a book on it."

Regarding the logo with two people and a circle, he said: "That sort of implies inclusiveness, the only thing is there is a power relationship there, which you may want to avoid." The logo that looks a little like a butterfly he felt was "a bit tight," "a bit angry," and "a bit bold." The diamond shaped one was too corporate, and the three-petal flower too much like a hygiene product. He liked the people branching logo but preferred the idea of dots merging together, which is similar to the dots used in the beta website logo.

1. The Mahara e-portfolio program (Mahara Community, 2008) was eventually chosen for integration with Moodle instead of Elgg. This was a design decision made by the Moodle community leaders (Moodle community, 2007).

Regarding the design of the entire site, he noted that as an online community, it needed to be much more "welcoming and warm" and that the alpha site seemed "rigid and cold" (see Figure 5-4, on page 111). Regarding navigation and usability, he noted, "It's fine. From a navigation point of view I think it is quite good. … Most of the work that needs to be done on the site is in the visual design. The organization and functionality appear to be fine."

He also recommended that Hofstede's (2001; Hofstede & Hofstede, 2005) research on *cultural dimensions* be considered and that the custom design of large-company websites for different countries be reviewed such as Coca Cola and McDonald's. We looked briefly at the cultural dimensions for Bulgaria and found that a corporate or rigid design may actually be a better fit. Bulgaria has a high rating for *power distance*—the level of social equality, which includes the relationship with authority. He said:

> So if it is a power distance thing then the more corporate, rigid, professional, straight lines, those sort of things may be appropriate. … You can have a look and feel that is very corporate or you can have a look and feel that is very inclusive, you may have to do something that is somewhere between the two. But don't go too rigid and militaristic … because they are trying to get out of that [their society is changing.]

8.1.1.3 Expert 3: CoPs and online communities

The third expert consultation completed was with an Australian senior academic who had expertise in the research and development of online communities, CoPs, and learning communities for the field of education. The session lasted approximately 75 minutes. The main recommendations made had to do with the addition of more Web 2.0 functionality. Some of the tools suggested included RSS feeds; lists of user-added links or *social bookmark* as done with *Delicious* (Yahoo! Inc., 2008); and *Podcasts*—a term popularized by the use of Apple iPod devices that essentially refers to a multimedia broadcast hosted on a website. He said:

> Get people to post Podcasts for sharing their experiences, I mean to me, that is what a community of practice is all about, sharing experiences and sharing problems. The thing is that you want participants to create it. The problem with RSS feeds is that they are rather generic, I mean they are in transmission mode and automatically sent out. But if you turn it around and say we want the students, we want the

> teachers, we want the parents to create the pod casts, that becomes much more powerful.

He also mentioned *wikis* and *blogs*—a wiki is a type of website that allows visitors to add, remove, and edit available content, and blog refers to a *web log*, which is a website on which entries are made in the style of a journal or diary. He noted with caution, however:

> There is no good putting up here in the [SEB] menu Wiki, because nobody will know what to do with it. But if you put a link like 'blogging about special education' or 'my experiences in special education' or 'experience from your classroom' maybe it would work better, but it is again difficult to get people to volunteer. … As designers, we need to be thinking about what makes things like *YouTube, Flikr* and *MySpace*, successful. Because we already have this model of discussion forums and chat that have been around for some time, but I don't think that they are all that successful.

Regarding the concept of evolving SEB into a learning community that offers online courses, he said:

> Professional development online is tricky to do. It can be done, but I think it is better done in a blended sense. … What is not critical, is the technology. What is critical is the activities and how you get people interacting around the particular activities. What you are doing is turning your community of practice into a *learning community*. … What you could do is say here are a number of resources that people have posted in the area of special education and primary school children. Those of you that have such students then need to develop some aspect of curriculum and try it out with your students and report back with what you have done and what you found and so on. So you could actually take a totally different model, called *action learning*, and have a philosophy of action learning that underpins the way that you are going to get those people to reach those competencies.

Regarding graphic design, he suggested that photos be placed on the home page showing children or special educators in action. He said that if the purpose of the site is special education for children with special needs, "that image is not there." An image that changed when the web page refreshed was added to the home page on the beta website version (see Figure 5-10, on page 132). His other suggestions were also followed except for the use of podcasting, which was assumed to be too advanced for many SEB members at that time.

8.1.1.4 Expert 4: TENCompetence and e-learning

The fourth expert consultation completed was with a Bulgarian senior academic and representative from the TENCompetence project who had expertise in e-learning standards, theory, and applications. The session lasted approximately 40 minutes. The main recommendations made are discussed below.

He recommended that there be information not only for teachers but for parents. "For example," he explained, "how one can check that the behavior of their child is a problem or not a problem. To help them decided if there is a situation that requires them to contact a specialist." He also mentioned hosting a directory of experts on the site. Regarding the TENCompetence project, he said:

> SEB is related to the networking level of TENCompetence, which is dedicated to special education and this one profession. And this network, facilitated electronically, should be built by the participants from one group of professionals. But this needs to be thought of in terms of competencies, as in one network of people who all are involved in having or developing competencies related to special education. So in this sense, your site is one such network. … And in order to see from the objective of competency-development programs, you should have several such courses, each one intended to build different plans to achieve some competencies related to special education.

He noted that SEB needed more knowledge resources in the repositories. He said, "Perhaps start asking them to volunteer papers and other important documents. Put that request here on the home page even. Also they can be really afraid that someone will steal it or something, which is typical, but what do they have that is so secret?" Regarding people's fear of participating online for fear of saying something unintelligent, he said, "Yes, when we started work with such communities, the first thing that we had problems with was this … all people have to be open and sharing because otherwise we lose the power of the community."

He also recommended the use of e-portfolios but for later stages of development. He felt that a pilot course would be more valuable at this time. He said:

> The e-portfolio is used to analyze the level at which participants in the network have according to the different competencies. And having this information to plan better how and what courses or learning activities or units of learning the participant will need in order to obtain some planned competence.

He noted that e-portfolios were useful for community building as well. They can be used to build up participant profiles and make it easier to identify others with similar interests. He said that in this sense, e-portfolios "are focused on linking people together, knowing more about each other, and also searching for people by processing some type of competencies to get in contact with them." The suggestions made by this expert led to the completion of a pilot course conducted at Sofia University with the SEB website and custom software from the TENCompetence project. The pilot is further discussed in Section 9.2.4.2, A focus on integration, which begins on page 303.

8.2 Usability

This section explains how usability data were analyzed and discusses the usability problems observed and how they were addressed. Charts are provided that exhibit the frequency and types of usability problems encountered. There were two sources of usability data: (1) subject observations regarding personal preferences and challenges when using SEB and (2) researcher observations of usability problems encountered by subjects. Data was collected in video recordings and by notes taken on observation sheets as described in Chapter 4, Methodology. Findings were gathered from the videos and notes and entered into a *problem/solution matrix* (see Table 8-2). The terms used in the matrix are defined as follows:

- *Experience*: Participant level of skill with the Internet (high, medium, or low, as observed by the researcher).
- *Version:* Website version used for the interview (prototype, alpha, or beta)
- *Task / scene*: Activity or scenario completed by the participant during which the usability problem was identified.
- *Design element*: Website feature or function related to the usability finding.

- *Importance*: Rating for the urgency to correct a problem (A to C).
- *Repairability*: Rating for the ease with which a problem can be corrected (1 to 3).
- *Retest required*: A *Y* means that a retest is required during future usability sessions to confirm that the solution was effective, and a *C* means that the retest was completed.
- *Fixed*: An *X* means that the problem was fully corrected, and a / means that it was partially corrected.

Table 8-2. Problem/solution matrix for analysis of usability data

#	yyyy-mm-dd hh:mm:ss	Participant	Age	Sex	Exp	Version	Task (1-22) Scene (A-E)	Design Element	Imp. (A-C) Rep. (1-3)	Problem / Recommendation	Solution	See Also	Re test Requ.	Fixed / or X
1	2005-09-15 00:50:38	Name	23-30	F	H	Proto	6	Navigation bar	B/1	- Problem description - Recommendation	- Solution enacted	2	Y	/
2														
3														
4														

The term *importance* is a criteria for rating usability findings by urgency. It was borrowed from a report by Dillon and Evans (reprinted in Barnum, 2002). The term *repairability* was chosen instead of the term *severity* (Dillon and Evans, reprinted in Barnum, 2002) as the second criteria. The term *repairability*, when applied to usability findings, could more clearly be differentiated from the term *importance*. Descriptions for each level of the importance and repairability criteria are provided in Table 8-3. Examples of how the criteria were applied are provided in Tables 8-4 and 8-5.

Table 8-3. Importance and repairability criteria for usability data analysis

Importance	
A	**High importance**: It is very important to fix the problem experienced by the participant because it is likely to affect most users in the same way and/or the related design element of the website is critical to the functioning of the website.
B	**Medium importance**: It is important to fix the problem experienced by the participant because it seems likely that it would affect other users in the same way.
C	**Low importance**: It is not critical to fix the problem experienced by the participant because it is unclear that it would affect other users in the same way and/or the related design element is not critical to the general functioning of the website
Repairability	
1	**Easily repaired**: The problem is relatively simple to correct, and the repair should take very little time.
2	**Complicated to repair**: The problem is difficult and time consuming to correct, but with some effort, should be repairable.
3	**Highly complex to repair**: The problem is very difficult to correct and may not be repairable with the means available.

8.2.1 Usability results

The total number of problems found, problems corrected, and problems not corrected are listed in Figure 8-2. The figure also illustrates the total number of findings by importance and repairability. Out of 142 total usability problems identified, 76% were either repaired or partially repaired. The problems that were not repaired were either rated as less important (importance level B or C) or rated as highly complex to repair (repairability level 3). Table 8-4 lists examples of the most common usability findings, and Table 8-5 lists examples of problems that were not repaired.

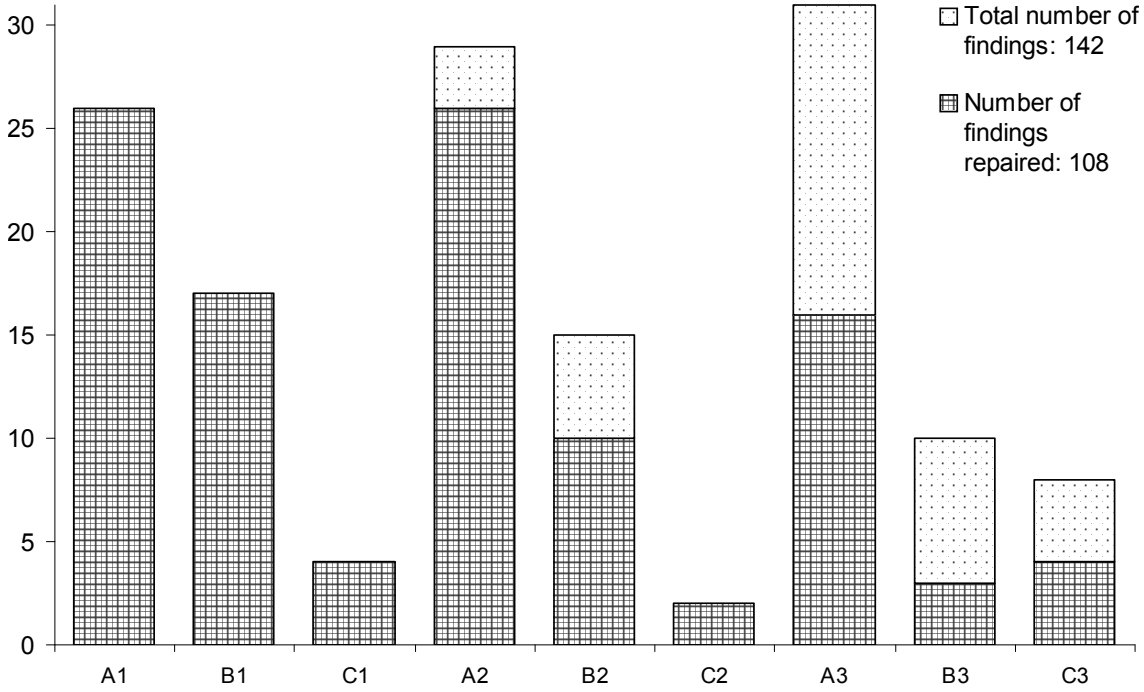

Figure 8-2. Usability findings by importance (A-C) and repairability (1-3)
A1 = Highly important and easily repaired

Table 8-4. Examples of common usability findings

Website version	Rating	Problem	Solution
Proto	A/1	Superfluous or confusing data is required in the registration process. Example: User must define their time zone as the number of hours different from Greenwich Mean Time (GMT).	Removed fields for superfluous data. Example: In addition to removing the field, automatically set all users to GMT +2 hours for Bulgaria.
All	A/1	Confusing translation of words, especially those used for links and site navigation. Months of the year were commonly found untranslated from English into Bulgarian.	Translate all words as suggested by usability subjects.
Alpha & Beta	A/2	Chunks of Moodle navigational or registration text not translated. Example: Contextual help documentation is only in English.	Found another Bulgarian Moodle website or developer that already had the text translated.
Alpha & Beta	A/2	Moodle error messages appeared due to problems with custom edits to the core code.	Undid edits to the core code.
Alpha & Beta	A/2	Confusion about how to find a lost username or password.	Edited text related to the registration process or username and password recovery. Changed location of links for new registrations and username or password recovery.
Alpha & Beta	A/2	Difficult to make links added to the repository of links appear as hyperlinks.	Upgrade to Moodle version 1.7 allowed use of the database module instead of glossary module for the links repository.

Table 8-4. Examples of common usability findings (continued)

Website version	Rating	Problem	Solution
Alpha & Beta	B/1	Superfluous Moodle features. Example: Ability to rate postings according to a scale for "separate and connected ways of knowing."	Turned off the feature. Edited Moodle's help documentation.
All	B/2	Confusion regarding the type of characters to use, Cyrillic or Latin. Example: Some users post in Latin characters and others in Cyrillic. Difficult to use the website's search feature.	Added a note to the discussion forums, glossary, links gallery, document gallery, and image gallery. The note read as follows: whenever possible, use Cyrillic characters to post. Use of only Cyrillic characters improves website search functionality.
Alpha & Beta	B/2	Cannot see other participant's full profile information such as email address or city.	Upgrade to Moodle 1.7 allowed permissions to be more concisely set for all users.

Results from usability testing with the prototype website indicated that special education stakeholders in Bulgaria are sufficiently skilled with using the Internet to participate in an online community or virtual CoP. Usability results also indicated that certain modifications to the prototype's design were needed. Such modifications included the location of links for posting replies to discussion topics; reading posted messages; registering for discussion forums; and translating the language from English to Bulgarian.

Other prototype modifications required included improved Bulgarian translations of navigational headings and links; simplified registration; simplified discussion forum organization; and better integration of the forums on SEB's home page. Another modification needed was functionality that would allow users to post and organize documents on the website without administrator assistance. All of these findings were addressed with the installation of Moodle for the alpha and subsequent website versions. Most of the usability findings listed in Tables 8-4 and 8-5 refer to Moodle-powered versions of SEB.

Table 8-5. Examples of usability findings not repaired

Website version	Rating	Problem	Reason for lack of repair
Alpha & Beta	A/3	Mistakes in the language, incomplete or malformed sentences.	Need to hire a translator to edit the website.
Alpha & Beta	A/3	The Moodle 'jump-to' menu does not include a 'home' link or 'participants list' link.	Requires editing Moodle's core code.
Alpha & Beta	A/3	Cyrillic characters not supported. Example 1: Cyrillic characters do not alphabetize correctly in Moodle. Example 2: Cyrillic characters not recognized by an email provider such as Yahoo or Hotmail.	Requires Moodle core code to be corrected. The problem was submitted to the Moodle.org open-source community to be addressed in future Moodle releases.
Alpha & Beta	B/2	User did not understand what ALT text was for in the photo gallery image-upload field.	Difficult to translate the definition into Bulgarian, requires a translator.
Alpha & Beta	B/3	To edit, the little 'hand' icon should say 'edit' next to it. To make comments, the little 'bubble' icon should say 'comment' next to it. The icons are too small.	Requires editing Moodle's core code.
Beta	B/3	Only 50% of the RSS feed's Bulgarian news items actually had to do with education and Bulgaria.	No way to correct the news provider's website.
Beta	B/3	With the Mahara e-portfolio software, users need to have two usernames and passwords, one for an English language account and one for a Bulgarian language account, if they want to have an e-portfolio available in two languages.	Could also just put translated text after regular text but that would look awkward. The best solution would be for Mahara to make it possible for users to duplicate their e-portfolio pages in another language.
Alpha & Beta	B/3	User would prefer to answer automatic emails from discussion forum posts directly from their email interface rather than logging back into the website.	Not sure that this can be changed due to the way Moodle works and its design to ensure privacy
Alpha & Beta	B/3	Emoticon information in the help documentation is very weak. A larger list of options for making various types of emoticons would be useful.	Requires editing Moodle's core code.
Alpha & Beta	B/3	A user said, "I am not certain that Moodle is the most suitable system to arrange contents. For example, the forums are not in the best possible format. It feels like an outside view, and demands too many operations to search by topic."	Unclear what options are difficult. May require integration of a new discussion forums tool or perhaps the use of an open-source content management system such as Drupal (Buytaert, 2008) or Joomla (Open Source Matters, 2008) along with Moodle.
All	C/3	A user said, "I have not used the site very much because I do not remember my username and password and am not interested in doing a new registration. But the forums and the themes of the arguments very much interest me, I even discuss them in lectures."	No idea how to address this issue. It is a basic concept to Moodle and other software with discussion forums that a username and password are required to post.

Usability session setups for all phases were successful, but the setup for Phases 2 and 3 (see Figure 4-6, on page 86) was a particularly effective way to conduct an inexpensive usability evaluation at a remote location with only one researcher and one video camera. The mirror effectively captured participant facial expressions without distracting the participant. One video camera successfully captured the entire computer monitor, keyboard, mouse, mirror, and participant hand movements as well as audio. With the proper monitor resolution and frequency settings, as shown in Figure 4-6, monitor screen flicker on the video recording was negligible.

8.3 Interviewing challenges and solutions

Interviews provided a wealth of information about the practice of special education in Bulgaria. The results were used to develop discussion forum topics, identify potential research partners in Bulgaria, and identify areas for further research in the Bulgarian special education system. Interview sessions were also used to collect usability data. To collect all of these diverse forms of data, however, the interviewer had to be flexible. For example, there was not always a computer and Internet connection available. During the needs assessment, Phase 1, printed screenshots of the website were included in the interview protocol. The screenshots were only necessary, however, for one of the interview sessions. An offline version of the site on a laptop was used in another session when the Internet became extraordinarily slow.

Some of the other problems related to technology encountered included monitor flicker on the video recording and the size of the mirror used for usability interviews. Monitor flicker was resolved as described in Section 4.4.4, Assessment usability interviewing, on page 85. The refresh rate of the monitor must be matched to the refresh rate of the video camera. Regarding the mirror, in one session, the mirror used to capture participant facial expressions on video was too small and needed frequent adjustment to ensure that the participant's face remained in view of the video camera. This was too distracting and ultimately, some facial expressions were lost.

For an offsite usability interview at an Internet cafe, video capture was not possible and the audio recording was nearly impossible to decipher. In this case, researcher notes were the only valuable record of the session. During this particular interview, results were also complicated by the fact that the interview was conducted only in Bulgarian. Since the interview took place in an Internet cafe, the researcher and subject

were not free to speak in a normal conversational volume. A noisier cafe might have been a better choice so that the researcher and subject could speak more freely. For this interview, it was very important that the researcher made post-interview notes to help ensure that data was recorded.

One of the most interesting interviews was with a computer teacher in a school for the blind who was, herself, blind. Results indicated that the JAWS (Freedom Scientific, 2008) screen reader worked well with the prototype website. Areas that proved most difficult included the Contact Us HTML form and certain aspects of navigating and opening topics in the discussion forums. The teacher reported that the website was much easier to navigate than many of the Bulgarian websites she had used. For future research, it may be important to test how well blind users navigate Moodle versions of SEB using JAWS.

In addition to technological challenges, simply arriving at the research location could be challenging. On the way to Vratsa from Sofia, the researcher was stopped by police. The speed on many Bulgarian roads is not well marked. The researcher was not driving too fast, much slower than the other traffic. In this case, probably due to the language barrier, there was no ticket.[2]

Another challenge that came up while traveling to an interview was when the researcher became sick on the morning of the interview and had no way of contacting the special school to cancel the meeting. He left a message with the interview scheduler at Sofia University but not in time to keep the special school from setting up. A translator was hired and a light breakfast was prepared. The special school was greatly offended when the interviewer did not show up. The researcher sent an apology letter in Bulgarian, but the offence was never fully rectified.

It is not surprising that there were communication challenges because of the language barrier. In one case, the researcher misunderstood the date of the interview, which was set up by telephone. This was one of the first interviews conducted only in Bulgarian. The researcher arrived at the special school, but the participant was not there. Dates and numbers were one of the hardest things to learn in Bulgarian.

2. There is a joke in Bulgarian that a police officer has a birthday and asks the police chief for the day off. The chief refuses but says, “Happy birthday. Take this speed marker and go collect some fines.”

Another example, is an interview conducted at a special school during the effectiveness evaluation, Phase 3. The special school was not prepared with an English translator, and the researcher was not able to speak only in Bulgarian at that time. Needless to say, the audio portions of the interview were not very useful, but video results and researcher observations did indicate some areas in need of usability improvement. Two subjects still managed to register for the site and to post to the discussion forums without verbal direction from the researcher.

One of the more interesting interview challenges was when the participants at a special school did not understand the purpose of the researcher's visit. The subjects thought that the researcher might be able to find the participants work in the European Union or United States. Once it became clear that the researcher was only at the school to show the participants a website and ask questions, the subjects were less interested in participating. In addition, the subjects spoke no English and the researcher's partner had to give a full-day presentation and could not assist. Using body language, a research session was still conducted. The researcher's Bulgarian was not good enough at that point to ask any questions, but researcher observations were still valuable.

In another example, three participants showed up at once for a usability session. Instead of coordinating their return at a later date, all three subjects participated. This was not a very effective way of handling the situation. All of the subjects registered for the site and had some comments, but there was not an opportunity to collect much usability data. One of the participants was scheduled to return at a later date to complete a full session.

8.3.1 Methodological modifications

It was not feasible to perform adequate pilot sessions prior to data collection for the needs assessment, Phase 1, because all of the participants were in Bulgaria. Therefore, it was assumed that significant changes might be made to the interview protocol in the field (the complete protocol is available in Appendix B). Furthermore, since the practice of special education covers a very broad range of expertise, the protocol contained far more questions than could be covered in any one interview session. It was assumed that only portions of the instrument would be used depending on the participant's area of expertise.

Most changes to the protocol were made after the first interview with the researcher's associate supervisor in Bulgaria. The interview provided a great deal of

useful data but also served as a test of the protocol. To test the instrument, the entire research instrument was followed in sequence. The interview ran for nearly two hours and was broken up into two days.

Subsequent interviews lasted no longer than one hour. It was initially planned, however, to visit each participant twice during Phase 1. During the first interview, general questions about special education would be asked such as, "Tell me about your experience with special education." General questions would also be asked about Internet use and access. During the second interview, an exploratory usability interview would be conducted using the prototype website.

In practice, it was not realistic to complete a second interview within the one-month period that the researcher was in Bulgaria. The second meeting would have required too great a time investment of participants due to travel and time away from their profession. In addition, it was found that after the first few interviews were completed, general questions about the practice of special education in Bulgaria were no longer as valuable as data gathered that was specific to the SEB website. While in Bulgaria, the interview protocol was streamlined to ensure that both personal interview and usability data could be collected in one 60-minute session.

The combination of a personal interview session followed by a usability session in front of a computer worked well. The use of a computer appeared to be a welcome break from traditional interviewing for the participants. The interview guide approach, described in Section 4.3.4, Personal interviewing, which begins on page 69, also proved effective. It allowed the protocol to be restructure during interviews if time became an issue. In addition, the order and sometimes nature of questions asked often changed as the researcher followed unexpected leads.

The evaluation of special education knowledge section was removed from the Phase 1 interview protocol after the first interview with the researcher's associate supervisor in Bulgaria. It was thought that participants could informally be evaluated for their knowledge of special education practices. During the effectiveness evaluation, Phase 3, it was thought that a follow-up evaluation could be conducted as an indicator of learning facilitated by the SEB website. In practice, however, this was not possible. The method was flawed in that the nature of the evaluation was too broad, and the researcher was not qualified to conduct such an evaluation.

A problem related to the chat scenario for usability interviews was the difficulty of setting up two computers with Internet access. In one case, when the university computer lab was supposed to be available for the interview, it was closed. Ultimately, this scenario proved the most difficult to complete even though it only required two participants to use the SEB chat module for a few minutes.

The division of interview questions into past, present, and future categories as well as experience, knowledge, and task (see 4.3.4, Personal interviewing, on page 69), was an interesting strategy for the creation of the Phase 1 interview protocol, but it is unclear that it made a significant difference with regard to research outcomes. For Phases 2 and 3, the interview protocol was much more streamlined. The protocols included five usability scenarios and notes about specific areas of the website to test with the participant. It was assumed that only two or three scenarios could be completed per session. As backup, additional personal interview questions were included in case of Internet failure. In addition, a working version of the website was loaded on the researcher's laptop.

8.4 Validity of results

According to Creswell and Clark (2007), the validity of quantitative research is generally focused on the *reliability* of data. Reliability can be considered in terms of *repeatability*—when the same data is analyzed by a different researcher the same conclusions are drawn. For SEB, reliability of the web log analysis could be audited for validity. All of the data has been downloaded from the website and backed up and is available if an audit is required. The same is true for all participant background data collected. All of the original internet-use questionnaires are saved and web-based questionnaires and surveys have been downloaded and backed up.

For qualitative research, validity has more to do with the *accuracy* and *credibility* of collected data (Creswell & Clark, 2007). Reliability could come into play for a qualitative study when *intercoder agreement* is desired (Creswell & Clark, 2007; Miles & Huberman, 1994), but this level of detail was not required for the SEB study. There were a large number of qualitative codes used for the study. Future qualitative research with the SEB online community should seek to reduce the number of codes. There were several examples noted during the analysis of results in Chapter 7 of two codes that could be combined. Merging the 'positive feedback / stakeholder interest' and 'interest among managers or teacher trainers' codes was one example noted.

Representativeness of research participant sampling was carefully considered (see Section 6.1.1.3, Representativeness of sampling, on page 148). Where applicable, possible effects due to the presence of the interviewer during interviews was noted in the analysis of results. *Member checks* were also important. Transcribed interviews from the needs assessment, Phase 1, were sent to the interviewees for review. Transcribed interviews from all phases, notes, survey results, completed questionnaires, and other research records were saved and organized to form an *audit trail* that can be confirmed by other researchers as needed.

The inclusion of the same participants in both qualitative and quantitative phases is a challenge with exploratory research designs (Creswell & Clark, 2007). There was some overlap in the SEB study, but in terms of the number of website participants, now more than 350, and interview participants, 37, the overlap was not that large. It was thought that given research participant involvement with the study, they might be more active website participants. This was not necessarily the case. Of the core group of 20 consistently active website participants identified, only three were research participants.

The language barrier was the greatest limitation of the study. During personal interviews, for example, the tendency of the interviewer to speak for the subject was greater because there were times when the subject could not think of the correct English words. In one case, the subject understood English fairly well but could not speak it, and the researcher was able to speak Bulgarian fairly well but had trouble understanding it! In many cases, gestures and body language were required. At times, the researcher sensed that he was not getting complete answers during interviews due to the language barrier, cultural reasons, or *researcher effects* (Miles & Huberman, 1994, pp. 265-266). It was surprising, for example, that participants did not discuss the dire conditions of Bulgaria's institutions as described by the documentaries *Bulgaria's Abandoned Children* (Blewett, 2007, November 18) and *Les petits fantômes de Bulgarie* (Lorton & Béquet, 2008, June 6).

8.4.1 Triangulation

Trinagulation helps to increase the confidence level of findings by corroborating evidence from independent sets of collected data (Miles & Huberman, 1994). As shown in Table 8-6, quantitative and qualitative data could be corroborated in this way. Quantitative data could also be corroborated with other quantitative data. The purpose of

Table 8-6 is to show that triangulation was used in the analysis of results to increase the validity of findings.

Table 8-6. Examples of triangulation among findings from mixed data

Indicator 1 (Qualitative / Quantitative)	Indicator 2 (Quantitative)	Finding
Quan: Figure 6-30, on page 156 exhibits the features of SEB in which web-based questionnaire respondents reported they were most interested.	Quan: Website log data results shown in Figures 6-46 and 6-47 on page 173 show which website features were most used.	Discussion forums were the most popular feature. The glossary was the second most popular and links gallery third most popular.
Quan: Figures 6-39 and 6-40 on page 164 both indicate that the intellectual disabilities; speech, language, and learning disabilities; and integrated education forums were the most popular.	Quan: Web-based survey results shown in Figures 6-31 and 6-32 on page 158 indicate that intellectual disabilities and speech and language are the areas in which website participants are most interested.	The intellectual disabilities and speech and language areas of special education are of high interest to SEB users.
Qual: Qualitative code frequencies shown in Figure 7-2, on page 199 indicate that integrated education was the most widely discussed topic across the forums.	Quan: Figure 6-40, on page 165 indicates that integrated education was the most popular discussion forum by total posts.	Integrated education was the topic of highest interest to SEB users.
Qual: Qualitative code frequencies shown in Figure 7-2, on page 199 indicate that integrated education was the most widely discussed topic across the forums.	Quan: Figure 6-41, on page 166 indicates that four threads on the topic of integration were the second, third, fourth, and fifth most viewed threads of all the forums. Figure 6-42, on page 167 indicates that a thread regarding the closure of special schools had the greatest number of posts.	Integrated education was the topic of highest interest to SEB users.
Quan: Figure 6-41, on page 166 indicates that behavior problems was a topic of moderate interest to participants in terms of total page views.	Quan: Figure 6-42, on page 167 indicates that behavior problems was a topic of moderate interest to participants in terms of total posts.	Behavior problems was also a topic of interest to participants though not to the same degree as integrated education; intellectual disabilities; or speech and language.

Qualitative data was not corroborated with other qualitative data as shown in Table 8-6 because all of the qualitative data was analyzed together in one large matrix as described in Chapter 7. In this way, qualitative data was still triangulated to some extent through the process of constant comparison. Each instance of a finding was coded and code frequencies were then counted. Data from the personal interviews, web- and email-based questionnaires, and discussion forum communications analysis were coded as a single qualitative data set.

Usability data and triangulation

For some usability findings, the solution was clear and relatively simple to fix. If users preferred a term different than the one used on SEB, the solution to the problem was evident. In other cases, the solution required some level of data analysis. "Studying the data means looking at what users did, what they said, what they recorded in questionnaires, and what you observed. This approach of analyzing multiple sources of data is called "triangulation" (Barnum, 2002, p. 269). Triangulation for usability data analysis is illustrated in Figure 8-3.

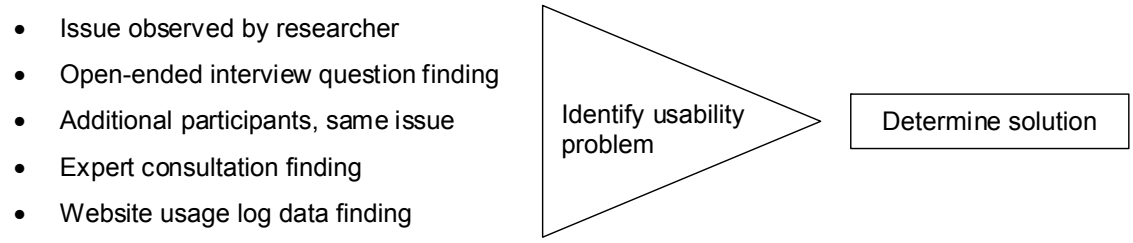

Figure 8-3. Usability data analysis and triangulation

For this study, issues related to registration or the recovery of lost usernames or passwords are examples that required evidence from multiple sources to determine the appropriate fix. Generally, the two methods of data collection used for triangulation were 'issue observed by researcher' and 'additional participants, same issue' (see Figure 8-3). Expert consultation sessions were not useful for usability data collection because only one of the experts spoke Bulgarian.

8.5 Summary

In this chapter, the results of consultations with experts in Moodle website development; graphic design; CoPs and online communities; and e-learning and the TENCompetence project were presented. The consultations were most valuable for validating design plans for the beta website version. Usability results were also presented. Usability problems identified were rated according to importance and the ease with which they could be repaired. These criteria were used to help determine if problems were feasible to correct within the scope of the study. A section on interviewing challenges and solutions was also presented, and the chapter concluded with a section regarding the validity of results. In the next chapter, Discussion, a synthesis of findings from the complete study is provided.

Chapter 9

9. Discussion

In this chapter, a discussion of conclusions drawn from all forms of collected data is presented. A summary and analysis of the main findings relevant to the study's three research questions are provided. In Section 9.1, key findings are presented that address research Goal 1: to document the practice of special education in Bulgaria including major areas of the practice and historical, political, and cultural contexts (see Table 1-1, on page 9 for a complete list of research questions and goals).

In Section 9.2, the main findings regarding research Goals 2 through 5 are discussed, and final conclusions are presented regarding Research Questions 1, 2, and 3. The topics addressed include the need for SEB and outlook for continued use, its effectiveness in terms of usability and sociability, and its effectiveness as a CoP. A central finding is that though SEB can only partially be considered a CoP, it is effective as an online community and has the potential to become an innovative knowledge community.

9.1 Special education in Bulgaria

Bulgaria is a country of extremes. One of the most beautiful and historic monasteries in all of Europe can be found in the heart of the country's Rila Mountains. In just a short return to the valley floor, however, one passes through several impoverished villages. In Sofia, the nation's capital and largest fastest-growing city, one can find a wagon drawn by a mule on one street corner and a line of luxury-class vehicles at a stop light on the other.

Such acute differences can also be found in the country's large network of special schools. The country has the greatest number of children with intellectual and physical disabilities living in institutions in Europe. The conditions in many of the institutions have

been shown to be well below acceptable standards (Blewett, 2007, November 18; UNICEF Innocenti Research Centre, 2005). The high quality of care that children receive in special schools, however, was argued by several senior Bulgarian academics to be one of the stronger aspects of the nation's special education system. And yet, the distinction between the definition of an institution and special school in Bulgaria is blurred. If an institution is a place where children live and a special school a place where students with special needs receive education, how is it that some special schools are linked to orphanages and at some institutions children both live and are educated?

Among special educators, it is the system of special schools that generates the most controversy. While some educators are proud or strongly supportive of the special schools, others are deeply opposed, citing that the country has waited far too long and is moving much to slowly with the process of integration. Overall, it seems that Bulgaria's system of institutions requires the most urgent attention.

In this section, findings regarding the integration movement are discussed with specific mention of the transitioning role of special schools and social inclusion of Roma children. Other issues discussed by study participants are also presented including the education of students with multiple disabilities and intellectual disabilities; speech therapy; learning disabilities; and the level of respect shown to Bulgarian special educators. The section concludes with a review of some areas identified for further research that do not directly relate to the development of the SEB website but may be of use for future research.

9.1.1 Integrated education, special schools, and minorities

As the integration debate slowly catalyzes action, Bulgaria's system of special schools are forced to change. In most cases, where the integration process has accelerated, the change has been too sudden for mainstream and special educators to be adequately prepared. Special educator comments in SEB's discussion forums have indicated that the attitudes of mainstream teachers and students toward recently integrated students has been negative. Some SEB participants reported that negative attitudes were directed primarily at students with intellectual disabilities.

Another reason that responses have not be favorable appears to be that some of the students being integrated are Roma minorities. Throughout Europe, people of Roma origin suffer from stereotypes that have propagated because the Roma way of life has yet

to find a niche in modern society. Bulgaria has the second largest population of Roma in Europe. Romania has the largest. For lack of success integrating people of Roma origin into society, the Roma as a group are regarded as an unmanageable problem. The mule and wagon on a busy city street are considered a norm rather than a traffic violation.

To date, a response to the large number of homeless Roma children nationwide has been to raise and educate them in special schools and institutions. More than 30% of the children in Bulgaria's special schools and institutions are reported to be of Roma origin, while the Roma make up only 10% of Bulgaria's population (Carter, 2005; "Europe's Roma," 2008; Kolev, Krumova, Metodieva, Bogdanov, & Zahariev, 2007). When healthy Roma children grow up and are educated alongside children with intellectual disabilities, a condition termed *gypsyphrenia* has been reported. In these cases, healthy Roma children begin to exhibit signs of intellectual disability.

Still, the number of SEB participants who argue that special schools must remain open far outnumbers those that argue they should be closed. Nevertheless, participants unanimously agreed that the way in which many of the schools are run must change. Some suggest that the schools should focus on enrolling children with more serious disabilities and multiple impairments and begin to act as centers for early intervention services as their current student populations are integrated into mainstream schools. In addition, it is suggested that children who currently live their entire lives in institutions should be among the first enrolled at special schools as the integration process continues. Sheltered workshops are also part of the culture of special schools. As students mature, they are trained to manufacture suitcases, bags, and other items. Special educators argue that the workshops provide positive, practical activities for students and are another reason to keep the special schools open.

Children with visual impairments may be among the most well integrated children with special needs in Bulgaria to date. Findings indicate that their integration has reached the university level. One reason for success with the integration of children with visual impairments may be due to the pioneering work of a small group of practitioners and university researchers prior to the fall of communism in 1989. They lobbied the Ministry of Education at that time and were granted permission to trial integration but were also asked not to promote the idea. The Ministry wanted to avoid trouble with the governing parties of that era. The words of one senior academic regarding integration in post-Soviet

countries appear to frame the ongoing social challenge. “For 45 years no one in Bulgaria has even mentioned the existence of children with abnormalities, so how could we now show them, talk about them, and expect that they will be accepted?”

9.1.2 Multiple and intellectual disabilities

Study participants reported that students with multiple disabilities are among the most poorly supported by the Bulgarian education system. It has been less than ten years since the first regulation regarding their education was established. Prior to this, the students “just stayed home or lived in institutions,” a senior academic said. As the integration process continues, and space in special schools is made available, the teachers there must be prepared to educate students with multiple and more serious disabilities. Physical disabilities were rarely discussed by participants. There seemed to be some confusion as to what constitutes a physical disability and how a child with physical disabilities differs from a child with multiple disabilities.

Second only to integration, intellectual disability was the most discussed topic by SEB participants. Many discussions on intellectual disability, however, eventually led to topics related to integration. For example, the teachers at special schools for children with intellectual disabilities reported concerns about losing their jobs when their students were integrated. One problem reported at these schools is that children with autism or psychological problems such as schizophrenia are all educated in the same classroom with children who have Down Syndrome or mental retardation. The student teacher ratio at the schools is poor due to overcrowding. At one school visited, grades 1 to 4 were taught in the morning and grades 5 to 8 in the afternoon.

9.1.3 Speech, language, and learning disabilities

Speech and language was one of the most discussed areas by participants, and web-based surveys also showed that it was an area of great interest. There is an ongoing debate among special educators and speech therapists regarding the placement of the speech therapy in the special education field. It is argued by many to be an area more closely related to the medical field than education.

Included in the speech and language field is the study and treatment of learning disabilities. The joining of the two fields of practice adds weight to arguments made by speech therapists that the time has come for an official distinction between speech therapy

and the practice of special education in Bulgaria. Senior academics interviewed said that dyslexia, dyscalculia, and attention deficit hyperactivity disorder are poorly supported by the Bulgarian education system. Other participants reported that one reason that learning disabilities were one of the least treated areas of special education in Bulgaria is that speech therapists generally focused only on speech-related difficulties with their students.

It is possible that the official separation of speech therapy from the practice of special education would lead to a more appropriate allocation of resources to the study and treatment of learning disabilities. SEB findings indicate that there is a relatively high percentage of special educators who are interested in learning disabilities. This may be an indicator that there is a growing interest in learning disabilities because of their position of relatively low importance in the Bulgarian education system in comparison to the European Union (EU), United States (US), Australia, and other more developed nations.

9.1.4 Inadequate appreciation

A common concern among educators across the country was voiced during a six-week teacher strike that followed summer break in 2007. The teachers demanded a 100% pay increase from an average of about 440 Bulgarian Leva (220 Euros) per month. The strike was temporarily resolved with a much smaller pay increase and a promise for further increases in 2008. Web-based questionnaire respondents reported that their work as special educators was not considered prestigious or significant and was low paid. The integration process has left resource teachers in mainstream schools feeling like outcasts among their new colleagues and under supported by school administrators.

9.1.5 Special education issues identified for future research

In this section, recommendations for further research are made based on findings regarding the practice of special education in Bulgaria. The areas identified for future research include individual education plans (IEPs); the preparation of children and teachers in mainstream schools for the integration of special needs and Roma minority students; the study and treatment of learning disabilities; Bulgarian sign language; and improvement in the quality of care and education provided to children in institutions.

One of the fundamental requirements of integration and inclusion programs is the use of IEPs for children with special needs. Bulgaria's IEP forms, which have been in circulation for about five years, are modeled after those used in the US, United Kingdom

(UK), and Germany. The manner in which they are used would be an excellent topic for further investigation. Parts of the forms, such as those regarding provisions for transport to and from school, have been left off on some forms due to school financial issues. A senior academic provided hardcopy examples and explained:

> This [IEP] is the American one that we used at the very beginning. It's translated, of course. At first we started using this one, but it was too detailed for our system. For example, they considered transport. In Bulgaria, transport is not an issue of the educational system. There is no official transport. They have to look for their own way to get to the schools and back. It has to be their parents or someone else. Of course, in the last few years, we have realized that this is a big issue for many students, especially those with physical disabilities, and started organizing individual transport for them. For example, there is a special page for the IEP in the States that refers to the transport a student will get to the school and back home. Does it have to be a special van or minibus with wheelchair access? Is there a special person that needs to assist the student on the trip to school and back? We usually skipped this because we didn't offer transport.

To better prepare children in mainstream schools for the integration of special needs and minority students, Bulgarian educators suggest that first, special schools should be more open to the public. Some educators suggest that a center be created specifically for allowing mainstream students to integrate with special needs students. One educator commented in a discussion forum:

> Why is there no center for teaching young people in special education? I am disappointed that I cannot manage to find any institution of this kind. It would be fine if everyone who wants to learn how to communicate with these children could enroll into a course. It would facilitate the integration.

In a different discussion forum thread, another educator stated:

> In my opinion, the subsidiary schools at the moment are a closed system which ought to be opened to volunteers from the outside world. Why not try and let them in to see what would happen if "normal" students start helping disabled children of the same age in their free time?

At some special schools, programs already exist that invite young volunteers to socialize with children who have special needs. They participate in such activities as folk

dancing, crafts, and visiting the zoo. Findings indicate that much more work could be conducted to bring special schools out from isolation in the early stages of integration. A leader of one of the centers for special education in Bulgaria said:

> We welcome the visits of children who teach the disabled ones how to draw, to socialize. They even have their meals together. Instead of trying to integrate a child with disabilities into a group of 20 peers, it is much better if one or two children with normal mental development visit (voluntarily!) the center. We enjoyed an incredible holiday last summer! As we like to joke, our children's school year consists of three holidays, because that is the time when the volunteers can visit us, and we teach each other tolerance.

An educator replied to the leader's comment in the discussion forums that:

> This is terrific but from a scientific viewpoint, the volunteers do not understand what happens in the mind of the disabled children. There should be a special center to teach special education to volunteers because at the end of the day, the better we understand the problems, the more we could contribute to the development of the children.

SEB participants made numerous comments regarding the need to better prepare mainstream teachers for integration, but there were no specific suggestions about how to carry out preparation programs. The changes proposed for the SEB website, a pilot course on social inclusion, and the other activities discussed later in this chapter are hoped to spur constructive action toward the delivery of teacher preparation programs for integration.

Further research on learning disabilities could be ground breaking in Bulgaria. One senior academic in the area of speech, language, and learning disabilities found, "in speaking informally with colleagues, ... that Bulgarian pupils suffer more from writing problems and not so much from reading. But in English speaking countries, students suffer more from reading problems instead of writing problems." Research into the Bulgarian alphabet and instructional techniques for writing may offer opportunity for further inquiry. The academic interviewed said that every third child in Bulgaria is reported to have a learning disability. In Bulgaria, learning disabilities are defined under three classes: "learning difficulties," "specific learning difficulties," and "severe learning difficulties."

An official format for Bulgarian sign language is also needed. Participants argued that the format should model sign language standards for English. An official Bulgarian

sign language dictionary could be one outcome from research in this area. During an interview session with a senior academic, it was explained that though Bulgaria has an official sign speech standard, there are many common sign language gestures that are unofficial. The senior academic said:

> Our sign speech is with the same rules as the Bulgarian language. … We have officially only Bulgarian sign speech. … [But] we [also] have such communication that is different from our Bulgarian language. … We need some researches to know if this is real language with its own rules or only some sign form of communication.

More research is also needed in Bulgaria regarding how to use sign language as a first step toward oral communication. The senior academic explained:

> We use very much oral teaching. I mean, our target is to learn deaf children to speak orally. We don't use, I think, very efficient sign language. … I think this needs improvement. The reason for this ... in the past this oral teaching, oral method, was very popular. For many years, many specialists, they are very big involved with this, and for them, it is very difficult to receive sign language. … On the other side, the parents of deaf children, because they are mostly hearing, they want their children to speak, not use sign language. But the main point is that sign language is … a good basic skill. … It's easier to learn than oral language.

The role of parents and family in education, particularly in special education, has changed a great deal since the fall of communism in 1989, but the senior academics interviewed say that much more change is needed. Instead of relying on the State to educate their children, parents must take on some of the responsibility. For children with special needs, those interviewed argued that parents must first assist with early diagnosis and then in organizing additional learning, work, and play activities at home. At present, it is the parents' associations that help fund student transport to special schools and the purchase of new technologies. In the larger cities, parents associations have been effective, but in rural areas, special schools do not get the additional support from parents that they require. Further research is needed to investigate the state of special schools in rural areas as well as the role played by families in the education of children with special needs.

Research about what do with Bulgaria's institutionalized children is perhaps the most pressing need. The country's institutions were rarely mentioned by special educators interviewed or in website discussions. The level of educational services provided in the

institutions could not accurately be determined from study data, but findings implied that in many cases, no regular education was made available to institutionalized children. Findings from a recent documentary on Bulgaria's institutions indicated that the conditions in some institutions are so poor that they constituted a humanitarian crisis (Blewett, 2007, November 18).

The United Nations Children's Fund (UNICEF) was relatively quick to respond to the documentary. The institution filmed in 2007 was recently closed, and the children were moved to a new home in Bulgaria with funding from UNICEF (Ilieva, 2008, May 15; UNICEF, 2008, January 23). After closing, relocating, or restructuring the county's other institutions, the issue of where best to educate children formerly in institutionalized care will remain. An initial step toward addressing this issue may be to educate the children in Bulgaria's special schools. The senior academics and practitioners interviewed emphasized that a high quality of care and education is provided to students enrolled in the nation's special schools. This might be one intermediate step that is necessary to give the country's mainstream schools time to move forward with integration.

9.2 The SEB online community

The previous section provided a summary of the review of Bulgaria's special education system carried out for the study. The review was needed to identify key issues in the practice that could be used as central themes to anchor the online community. Most of the issues uncovered had to do with integration.

In this section, arguments are presented for why study findings indicate that the SEB online community is needed by special education stakeholders in Bulgaria (Goal 2). The feasibility of developing the SEB online community (Goal 3) was addressed at the conclusion of the needs assessment, Phase 1, but key findings are mentioned in this section in terms of the outlook for continued participation in the SEB online community after the study concludes. Findings regarding the usability and sociability of the SEB website (Research Question 2, Goal 4) are also presented in this section.

The section concludes with a review of findings that indicate SEB was an effective online community but not an effective CoP (Goal 5). Arguments are then presented for why future iterations of SEB would best serve its members as an innovative knowledge community focused on integration rather than a single CoP for the entire practice.

9.2.1 Need for SEB and outlook for long-term use

Both qualitative and quantitative data indicated that an online community can play an important role in the practice of special education in Bulgaria. SEB provided an easily accessible place for practitioners and teachers in training to discuss concerns and key issues related to the practice. There were also examples of participants that used SEB to build their professional reputation.

As a central document and links repository, SEB was less successful. It is believed that the reasons that SEB repositories were under used was not because of technological deficiencies but because participants were not motivated to contribute. Had the repositories been better stocked with useful resources up front, it may be that participants would have been more likely to add to the repositories. Nevertheless, the participants interviewed and surveyed consistently noted that the repositories were one of the most attractive features offered by the website.

Another feature in which participants were highly interested was the opportunity to access experts. Though there were numerous examples where experienced practitioners provided professional insights to discussions, the forum moderators were relatively inactive. Participants indicated that there was a need for expert involvement by the forum moderators but that such involvement was insufficient. Several participants also commented that they would have liked SEB to host a directory of specialists. The creation of such a directory, however, would likely require more involved activity by the website administrator to ensure quality.

Access to formal professional development opportunities was also important to participants. There was even interest in paying for online courses. These findings indicate that further work with the TENCompetence project would be successful. One pilot course was already completed and a second is planned (see Section 9.2.4.2). To continue as a provider of professional development programs, it is recommended that SEB begin by focusing on the most pressing issues related to the practice. The most pressing issue is integration and SEB might best be positioned to address this issue as an innovative knowledge community as described in Section 9.2.4. In addition to focussing on integration, findings indicate that the SEB community would best serve the practice of special education in Bulgaria by continuing to stimulate discussion between practitioners and university students and practitioners and the parents of children with special needs.

The outlook for long-term participation in SEB is strong. It continues to be the only online community of its kind in Bulgaria. By mid 2008, six months since the two-year data collection period concluded in December 2007, membership had grown by 45%. The latest forum threads have discussed the UK's *Bulgaria's Abandoned Children* documentary (Blewett, 2007, November 18) and a subsequent documentary called *Home*. The *Home* documentary was released by a Bulgarian filmmaker to show that not all of Bulgaria's "social homes" are as poorly operated as the one portrayed in *Bulgaria's Abandoned Children* (Yoncheva, 2008, January 1). Another thread that received a large number of comments was started by the parent of a child with learning disabilities. The parent requested information about IEPs for teaching mathematics.

Many other recent postings related to integration or to the education of children with multiple and more sever disabilities including cerebral palsy. One discussion was about defining the position of "resource teacher" in mainstream schools. Another recent discussion was about how a resident of one of Bulgaria's more remote cities could receive training in special education. Continued use of the forums demonstrates the ongoing need for the community.

Another key finding from the study was that a sufficient number of special education stakeholders in Bulgaria have Internet access and the skills needed to participate in SEB. Participant demographics presented in Chapter 6 indicate that SEB reached the stakeholders targeted, which included practitioners, future practitioners, teacher educators, researchers, and to a lesser degree, the parents of children with special needs. Results of the SEB study indicate that mainstream and special schools across Bulgaria have been equipped with new computers and broadband Internet access. Results also demonstrated the same cultural openness to innovation and technology as reported in the study by Reeves, Harmon, and Jones (1993) on the feasibility of implementing computer-based instruction in Bulgaria and other developing countries. In Sofia, the researcher observed that setting up new broadband Internet access for personal use was quicker, easier, and less expensive than in Australia and the United States.

A great deal of positive feedback about SEB was gathered during interviews and from email questionnaires. Participants were generally optimistic that the online community would become a hub of activity for the practice. One of the main benefits anticipated was the hosting of web-based seminars regarding integration. In one example,

a website participant posted to the forums that they had recently appointed two special educators at their mainstream school due to a program sponsored by the Ministry of Labor and Welfare. The participant felt that the school's teachers as well as the two young special educators still had much to learn about integration, and they hoped that SEB would be useful in this regard. Other data indicated that there is a surplus of mainstream teachers in rural areas that could be retrained as special educators. In rural regions of Bulgaria, and even the more populated areas, there are not enough specialists to facilitate integration.

One of the data units that indicated SEB might not be needed was about how the specialists at Sofia University are in frequent contact with Bulgaria's schools for the visually impaired in both Sofia and Varna. These two schools work closely with university specialists via telephone and postal mail. Other data indicated that this was a special case. Many of the special schools and especially the institutions in Bulgaria are very isolated. A senior academic in the area of intellectual disabilities reported that she did not know where many special schools were located or how to contact them. If it is true that special schools across the country now have Internet access, it is likely that SEB was one of the first professional websites that teachers visited.

There were several examples in the forums of participants who wanted access to highly specialized information on such topics as hydrotherapy for children with cerebral palsy. Many of the students interviewed wanted access to information about how special education was practiced abroad. For the older generation of Bulgarian special educators, Russian websites still provide the most accessible information. For the new generation of special educators, US and EU websites are most accessible. What both generations indicated is that there was not enough information available in Bulgarian on the Internet or even in libraries. At this time, there is no portal for Bulgarian resources on special education. Research and website participants anticipate that SEB will provide this service, but results indicate that they are not willing or able to build SEB's resource base without a significant amount of assistance. For SEB to succeed in the long run, the Bulgarian Ministry of Education or an NGO will need to fund a small website development team to manage SEB's document, links, and other information repositories.

9.2.2 Effectiveness in terms of usability and sociability

One way to gauge effectiveness in terms of usability and sociability is to compare the features of the SEB interface with Preece's (2000) list of usability and sociability considerations (see Table 2-1, on page 19) and sociability and usability checklist (see Table 9-1). All of the items listed for facilitating usability and supporting sociability were taken into consideration or implemented in the design of SEB. Table 5-7, on page 121 indicates the way in which the SEB's instructional/informational content addressed each of the policies required for the support of sociability.

Table 9-1. Sociability and usability checklist
Preece (2000, p. 290)

1.	Why should I join this community? What are the benefits for me?
2.	How do I join (or leave) the community? What do I do to become a member?
3.	What are the rules of the community? Is there anything I shouldn't do?
4.	How do I get started reading and sending messages?
5.	How can I do what I want to easily? Can I make the software do x or y?
6.	Is the community safe? Will my comments be treated confidentially? Will my personal information be maintained securely?
7.	Can I express myself as I wish?
8.	Why should I come back? What makes being a member of this community worthwhile in the long term? What's in it for me?

Seventy-six percent of the usability problems identified were corrected (see Figure 8-2, on page 261). The usability problems left uncorrected where either too difficult to repair within the scope of the study or required assistance from sources outside of the study. It can be concluded that the website was sufficient in terms of usability, but that further improvement is desirable. For sociability, quantitative and qualitative indicators of website usage are perhaps the best indicators. For the purposes of this study, the website was sufficient. A relatively large number of participants registered for the website and discussed a variety of topics related to the practice. Some topics, such as integration, were discussed in depth. Hence, for the purposes of this study, the website was also sufficient in terms of sociability. For the Bulgarian special education system as a whole, the website could be improved. For example, more interaction between moderators and participants would be highly desirable. A short getting-started guide could also be created to help new registrants engage with the community more quickly.

9.2.3 Effectiveness in terms of CoPs

All of the technical features argued by researchers to be required for online CoPs to function (Coakes, 2006; Patrick, Cox, & Abdullah, 2006; Preece, 2000; Wasko & Teigland, 2006; Wenger, McDermott, & Snyder, 2002) were present and accessible to SEB participants, but only the discussion forums were well used. A range of participants debated pressing issues affecting the practice including novice university students studying special education and experienced practitioners. There were many instances where expert advice was given or peer support was shown. But what makes an online community an effective CoP? or at what point does an online community evolve into a CoP? In this section, the defining characteristics of CoPs presented in Chapter 2 are reviewed with regard to SEB. SEB is then analyzed according to the structural elements of virtual CoPs presented by Dube, Bourhis, and Jacob (2005; 2006) to define what type of CoP SEB most closely resembles.

9.2.3.1 SEB as an online community

In the literature review presented in Chapter 2, the central dimensions and defining characteristics of online communities and CoPs are compared in detail (see Table 2-4, on page 24). In this section, the dimensions and characteristics are applied to characterize SEB. At the conclusion of this section, it should be clear that SEB is an online community with CoP characteristics.

According to Wenger (1998), the joining of the concepts of *community* and *practice* can lead to the formation of a CoP. From within a CoP, the two concepts can be expanded into three dimensions: *mutual engagement* in a *joint enterprise* with a *shared repertoire* (Wenger, 1998, p. 73). For CoP members to fully engage, researchers have argued that there must be some amount of face-to-face interaction. Without face-to-face interaction, *tacit knowledge*—the type of knowledge or skill that must be demonstrated or shown to be passed on—cannot be shared. Researchers have argued the communities with members that never or rarely meet face to face belong to a different type of community, a *network of practice* (Brown & Duguid, 2000). Since these types of communities are commonly facilitated by electronic means, it was argued in Chapter 2 that the dimensions and characteristics of *networks of practice* and *online communities* are comparable. It follows that the dimensions of online communities: *social interaction* with a *shared purpose* and a *history of actions and artifacts* are, essentially, less cohesive forms of

Wenger's (1998) three dimensions of CoPs. Similarly, the characteristics of online communities are less cohesive.

Social interaction versus mutual engagement

The first characteristic under the *social interaction* dimension refers to explicit and tacit flows of talk. In SEB, the type of talk was mostly explicit. There were only a few examples where tacit knowledge appeared to be narrated to the point that it was reified into explicit knowledge. Reification is one half of a duality that leads to the translation of tacit knowledge into explicit knowledge and the construction of meaning. The other half is participation (Wenger, 1998, Chapter 1). Some argue that online communities are not capable of constructing meaning because "electronic networks cannot support significant knowledge outcomes because knowledge is often tacit and highly embedded, requiring high-bandwidth communication that is difficult to sustain through technology" (Wasko & Faraj, 2005, p. 38). This view is shared by Brown and Duguid (2000; Duguid, 2005). Regardless of whether it is possible, it was not clearly demonstrated in SEB's discussion forums.

The second characteristic refers to the intensity of social engagement. For SEB, in many cases, communication consisted of replies to questions that could not be classified as discussion. Discussions on the topic of integration and what to do with Bulgaria's system of special schools were exceptions. These discussions engaged a large number of participants, many of whom returned to comment repeatedly and in some depth over periods of weeks and months.

In general, interaction appeared to involve responses to discussions rather than to other people, which may indicate that the strength of relationships was not improved to a significant degree through participation. According to McDermott (2002), one of the key outcomes of effective CoPs is an increase in the "strength of relationships" (p. 27). According to Wenger (1998), one indicator of the existence of a CoP is "sustained mutual relationships" (p. 125). Sustained mutual relationships lead to continued community activity over time. In the case of SEB, the community may be sustainable, but perhaps not because of the strength of relationships that have formed to date. It may continue because it remains available on the Internet and easy to access.

One of the main reasons that SEB did not fully coalesce into a CoP may be that it did not reach a *critical mass* of *active participants*. Qualitative results indicated that website participants were dissatisfied with the number of participants and resources available. The website participants interviewed were optimistic that once the glossary and document and link repositories expanded, the website would become invaluable. The dilemma here is that more participation is required for the resources to expand, but expanded resources are required to encourage more participation. One solution could be for the website administrator to work more closely with the moderators to collect desired resources and post them to the website's repositories. The moderators could then facilitate discussion around the new resources.

The third characteristic refers to the role of moderators. Researchers disagree about power relationships in CoPs (Contu & Willmott, 2003; Fox, 2000) but appear to agree that the role of leadership in effective CoPs is both present and important (Johnson, 2001; Wenger et al., 2002). Wenger et al. (2002) use the terms *community coordinator* and *thought leader* while Johnson (2001) uses the term *facilitator*. Both avoid using the terms *moderator* or *instructor* because they imply a shift in power from community participants to community leadership. For SEB, the term *moderator* was used. There was a moderator assigned to each discussion forum because each forum focused on a different aspect of the practice. In addition, the role of *lead moderator* was defined. The two roles were defined as follows:

- Lead Moderator
  - Has all of the rights of an administrator as well as those of a moderator. Allows the administrator to control website functionality, but can act on the administrator's behalf if necessary. Seeks a replacement when choosing to discontinue this role.
- Moderator
  - Monitors discussion forum communication within their area of expertise. At their discretion, posts topics for discussion and responds to participant comments. Helps resolve conflicts between participants. Forms subgroups or new discussion forums as needed. Forwards website improvement requests to the administrator. Seeks a replacement when choosing to discontinue this role.

Throughout the two-year data collection period, SEB moderators did not significantly engage with discussions to keep forums on topic; provide topics when forum activity waned; or help resolve conflict (Johnson, 2001; Preece, 2000; Wenger et al., 2002). Only the lead moderator engaged in the forums for a sustained amount of time but seemed to find more success providing expert advice than fostering discussion. Thus, though moderator roles were assigned, moderator activity was too low to facilitate activity at the level found in effective CoPs.

The fourth characteristic refers to volunteerism and reciprocity. A lack of volunteerism and reciprocity indicates a lower degree of trust among the members of a community (Wenger, 1998; Roberts, 2006). In this use, the term *trust* refers to the perceived level of commitment of other members to the community and obligation to participate (Wasko & Faraj, 2005), and "without trust, members of a community of practice may be reluctant to share knowledge" (Roberts, 2006, p. 628). In SEB's forums, many posts went unanswered or remained unanswered for relatively long periods of time. Additionally, participants did not add significantly to the document and links repositories. While continued use of the forums does indicate a need for SEB, it does not clearly indicate that the community has become an effective CoP.

Shared purpose versus joint enterprise

The first characteristic under the *shared purpose* dimension refers to the scope of a community. One reason that the level of social interaction was lower than that of an effective CoP was that the purpose of the community was broad. The scope of engagement encompassed the entire field of special education from across the country and at all levels of expertise. It follows that the level of practice and knowledge that participants had in common was lower than that of an effective CoP. The development of discussion forums specific to each field of special education was intended to help focus the community, but it is unclear to what extent this strategy succeeded. The danger of developing further subgroups, such as groups for students, teachers, researchers, and parents, is that the practice could be spread too thin and the overall level of activity would suffer. It is postulated that more active involvement from the moderators of each discussion forum would have significantly helped to keep each subgroup of the practice engaged.

Special education is a good example of what Wenger refers to as a *boundary practice*—a practice that includes professionals from diverse fields (Wenger, 1998, pp.

114-115). In SEB, Bulgarian laws on integration served as *boundary objects* that facilitated discussion. Discussions regarding boundary objects included participants from all fields of the practice (Wenger, 1998, pp. 106-108). The danger, in terms of reaching the level of engagement found in effective CoPs, was that the discussions on integration gained so much momentum that the specific practices from each of the diverse fields represented may have been neglected. The topic of integration, instead of bridging fields of expertise within the practice, seemed to lead to the formation of a separate community. This finding is further discussed in Section 9.2.4, From online community to innovative knowledge community.

History of actions and artifacts versus shared repertoire

The first characteristic under the *history of actions and artifacts* dimension refers to shared ways of interacting including social norms and routines—shared actions. The second characteristic refers to share resources or artifacts. Wenger (1998) defines a "shared repertoire" as including "routines, words, tools, ways of doing things, stories, gestures, symbols, genres, actions, or concepts that the community has produced or adopted in the course of its existence" (p. 83). The challenge for online communities is that without face-to-face interaction, it is difficult to build the 'actions' portion of such a repertoire. The 'artifacts' portions can be built. The act of posting a message to a discussion forum, for example, creates an artifact. What SEB appeared to lack, was a significant number of artifacts that could facilitate in-depth discussion or be of practical use such as lesson plans, sample forms, and legal documents. The posting of Bulgarian laws regarding integration were examples of how shared artifacts could generate discussion. It is theorized that SEB could become a more effective CoP with increased use of its document and links repositories. It may be that increased moderator activity would also lead to the development of a shared style of discourse and action.

Online community versus CoP outcomes

Three common outcomes of effective CoPs are: identify formation from participation; learning and professional development; and knowledge creation (Brown & Duguid, 1991, 2000; Buysse, Sparkman, & Wesley, 2003; Cox, 2005; Handley, Sturdy, Fincham, & Clark, 2006; Lave & Wenger, 1991; McDermott, 2002; Preece, 2003, July; Wenger, 1998; Wenger et al., 2002). According to Handley (2006), learning in CoPs "is not simply about developing one's knowledge and practice, it also involves a process of understanding who we are and in which communities of practice we belong and are accepted" (p. 644). In other words, learning is about identity change (Cox, 2005), and the more participants start to think and act like part of a community rather than individuals, the more the community will begin to resemble a tightly-knit, fully-functioning CoP. With SEB, there was little evidence of participants being changed as people due to interacting with other members of the community. There were numerous examples of participants voicing opinions, but it was difficult to know how the opinions and knowledge voiced by others affected individual participants.

There was also little evidence of learning or professional development in terms of *legitimate peripheral participation*—the progression of novice participants on the periphery of the community to expert participants fully participating in the community. One of the reasons for the lack of such a progression may be that the role of the expert or "thought leader" (Wenger et al., 2002, p. 78) was not well represented. Since most discussion forum moderators were relatively inactive, SEB participants did not know who, specifically, to ask for help. When participants posted a question to the forums, it was a general plea for help, from anyone. There was little way to know how credible the response would be. Where SEB participants fully completed their membership profiles, however, some credibility was added. For SEB to be an effective CoP, it is argued that greater levels of power need to be associated with community leaders. Power might come from either high levels of participation or recognized expertise in the field (Roberts, 2006).

Brown and Duguid (2000) say that the outcomes of social systems found in *networks of practice*, which are argued herein to be comparable to *online communities*, "don't take action and produce little knowledge" (p. 142). In CoPs, Wenger (1998) says that there is a "rapid flow of information and propagation of innovation" (p. 125). The far-reaching statements and argumentation in SEB's forums about what directions the

practice should take contained little detailed information about how to reach goals. Though information was shared, only a small amount could be considered new knowledge. While some researchers argue that knowledge creation is not characteristic of effective CoPs (Fox, 2000; Hakkarainen, Paavola, & Lipponen, 2004a; Paavola, Lipponen, & Hakkarainen, 2004; Roberts, 2006), these arguments will be saved for Section 9.2.4, From online community to innovative knowledge community.

For all of the reasons presented in this section, SEB cannot be considered an effective CoP at this time. It can, however, be defined as an online community that, with improved performance, could eventually mature into a CoP. But even if a CoP never forms, that does not mean that SEB is not an effective community. It might even be that a CoP, at present, is not the ideal type of community for special education stakeholders in Bulgaria. In the next section, the structural elements of virtual CoPs are used to provide a clearer definition of the type of CoP that SEB most closely resembles. These elements are then applied in Section 9.2.4 to define the type of community that SEB could become.

9.2.3.2 SEB in terms of the structural elements of virtual CoPs

Dube et al. (2005; 2006) apply Wenger, McDermott, and Snyder's CoP "structural elements" (2002, Chapter 2) to virtual CoPs. Based on a study of 18 virtual CoPs and an extensive literature review, they defined a typology with 21 structural elements (see Table 9-2). Though Dube et al. refer to the elements as "structuring characteristics," Wenger's term *structural elements* is used instead to avoid confusion with the CoP and online community characteristics described in the previous section.

Table 9-2. SEB's structural elements in terms of virtual communities of practice

Element	Description	Rating
1. Orientation	For increased operational efficiency or for a strategic purpose	Operational 1 2 [3] 4 5 Strategic
2. Life span	For temporary, specific tasks or without a definite timeframe	Temporary 1 2 3 4 [5] Permanent
3. Age	Less than one year to more than five	Young (yrs) 1 [2] 3 4 5 Old (yrs)
4. Level of maturity	According to "Stages of community development" (Wenger et al., 2002, p. 69)	1 Potential [2] Coalescing 3 Maturing 4 Sustaining 5 Transforming
5. Creation process	Intentional or spontaneous formation of CoP, discussion topics spontaneously emerge or are purposefully defined by moderators	Intentional 1 2 3 [4] 5 Spontaneous
6. Boundary crossing	Limited to one area of a profession, multiple areas, or spans the entire profession	Low 1 2 3 4 [5] High
7. Environment	Rapidly changing or stagnant and set in its ways, facilitates productive community activity or hiders it, level of bureaucracy	Obstructive 1 2 [3] 4 5 Facilitating
8. Organizational slack	Resources made available to the community, pressure to meet objectives	Low 1 [2] 3 4 5 High
9. Degree of institutionalized formalism	Degree to which the community is recognized and assimilated by the body of stakeholders (Wenger et al., 2002, Figure 2-1 p. 28)	1 Unrecognized 2 Bootlegged [3] Legitimized 4 Supported 5 Institutionalized
10. Leadership	Leadership is formally assigned or emerges through interaction and around expertise	Clearly assigned 1 [2] 3 4 5 Continuously negotiated
11. Size	Small and intimate or consisting of hundreds	Small 1 2 3 [4] 5 Large <25 50 100 250 1000
12. Geographic dispersion	Physical location of participants	1 Building / block 2 Town / quarter 3 Large city / small state [4] Country 5 Large country / region
13. Member selection	Open to anyone, open to anyone within a certain organization, open only to a predetermined list	Closed 1 [2] 3 Open
14. Member enrollment	Voluntary, invited, encourage, strongly encourage, required	Compulsory 1 2 3 4 [5] Voluntary
15. Member prior community experience	Based on an existing community, some members have virtual CoP experience, members have no experience with CoPs	None 1 [2] 3 4 5 Extensive
16. Membership stability	Permanent members or frequent turnover	Fluid 1 [2] 3 4 5 Stable
17. Member ICT literacy	Skill with using the Internet, comfort with communicating primarily online	Low 1 2 [3] 4 5 High
18. Cultural diversity	Spans multiple countries, multiple professions, encompasses speakers of different languages	Homogeneous 1 [2] 3 4 5 Heterogeneous
19. Topic relevance to members	Degree to which discussions relate directly to daily work	Low 1 2 [3] 4 5 High
20. Degree of reliance on ICT	Degree to which ICT is required for CoP to exist	Low 1 2 3 4 [5] High
21. ICT availability	Variety and quality of ICT available to members, level of access	Low 1 2 [3] 4 5 High

The first structural element, *orientation*, has more to do with communities for business organizations than communities such as SEB. In some ways, SEB focuses on the daily operations of the practice of special education. In other ways, it focuses on the long-term strategic plans of the practice, such as the integration movement. Given the amount and form of discussion regarding integration in the forums, SEB probably leans toward the strategic side of the spectrum.

The second element, *life span*, has to do with the intended life of the community. SEB was started without a specific timeframe in mind and without a specific issue to target within the area of special education in Bulgaria. The SEB study was exploratory. The researcher began with limited insight into the practice of special education in Bulgaria. Though the study would come to a close, the website was designed to continue operating as long as Sofia University hosts it. Dube et al. (2005; 2006) found that virtual CoPs in their study ranged in age from less than one year to more than five years (see element three in Table 9-2). By these criteria, SEB might be approaching midlife or about three years (element three, *age*).

SEB has registered more than enough users to meet the *potential stage* of CoP development—when a loose network of people come together to discuss shared interests related to a practice (element four, *level of maturity*). Thought leaders have been identified and a community purpose defined. It has begun to deliver immediate value, especially in providing a network for users to discuss key issues and vent frustrations regarding their profession. It has passed the incubation period and begun to coalesce around the most turbulent issues in the profession, namely integration. Discussions about the topic of integration have set the stage for the next stage of development. SEB is now poised to mature into an innovative knowledge community as described in Section 9.2.4.

The fifth structural element, *creation process*, refers to the manner in which a CoP is formed. Online communities are generally formed spontaneously and most community discussions are also spontaneous. One difference between CoPs and online communities is the level of involvement of facilitators. For SEB, though attempts were made by the moderators to define discussion topics, most were less successful than those that emerged spontaneously. The role played by the moderators on SEB was primarily to add credibility to the site and to respond to individual emails from participants.

Element six, *boundary crossing,* refers to the degree of crossover in a CoP between the various areas of expertise found in the entire profession. SEB is not localized to one organization, such as a university or NGO. A review of membership demographics revealed that participant areas of expertise span the practice of special education in Bulgaria.

Element seven, *environment*, refers to the type of environment in which community members participate and how it effects the formation of a CoP. Data analysis indicated that there is productive activity in SEB with regard to the more turbulent issues affecting the practice. This finding accords with Dube et al. (2006) who report that turbulent environments in industries seeing rapid change tend to facilitate community activity. Though turbulence in the practice has facilitated participation, the lack of face-to-face interaction has obstructed it. SEB provides a facilitating environment in terms of the rapidly changing nature of the practice and lack of bureaucracy, but it is an obstructive environment due to the limitations that electronic communication imposes on social interaction.

The eighth element, *organizational slack*, refers to the amount of resources that are available to the community and the degree of pressure from sponsoring bodies to meet objectives. SEB was sponsored by Sofia University, the University of Wollongong, and the TENCompetence project. From Sofia University, support took the form of limited website administrative assistance and free website hosting on the university's web servers. There was no direct financial support and no official organizing team and hence, no pressure for SEB to meet specific objectives. The University of Wollongong provided funding and support for research activities and TENCompetence provided support through collaborative research efforts as well as expert advice. Again, there was no pressure for SEB to meet specific objectives, but there was pressure for the researcher to complete the study.

Element nine, *degree of institutionalized formalism*, refers to the degree to which the community is recognized and assimilated by the body of stakeholders. To assess the degree to which SEB has been accepted by stakeholders of the Bulgarian special education system requires a look at the community's overall success. It has a relatively large number of registered users, which means that special education stakeholders in Bulgaria are able to find the community and that they can identify with its purpose. According to the definitions provided by Wenger et al. (2002, Table 2-1, p. 28), a *legitimized*, *supported* community would be ideal for SEB. The Bulgarian Ministry of Education and Science officially recognized SEB when it sent letters announcing the community to special education directors in each region of Bulgaria. No funding or other means of support have followed this act of legitimization. Support by researchers at Sofia University and from TENCompetence added credibility, but SEB is far from institutionalized.

The tenth element, *leadership*, refers to how leadership roles are defined in a community. SEB was designed to rely primarily on discussion forum moderators for leadership. Moderator sponsorship of the community added credibility, but the moderators did not play a considerable role as thought leaders. The "critical role" of "community coordinator" (Wenger et al., 2002, p. 80) was shared between the *lead moderator* and *administrator*. The lead moderator's role was defined previously in this chapter. The administrator's role was defined as follows:

- Administrator
  - Updates the functionality and look of the website as requested by the moderators or as needed. Can assign new administrators and moderators. Assigns permissions to participants. Seeks a replacement when choosing to discontinue this role.

The role of "champion" (Wenger et al., 2002, p. 214) was filled by the lead moderator as well as a representative from TENCompetence. The lead moderator acted as a champion from within the Department of Special Education at Sofia University. The TENCompetence representative acted as a champion by securing assistance with the pilot course and providing guidance about how to achieve meaningful results from the community as a whole. They both tended to act as champions on the periphery rather than from within the community. The role of *sponsor* (Wenger et al., 2002, p. 214) was filled by the head of the lead moderator's department, the Bulgarian Minister for Special Education, and members from the TENCompetence advisory group.

Element eleven refers to the *size* of the CoP. In terms of the total number of registered users, SEB is relatively large. At the end of December 2007, it had about 250 members. To date, it has well over 350 members and continues to grow at a rate of 10 to 15 members per month. What is more important in terms of community health, however, is the number of registered users that post to the discussions or that log in on a regular basis. Quantitative results indicate that SEB's core group makes up between 7 and 8 percent of the community—about 28 members. What may be concluded is that though the online community is large the CoP is small.

Element 12, *geographic dispersion*, refers to the physical location of participants. A review of membership demographics revealed that participants are spread throughout the country. The high level of dispersion is both inspiring and challenging. It is wonderful that participants are spread throughout Bulgaria, but it also reduces the chance that participants will meet face to face. Nonetheless, there was evidence that attempts among website participants where made to set up face-to-face meetings and even that some meetings occurred. There were also discussions with SEB sponsors about setting up a conference that was supported by the website, but the idea never came to fruition.

The pilot course discussed in Section 9.2.4.2 could help to fill the need for face-to-face interaction. Regular face-to-face meetings, as many as three times a year, are commonplace in virtual CoPs in the corporate world and important to their success even if only a segment of the membership actually meets (Wenger et al., 2002, p. 130). Still, as explained by Wenger et al. (2002), "Distance simply makes it more difficult to remember that a community exists," and unlike face-to-face communities, members are only visible if "they make a contribution, post a question, or ask for help" (pp. 116-117). Efforts were made to encourage the upload of member avatars and other photos as well as to create detailed user profiles, but without posting to the discussion forums, most members remained rather invisible.

Element 13, *member selection*, refers to the member selection process. SEB is semi-closed because of the language. If you cannot speak Bulgarian, it is likely that you could not complete the email-based registration process. Nevertheless, registration was open to anyone with an email address. There were a few examples of registrations by what appeared to be computer-generated fake users, but they were easy to identify and delete. For now, the process of clicking a link within a registration-confirmation email is suffi-

cient security. It is hoped that later versions of Moodle make improvements intended to stop unwanted registrations that, much like junk email, are for the purpose of advertising.

Element 14, *member enrollment*, refers to the extent that enrollment in the community is a requirement. Though about 15 participants registered while being interviewed, they were told that participation was completely voluntary and that they were free to withdraw from the study or the website at any time. Web- and email-based surveys indicated that most registered users found the website by searching on the Internet. SEB is the number one search return on Google for the keywords *special, education,* and *Bulgaria* in both the Latin and Cyrillic alphabets. Quantitative data indicated the letter from the Ministry of Education and Science that announced the community also contributed significantly to new registrations.

The 15th element, *member prior community experience*, refers to the prior experience that members have with CoPs. As it was difficult to translate the term *community of practice* into Bulgarian, research participants were not specifically asked if they had been involved in a CoP previously. The closest translation in Bulgarian is *professional community*. Participants were asked if they had experience using discussion forums. Though all research participants new what online discussion forums were, only a few used them regularly. A small number of the forums that participants had used previously were dedicated to special education. None of the forums were both dedicated to special education and available in the Bulgarian language.

Element 16, *membership stability*, refers to the stability of membership. With online communities such as SEB, it has been the experience of the researcher that participants rarely take the time to cancel their registration. It is easier to block the automatic emails that are generated when a new post is made to the forums. It is the core group of active participants that was most susceptible to turnover. Turnover in this case refers to a change from active to peripheral participation rather than cancelling registration. Over the two-year data collection period, the core group of active participants increased in size. What began as a group of three or four participants, who were active because they were personally introduced to SEB by way of their participation with the study, expanded to a group of 18 active participants and two active peripheral participants (see Section 6.2.2.3, Active, peripheral, and repeat website users, on page 174). Participants in the core group remained consistently active in the discussion forums following their registration. Never-

theless, many participants appeared to register only to make one post and did not return. Hence, the core group remained moderately stable, but the peripheral group was more fluid.

Element 17, *member ICT literacy*, refers to the skill and comfort levels that members have with using the Internet to communicate. Data analysis revealed that SEB members, on the whole, were sufficiently skilled with using computers and had adequate Internet access to actively participate in the community. Data also indicated that members were sufficiently comfortable with communicating online. Nevertheless, adequate Internet skill did not appear to be enough to inspire members to become active participants. The terms *sufficient* and *adequate* indicate that SEB members can use the site as it currently exists, but it remains unknown how well higher-bandwidth tools, such as video conferencing, would be accessed and used. Given the results of some usability sessions conducted, it can be assumed that there are a number of special education stakeholders who are not yet comfortable enough with using the Internet to actively participate in SEB. For the current group of members, it can be concluded that skill and comfort levels are somewhere between low and high or simply adequate.

The 18th element, *cultural diversity*, refers to the degree to which cultural diversity is found among members of a community. SEB is a boundary practice, as described earlier, but other than that, the community is homogeneous. Members are all Bulgarian, communicate in Bulgarian, and live in a relatively small, developing country. Economic conditions vary across the nation, even across cities, but relative to the other CoPs reviewed by Dube et al. (2005; 2006), SEB's membership does not display a significant level of cultural diversity.

Element 19, *topic relevance to members*, refers to the degree to which discussions relate to the daily work of members. According to Dube et al. (2005; 2006) virtual CoPs are often launched with a predefined set of objectives. The topics discussed "may be close to the daily work of its members or, on the opposite, be important for the organization but far away from the members' day-to-day preoccupations" (Dube et al., 2006, p. 81). For SEB, some discussions were based on questions related directly to work activities. Other discussion topics, such as integration or the need to separate the practice of speech therapy from the practice of special education, were more forward thinking. SEB lies somewhere

in the middle of the scale for this element but leans more toward the side of forward thinking than day-to-day work.

The 20th and 21st elements, *degree of reliance on ICT* and *ICT availability*, have to do with the community's reliance on electronic means of communication and the overall availability of computers and Internet access to members. SEB activities all occurred online. Since SEB is powered by Moodle, a wide variety of Internet communication technologies are available for use. At this time, however, only standard web technologies are in use including discussion forums, chat, RSS news feeds, and user-updatable repositories. Though the variety of technologies made available was relatively low, data analysis indicated that users had sufficient access to the Internet. It can be concluded that reliance on electronic communications was high and access above average.

In addition to the 21 structural elements proposed by Dube et al. (2005; 2006), an additional element, *percentage of active participants*, may be of use. It was difficult to rate SEB in terms of the size element provided by Dube et al. (2005; 2006) because there are two distinct considerations to make: one for total number of registered users and one for the number of active participants. If a five-point scale were used to gauge participation in the community, the lowest level on the scale might indicate a small group of active participants representing 5% of the total number of registered users. The highest level could indicate a large group of active participants representing 50% of the total number of registered users. The level of activity might be gauged in a manner similar to the method proposed in Section 6.2.2.3, Active, peripheral, and repeat website users, on page 174. Since SEB has between 7% and 8% active participants, it would rank toward to the small end of the spectrum for this element.

The 21 structural elements proposed by Dube et al. (2005; 2006) have been shown to apply to online communities as well as virtual CoPs in both corporate and non-corporate environments. SEB appears to resemble a virtual CoP that could approach the maturing stage of development with few changes to its structural elements. One element that could be restructured is the assignment of *leadership* (element 10). New moderators should be assigned to take control of the various subgroups of the practice. The most successful virtual CoP analyzed by Dube et al. (2006) had assigned leaders. Another element that could be restructured is number 9, *degree of institutionalized formalism*. Though SEB

is legitimized, there has been no other involvement by the sponsoring organizations—Sofia University, the University of Wollongong, and the TENCompetence project.

Additionally, instead of an open or semi-open membership, a closed membership made up of the most active participants should be considered (element 14, *membership enrollment*). Active participants might be invited to participate in a closed, small group forum in which only the group's members have the ability to post. The most successful virtual CoP analyzed by Dube et al. (2006) had a closed membership.

With these structural changes, SEB might reach the maturing stage of development in which the main issues faced by the community would shift "from establishing value to clarifying the community's focus, role, and boundaries" (Wenger et al., 2002, p. 97). From this stage, SEB could be in a position to create the new knowledge needed to address the challenges related to integration and other turbulent issues affecting the practice. In the next section, it is argued that these and other changes to SEB's structural elements could lead to the formation of an innovative knowledge community.

9.2.4 From online community to innovative knowledge community

In this section arguments are presented for why future iterations of SEB would best serve its members as an innovative knowledge community (IKC). First, the IKC concept is defined and compared with the CoP concept. Next, a proposal is made for the way in which an IKC may be established around the issue of integration. Finally, the structural elements presented in the previous section are used to describe how SEB should change to become an effective IKC.

9.2.4.1 IKCs and CoPs

The IKC concept was put forth by Hakkarainen, Palonen, Paavola, and Lehtinen (2004b; Hakkarainen et al., 2004a; Paavola at al., 2004). IKCs are deliberately designed to facilitate innovation and knowledge advancement. "One of the central differences between CoPs and IKCs is that people who work in the latter ones are 'forced' to create new forms of acting, working and learning in order to deal with the challenges of turbulent work environments" (Hakkarainen et al., 2004a, p. 80). Hakkarainen et al. (2004a) argue that CoPs generally operate in stable environments where members are oriented toward meeting a relatively fixed set of goals. This is not to say that all CoPs are oriented toward maintaining fixed paths of knowledge, but the distinction between Lave and Wenger's

(1991) apprentice-expert teaching and learning relationship versus a progressive knowledge generating environment is an important one.

Toward the end of Wenger's 1998 book on CoPs, he discusses "learning communities" (pp. 214-221). He describes two types of CoPs: one that provides a place for the "acquisition of knowledge" or one that fosters the "creation of knowledge" (Wenger, 1998, p. 214). He then argues that in some CoPs, both knowledge acquisition and knowledge creation can occur. He terms these types of CoPs *learning communities*. In this sense, the community not only provides an environment for learning but the community itself *learns* from its members. As the community as a whole learns from member experiences, competence is redefined and new knowledge is created. When this occurs, Wenger says that experience is driving competence (Wenger, 1998, p. 138). In this sense, competence remains relatively static until new experiences force competence to change.

An IKC, is the type of community that fosters the creation of knowledge. Essentially, what Hakkarainen et al. (2004a) argue is that CoPs are based on apprentice-expert teaching and learning relationships wherein knowledge is relatively static. This type of CoP is well explained by Lave and Wenger (1991). In CoPs there is a difference in power between experts and novices. "Novices are subject to both the power and knowledge of their more experienced colleagues" (Fox, 2000, p. 859). IKCs are the type of community found in work environments where members share relatively equal power. In this sense, learning by legitimate peripheral participation is not about becoming a "master," as suggested by Lave and Wenger (1991) but becoming an "insider" as suggested by Brown and Duguid (1991, p. 48). As an *insider*, a member has learned to function in the community and "speak its language" (Brown & Duguid, 1991, p. 48). It is from this position that they can participate fully in knowledge building activities.

Hakkarainen et al. (2004a) do not contend that CoPs and IKCs are mutually exclusive. Rather, there may be a natural progression to and from one form of community to the other, especially in large online communities where one subgroup exhibits the traits of a CoP and another of an IKC. They say, "The frameworks that we present are not mutually exclusive. Sometimes there is a thin line between them, and rigorous definitions are impossible" (Hakkarainen et al., 2004a, p. 90). Hence, if an IKC were to develop with the support of SEB, others areas of the practice need not be set aside.

The assertion that knowledge in CoPs is static or can become static over time is not new. Roberts (2006) says that "over time communities develop preferences and predispositions that will influence their ability to create and absorb new knowledge" (p. 629). Roberts (2006) defines Bourdieu's (1990) notion of *habitus* as consisting of "modes of thought that are unconsciously acquired, resistant to change, and transferable between different contexts" (p. 629). She argues that CoPs are limited by habitus. Fox (2000) contends that CoP theory "tells us nothing about how, in concrete practice, members of a CoP change a practice or innovate" (p. 860). Perhaps the innovation that some researchers insist can come from CoPs, really comes from a special form of CoP, a *Maverick* community. "Maverick communities of this sort offer the core of a large organization a means and a model to examine the potential of alternative views of organizational activity through spontaneously occurring experiments that are simultaneously informed and checked by practice" (Brown & Duguid, 1991, p. 50). Rather than using the term *Maverick community*, Hakkarainen et al. (2004a) use the term *innovative knowledge community*.

9.2.4.2 A focus on integration

A SEB IKC might be initiated following the completion of a pilot course on social inclusion. Participants of the IKC could be trained in the course and then invited to participate in an action-research type environment facilitated using SEB. According to Hakkarainen et al. (2004a):

> The advancement of the IKC relies on the development of the expertise of its individual members. … On this account, an IKC takes a collective responsibility for the advancement of the competence of its individual members. In some cases examined, this is enforced by creating collectively, for each individual, a trajectory of personal development through systematic and professional training. (p. 80)

Peterson et al. (in press) present an argument for implementing competence development programs on social inclusion for Bulgarian educators. In June 2008, a preliminary pilot course was conducted using the SEB website and the *PCM personal competence manager*—custom software created by the TENCompetence project (see Figures 9-1 and 9-2). The pilot was run in conjunction with a 10-day professional development course at Sofia University for teachers interested in receiving training about the education of students with vision impairments.

Please see print copy for figure 9.1

Figure 9-1. SEB video presentation web page open in TENCompetence PCM software

Results from the preliminary pilot were positive in that the participants enjoyed it, gained knowledge and skills, and felt that the use of technology was appropriate. Nonetheless, the pilot was too short and the range of competences addressed somewhat narrow. Further, though the training of teachers of students with vision impairments is important, it is not the most pressing issue affecting the practice of special education in Bulgaria.

A second pilot is proposed that would focus on the integration of special needs and Roma children into mainstream schools. The competences to be addressed are defined in terms of the European Qualifications Framework (European Parliament, 2008) as follows:

- Level 3[1] qualification: Demonstrate knowledge and understanding of specific strategies for teaching:
  - Roma students
  - Students with special educational needs
  - Non-Bulgarian speaking background students
  - Students with challenging behaviors

Please see print copy for figure 9.2

Figure 9-2. SEB course website opened in PCM's integrated Web browser

The second pilot would require a blend of self-directed web-based training and face-to-face instruction. Self-directed portions of the pilot would be facilitated using SEB. Web-based training researchers, such as Kim and Morningstar (2007), have repeatedly found that if the goal of a course is to change teacher attitudes, self-directed training without the involvement of an instructor is not enough. "What teachers gain from professional

1. The European Qualifications Framework states that the "learning outcomes relevant to Level 3 are: knowledge of facts, principles, processes and general concepts, in a field of work or study; a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information" (European Parliament, 2008, p. 5). With this qualification, the Framework states that the learner would be competent to "take responsibility for completion of tasks in work or study" and "adapt own behaviour to circumstances in solving problems" (European Parliament, 2008, p. 5).

development efforts is often based on their existing knowledge and beliefs. … Therefore, professional development providers must address not only teachers' knowledge but also their beliefs" (Kim & Morningstar, 2007, p. 126). Hence, if the pilot course were to last five days, at minimum, the first and last days should be directed by a live instructor. It may also be critical "to included follow-up activities, such as site-based coaching or mentoring, to ensure that teachers implement new practices. This might also include distance efforts, such as threaded discussions or online communities of practice" (Kim & Morningstar, 2007, p. 126). The proposed pilot schedule is provided in Table 9-3.

Table 9-3. Schedule for five-day pilot course on social inclusion

Day / Location	Time	Topic	Tech	Teacher
Day 1 Classroom	1hr	Introduction to course and learning technologies	—	Inservice instructor TENCompetence project team
	30m	Course competences overview, PCM (Personal Competence Manager) registration	PCM	TENCompetence project team
	1hr	Pretest assessment, SEB Registration	SEB	
	1hr	Group discussion, question answer session using SEB and PCM Training on SEB and PCM discussion forums and other tools	SEB PCM	Inservice instructor TENCompetence project team
	2hr	Lecture	—	Inservice instructor
	—	Assignment: assigned readings	SEB	—
Days 2, 3, 4 Distance	10m	Progress-check quiz (1 per day)	SEB	TENCompetence online support only
	30m	Video case study (1 per day)	SEB	
	—	Group discussion, instructor moderated	SEB	Inservice instructor
	—	Assignment: reflective essay response to video (1 per day)	SEB	Inservice instructor
Day 5 Classroom	1hr	Posttest assessment, course evaluation	SEB	TENCompetence project team
	2hr	Role playing / microteaching with feedback	—	Inservice instructor
	1hr	Competences completed, plans for future competence development at qualification Level 4	PCM	Inservice instructor TENCompetence project team

Practitioners certified in the course would be invited to participate in a SEB subgroup that would take the form of an online IKC on the topic of integration. Membership to the group could be limited to those who completed the course. For all others, the integration group's forum would be read only—they would be able to read but not post. SEB's IKC on integration would require heavy moderator involvement. In SEB's other forums,

topics may continue to emerge spontaneously, but in the integration forum, topics must be deliberately designed to facilitate knowledge creation, innovation, and the development of expertise.

A partnership with Bulgaria's Portal Integration (Portal Integration Project, 2005) and Ethnos.bg (Ethnos.bg Project, n.d.) websites would continue to be nurtured. The intention would be to combine SEB's Moodle social learning platform with the content on social inclusion provided by the partner websites.

It is not proposed, however, that the SEB IKC exist only online. One outcome of the IKC could be an action research project that involves two or more Bulgarian schools. The subject of action research is often a social problem in an educational setting to which solutions demand the creation of new knowledge. Such knowledge is used to develop and implement strategies and instruments for intervention, evaluation, and revision that result in changes in practice and professional development for the practitioners involved (Bargal, 2006; Brydon-Miller, Greenwood, & Maguire, 2003). The proposed action research project could be designed to improve outcomes regarding the integration of special needs and Roma children into mainstream Bulgarian schools. IKC membership would be made up primarily of practitioners from each school and might be facilitate by a team of senior Bulgarian academics. A small number of parents and graduate students might also participate.

9.2.4.3 SEB as an IKC, structurally speaking

In this section, the ways in which the SEB IKC would differ from the current SEB online community are defined in terms of the structural elements presented in Section 9.2.3.2. The structural changes are illustrated in Table 9-4. At present, discussions about integration in the SEB forums have been more strategic than operational (element 1, *orientation*). Participants have voiced opinions about the Bulgarian government's recent legal actions regarding integration. Most participants support the concept of integration but worry about the difficulties they will face as the special education system transitions. Moreover, they are not certain how to meet the demands posed by new laws regarding integration. To help the practice through this transition period, it is proposed that SEB be used to facilitate the formation of an integration task force, an IKC, that would help participants develop the competencies needed to make integration a reality.

Table 9-4. SEB structural-element changes predicted for successful IKC development

Element	Description	Rating
1. Orientation	For increased operational efficiency or for a strategic purpose	Operational 1 2 3 4 5 Strategic
2. Life span	For temporary, specific tasks or without a definite timeframe	Temporary 1 2 3 4 5 Permanent
3. Age	Less than one year to more than five	Young (yrs) 1 2 3 4 5 Old (yrs)
4. Level of maturity	According to "Stages of community development" (Wenger et al., 2002, p. 69)	1 Potential 2 Coalescing 3 Maturing 4 Sustaining 5 Transforming
5. Creation process	Intentional or spontaneous formation of CoP, discussion topics spontaneously emerge or are purposefully defined by moderators	Intentional 1 2 3 4 5 Spontaneous
6. Boundary crossing	Limited to one area of a profession, multiple areas, or spans the entire profession	Low 1 2 3 4 5 High
7. Environment	Rapidly changing or stagnant and set in its ways, facilitates productive community activity or hiders it, level of bureaucracy	Obstructive 1 2 3 4 5 Facilitating
8. Organizational slack	Resources made available to the community, pressure to meet objectives	Low 1 2 3 4 5 High
9. Degree of institutionalized formalism	Degree to which the community is recognized and assimilated by the body of stakeholders (Wenger et al., 2002, Figure 2-1 p. 28)	1 Unrecognized 2 Bootlegged 3 Legitimized 4 Supported 5 Institutionalized
10. Leadership	Leadership is formally assigned or emerges through interaction and around expertise	Clearly assigned 1 2 3 4 5 Continuously negotiated
11. Size	Small and intimate or consisting of hundreds	Small 1 2 3 4 5 Large <25 50 100 250 1000
12. Geographic dispersion	Physical location of participants	1 Building / block 2 Town / quarter 3 Large city / small state 4 Country 5 Large country / region
13. Member selection	Open to anyone, open to anyone within a certain organization, open only to a predetermined list	Closed 1 2 3 Open
14. Member enrollment	Voluntary, invited, encourage, strongly encourage, required	Compulsory 1 2 3 4 5 Voluntary
15. Member prior community experience	Based on an existing community, some members have virtual CoP experience, members have no experience with CoPs	None 1 2 3 4 5 Extensive
16. Membership stability	Permanent members or frequent turnover	Fluid 1 2 3 4 5 Stable
17. Member ICT literacy	Skill with using the Internet, comfort with communicating primarily online	Low 1 2 3 4 5 High
18. Cultural diversity	Spans multiple countries, multiple professions, encompasses speakers of different languages	Homogeneous 1 2 3 4 5 Heterogeneous
19. Topic relevance to members	Degree to which discussions relate directly to daily work	Low 1 2 3 4 5 High
20. Degree of reliance on ICT	Degree to which ICT is required for CoP to exist	Low 1 2 3 4 5 High
21. ICT availability	Variety and quality of ICT available to members, level of access	Low 1 2 3 4 5 High

The IKC would need to focus on operational aspects related to integration. IKC outcomes must relate to the daily work of special and general educators who are charged with educating integrated students (element 19, *topic relevance to members*, see Table 9-4). The IKC should play a role in helping educators do their jobs better. The most successful virtual CoP analyzed by Dube et al. (2006) was oriented toward operational aspects of members' jobs.

The *life span* of the IKC would be more temporary (element 2). The IKC would be linked to a pilot course as described in the previous section. Participants of the IKC would be trained in the course and then invited to participate in an action research environment facilitated by SEB. The action research project would have a date set for conclusion. The project might last about 6 months (element 3, *age*), which is the same time period of the most successful virtual CoP discussed by Dube et al. (2006).

It is hoped that the IKC would progress through all stages of development, from potential to transforming (element 4, *level of maturity*). The *creation process* would be intentional (element 5). A facilitator must help to keep the IKC on track. As with action research projects, the role of the facilitator would be to problematize; generate interest; lead brainstorming sessions; help to consolidate a plan of action and then mobilize the plan; and lead review and revision sessions until the problem is mutually agreed to be sufficiently controlled. Hakkarainen et al. (2004a) suggest two guiding principles for affecting knowledge creation with the help of facilitators in IKCs: the "ratchet effect" (Tomasello, 1999 as cited in Hakkarainen et al., 2004a, p. 79) and "knotworking" (Engeström, Engeström & Vahaaho 1999, as cited in Hakkarainen et al., 2004a, p. 80). The *ratchet effect* refers to the gradual tightening of discussions to reach conclusions. *Knotworking* refers to the need for binding together stakeholders from the breadth of a field of practice. In terms of special education, this means teachers in training, practitioners, specialists, university experts, parents, and policy makers from all areas of expertise in the practice.

Leadership, though clearly assigned, is an area of weakness in the SEB online community (element 10). More effective leaders must be assigned for the IKC to be successful. It would be important, however, not to divert too much power from the participants. The job of the facilitator is not equivalent to that of an instructor (Johnson, 2001; Wenger et al., 2002). Effective action research settings are usually egalitarian, wherein

research is conducted collaboratively and democratically between practitioners and researchers (Bargal, 2006; Brydon-Miller et al., 2003).

Membership in SEB's online IKC would be voluntary but encouraged (element 14, *member enrollment*). New members would be invited to join upon completion of the pilot course. Membership would be semi-closed in that completion of the course would be a prerequisite (element 13, *member selection*). While new members may be gradually inducted into CoPs, in IKCs, all members should share similar knowledge up front and participate equally.

The practice of special education sees a high degree of boundary crossing. Boundary crossing, though seemingly more inclusive, can also be a threat to long-term community activity because of a tendency toward disconnectedness, impersonal communication, and a lack of reciprocity (Wenger et al., 2002, p. 146). The IKC's focus on integration should help to maintain community cohesion, though a high degree of *boundary crossing* is anticipated (element 6). The IKC's environment would likely be more facilitating than that of the SEB online community (element 7, *environment*). Integration is a turbulent issue, and Hakkarainen et al. (2004a) argue that turbulent issues facilitate participant engagement in IKCs.

SEB's long-term success and the success of the IKC hinge upon successful partnerships with TENCompetence; Bulgarian NGOs and organizations that run websites similar to SEB; the Bulgarian Ministry of Education and Science; and Sofia University (elements 8 and 9, *organizational slack* and *degree of institutionalized formalism*). Support must come, mainly, in the form of allocated staff time. The commitment of TENCompetence and Sofia University staff would be crucial for running the pilot course and facilitating the IKC. The Ministry of Education and Science must continue to sponsor the community and partner websites must continue to cross-post links with SEB. Organizational slack may be tightened to some degree because increased support may lead to increased attention to meeting objectives. As part of an action research project, the SEB IKC would have deadlines to meet.

The most successful virtual CoP analyzed by Dube et al. (2006) was small, about 35 people (element 11, *size*), and all of them were located in the same country (element 12, *geographic dispersion*). SEB's current core group is made up of 25 to 30 members who are all located in Bulgaria. The problem is that even though the core group is small,

the community as a whole is large. A common finding among research participants was that SEB is too large and impersonal. One participant explained that they had a lot of information to share, but they did not want to waste their time in discussion with people that did not care to the extent that they did about certain special education topics. They wanted to speak at a much higher level than the forums offered. For the IKC to be a success, it would be important to ensure that a more closed membership is enforced. Limiting the IKC to those who complete the pilot course could be an effective strategy. Face-to-face communication that takes place in the course would also be important. If an action research project is undertaken, the schools involved should all be within the same region of Bulgaria so that participants would have the opportunity to meet.

It is hoped that some of the current participants in SEB would participate in the pilot course and subsequent IKC. Dube et al. (2005, 2006) find that experienced groups have an advantage over those newly created (element 15, *member prior community experience*). SEB's core group has remained relatively stable, but its peripheral group has been fluid (element 16, *membership stability*). This is a good sign for the possibility of establishing an IKC. As long as a core group can be maintained, the basic requirement for a successful IKC is present. The skill and comfort level with using the Internet shown by current SEB members is adequate for participation in the IKC (element 17, *member ICT literacy*). Access to the Internet has also been adequate (element 21, *ICT availability*).

It is not anticipated that members of the IKC would be culturally diverse (element 18, *cultural diversity*). The members would be primarily Bulgarian special educators with some involvement by senior academics and a few parents. It would be advantageous for several teachers of Roma origin to be involved in the IKC as well. There would be less student involvement than in the SEB online community, but a few graduate students would be beneficial for organizational purposes and the dissemination of results.

For the online IKC, reliance on electronic communications would still be high (element 20, *degree of reliance on ICT*), but if an action research project is undertaken, much more face-to-face involvement would be required. In either case, preexisting relationships in the IKC would be desirable. In the most successful virtual CoP analyzed by Dube et al. (2006), some of the participants had met previously. The requirement for members to complete the pilot course would help to ensure that all participants know a few other members in the IKC.

This concludes the analysis of SEB in terms of IKCs. As an IKC, it is predicted that many of the benefits indicative of CoPs may be realized to a greater degree by SEB members. Such benefits include synergetic social learning; the internalization of knowledge; tacit knowledge sharing; and the fostering of a sense of belonging, professional confidence, and spirit of inquiry. It is important to stress, however, that IKCs and CoPs are not mutually exclusive. There may be a natural progression from one form of community to the other, or an IKC might be part of a larger CoP.

9.3 Summary

In this chapter, a discussion of the defining characteristics of the current practice of special education in Bulgaria was presented based on data collected during the course of the SEB study. A synthesis of qualitative and quantitative results concerning the development and outlook for future use of the SEB online community was also provided. The outlook for long-term participation in the online community is strong. Though the level of mutual engagement, shared purpose, and shared repertoire between community members was too low for SEB to be considered an effective CoP at this time, the creation of an IKC focused on integration and social inclusion is predicted to intensify participation and enhance outcomes. In the next chapter, Conclusion, findings applicable to the design of other online communities are discussed, and recommendations for further research and future SEB iterations are presented.

Chapter 10

10. Conclusion

In this chapter, results from the SEB study are discussed with regard to the research and development of future online communities. In the opening section, directions for future research are presented. First, the method used for rating participant activity in the SEB online community is reviewed. The current definition of a lurker's role in online communities is challenged and a new conceptual model for degrees of participation in online communities is presented. Second, theoretical directions for the study of online communities and CoPs are discussed.

Next, Macedonia, Romania, and Croatia are suggested as possible locations for the development of online communities similar to SEB. Lessons learned from the SEB study are organized as design principles for use by online community developers in these countries (Research Goal 6). Findings are then presented that address Research Goal 7: to define paths for future research based on effectiveness evaluation results and lay the foundation for long-term SEB success. A proposal is made for an impact evaluation, Phase 4, of the SEB study. Ideas for the next iteration of the SEB website are then presented as well as further partnership activities with TENCompetence and the organizers of similar Bulgarian websites. The chapter concludes with a section that summarizes the complete study in terms of each of the three research questions and seven research goals.

10.1 Directions for future research

In this section, directions for future research are presented as well as design principles for the development of online communities similar to SEB in countries with cultural dimensions that are comparable with Bulgaria's. Another phase of research and development on SEB is also proposed.

10.1.1 Degrees of participation in online communities

A set of criteria for analyzing the activity level of participants in online communities was devised for use in this study (see Section 6.2.2.3, Active, peripheral, and repeat website users, on page 174). A similar method of analysis was not found in published literature. The idea was to develop a method to quantitatively differentiate between highly active, moderately active, and least active community participants. In addition, it was hoped that the concept of peripheral participation could be gauged. The criteria chosen for analysis included page views, logins, posts, and length of time registered for the community. The levels of activity identified included:

- Active participant
- Active peripheral participant
- Participant
- Peripheral participant
- Repeat user
- Registered user

For online communities, it is argued that though *lurkers* do not add to the body of knowledge shared, they do add to the critical mass of the community. For SEB, all new user registrations increase the size of the participant profiles list. Additionally, since lurkers can gain a significant amount of knowledge from lurking, it is argued that instead of lurking, they are *peripherally participating*.

For CoPs, Wenger's model of participation, shown in Figure 10-1, is useful. For online communities, Wenger's model may not be adequate. Figure 10-2 is proposed as a conceptual model for the dimensions of participation in online communities or virtual CoPs. In Wenger's model, peripheral participants are shown to be less involved than other participants. In the new model, it is possible for active peripheral participants to be more

involved than participants who infrequently post comments. Active peripheral participants are argued to log in at a much higher frequency than most other participants but only read posts. They do not post comments. In online communities, the act of reading a post is tracked in the form of page views. Without posting a comment, a peripheral participant is capable of adding to the body of knowledge in terms leaving a record that helps to rate certain comments or informational pages as being valuable.

Please see print copy for figure10.1

Figure 10-1. Degrees of community participation (Wenger et al., 2002, p. 57)

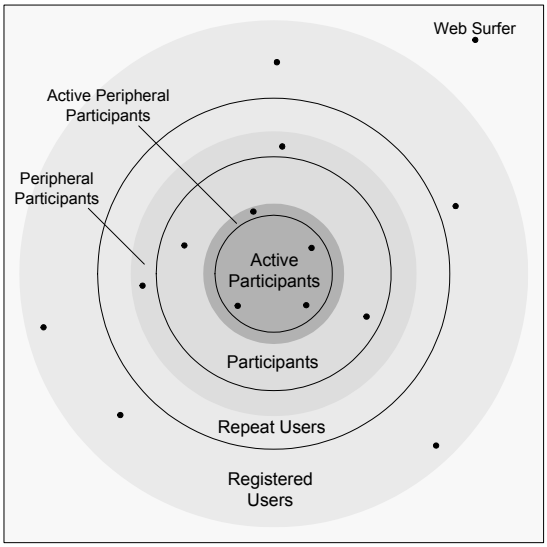

Figure 10-2. Degrees of participation in online communities

Wenger (1998, Chapter 7) makes a distinction between peripheral and *marginal participation*. He argues that peripheral participants are on a path to becoming full participants in the future, while marginal participants may never become full participants but continue to stay involved in the community. He also argues that there are "marginalities of competence" held by community members who are not full participants (Wenger, 1998, p. 216). The role of active peripheral participants identified in Figure 10-2, may be equivalent to the role of Wenger's marginal participant.

Rating the activity of online community participants is useful because the total number of registered users can be a deceptive indicator of community success. One problem with the proposed rating scale is that many peripheral participants will go unnoticed when discussion forum contents are viewable by unregistered users. One way to eliminate this problem is to require all users to log in to read discussions, but this could lead to a reduced number of new registrations. Without first viewing the forums, it is difficult to know why the online community is worth joining.

Additionally, SEB study results indicated that some users preferred to email other participants directly rather than to use the forums or go through email or chat channels provided via SEB. Though this form of communication is difficult to track, it is important that there are opportunities available for peripheral participants to interact on a semiprivate basis in terms of building "benches for those on the sidelines" (Wenger et al., 2002, p. 57). More research is needed to determine the best way to handle the challenges posed by rating the activity of peripheral participants in online communities.

10.1.2 Theoretical exploration

Ling et al. (2005) encourage the mining of existing social theories "as a source of principles for design innovation" and a possible strategy for the discovery and development of more sufficient theoretical frameworks to describe the nature of computer-supported cooperative work systems (The way forward, para. 1). One reason for drawing on the social sciences for assistance in this regard is that the lack of contribution by participants can be a major problem for online communities.

Karau and Williams' (1993) collective effort model, which addresses the *social-loafing* phenomenon, is one example. According to the social loafing principle, members of a community exert less effort on collective tasks than they would on comparable individual tasks. In a later study, Karau and Williams' (1997) found that social loafing can be reduced or eliminated in more cohesive groups.

Group cohesion models could prove useful for team building in CoPs. Researchers have found that increased group cohesion can lead to improved group performance (Beal, Cohen, Burke, & McLendon, 2003). Some of the principles of team building according to group cohesion principles include developing a shared vision and united purpose and creating an environment that fosters both individual and mutual accountability. These principles are very similar to some of those offered by Wenger et al. (2002) for the development of distribute CoPs. For SEB, increased group cohesion may be possible in the innovative knowledge community (IKC) proposed in Chapter 9 and discussed a second time in Section 10.1.4. Increased group cohesion could lead to less social loafing and enhanced outcomes due to improved group performance.

10.1.3 Macedonia, Romania, Croatia, and SEB

It is predicted that the results of the SEB project will best translate to countries with similar cultural dimensions to Bulgaria. Two countries that neighbor Bulgaria, the Republic of Macedonia and Romania, and a third country that shares the Balkan peninsula, Croatia, appear to be the most similar. Turkey also has similarities. Romania and Bulgaria both entered the European Union (EU) in January 2007. Macedonia and Croatia are scheduled to join in the next five years, and Turkey may follow (Centre Virtuel de la Connaissance sur l'Europe, 2008; "EU enlargement," 2008).

Romania is about three times larger than Bulgaria in population (see Figure 10-3), and the language is significantly different, but there are important parallels. Both countries were part of the former Soviet Union. Both are on the EU's watch list for countries with large numbers of children in institutionalized care (UNICEF Innocenti Research Centre, 2005) and both have large Roma populations ("Europe's Roma," 2008). Romania and Bulgaria have the largest total number of Roma of any country in Europe. Romania and Macedonia have the largest populations of Roma by percent of total population. Croatia has one of the smaller Roma populations of the countries on the Balkan peninsula ("Europe's Roma," 2008).

Macedonia is by far the smallest of the countries mentioned, but it is perhaps the most similar to Bulgaria. At one time, Macedonia was part of the Bulgarian empire. The Macedonian language is also remarkably similar to Bulgarian. There are only a few differences between the alphabets, which results in many words being the same but spelled and pronounced with slight differences. Bulgaria, Croatia, Macedonia, Romania, and Turkey are all considered to have "emerging and developing economies" (International Monetary Fund, 2008). The International Monetary Fund's World Economic Outlook Database classifies countries into two major groups: *advanced economies* and *emerging and developing economies*.

Please see print copy for figure 10.3

Figure 10-3. Map of Balkan Peninsula
Populations (in millions) of Bulgaria, Croatia, Macedonia, Romania, and Turkey (U.S. Census Bureau, 2008)

According to Hofstede's (2001) cultural dimensions,[1] Croatia and Turkey are the most similar to Bulgaria, followed by Romania. Macedonia has not yet officially been scored but is estimated to be very similar to Bulgaria (Hofstede, 2001). The following review of Hofstede's cultural dimensions is provided as a starting point for the development of online communities for special education stakeholders in Macedonia, Romania, and Croatia. In the future, a similar online community might also be considered for Turkey.

1. Hofstede's (2001) dimensions are based on an attitude survey of IBM company employees in more than 70 countries in the late 1960s and early 1970s. He collected 116,000 questionnaires in 20 languages. The initial analysis was limited to only 40 countries, but later, the number of countries was increased to 50 and today, more than 70 countries have been analyzed. To describe the collected data, Hofstede innovated a new paradigm for the classification of national cultures—the use of *cultural dimensions*. The data revealed common problems among the international employees but with solutions that varied from country to country. This discovery led to the definition of the following four cultural dimensions: power distance, individualism, masculinity, and uncertainty avoidance.

10.1.3.1 Design principles

There have been a number of design principles for CoP and virtual CoP development published by researchers in the last decade (see Tables 2-2 and 2-3 in Chapter 2). Many of the principles were considered in the design of SEB. The following lessons learned from the SEB study may be of value for the design of online communities in countries with cultural dimensions similar to Bulgaria.

McDermott (2000), like Wenger et al. (2002), says there are five stages to CoP development: planning/potential, start-up/coalescing, growing/maturing, sustaining/stewardship, and closing/transformation. SEB is argued to have reached the coalescing stage but moved past start-up and toward growing and maturing. McDermott (2000) recommends a number of strategies when planning and starting up new CoPs. Some of his recommendations include identifying the purpose; assigning a community coordinator and moderators or thought leaders; interviewing potential members and engaging stakeholders in the design process; creating a prototype design; and deciding on what technology to employ. These recommendations were followed during the needs assessment, Phase 1 (see Table 10-1).

Table 10-1. Stage 1: Planning/potential design principles for virtual CoPs

1. Purpose	• Provide a clear frame of purpose for the community. - Ensure that the purpose is clearly and centrally stated on the website.
2. Prototype	• Create a prototype design. - Decide on what technology to employ. o The technology should already have a record of being used in the way that the community will use it. - Facilitate usability and design for sociability. - Design for evolution and sustainability.
3. Stakeholder alignment	• Seek stakeholder alignment by negotiating a common understanding of the potential value of the community. - Interview potential members and engage stakeholders in the design process. - Identify the knowledge that is worth sharing. - Cultivate stakeholder support and executive sponsorship by inviting participation from across multiple structures.
4. Varied participation levels	• Invite different levels of participation from peripheral to active and core group members.
5. Preexisting relationships	• Ensure that there are a number of preexisting relationships among members, but not all participants should be from the same school or workplace. - A blend of online and face-to-face communication is crucial, especially in the early stages of community development.
6. Assigned leadership	• Divide the community into cells and assign leadership roles. - Conduct a training session with the leadership team to ensure that everyone understands their role. - Stimulate productive asynchronous communication with active facilitation.

Involvement of potential members in the design process was perhaps one of the most important principles followed (Design Principle 3). Preece (2000) quotes the already famous line, "If you build it, they will come," in her book about designing online communities. She argues that "this, unfortunately, is rarely the case" (p.228). Since potential members were involved from the beginning of SEB's design, when the site was built *they* were already there. Furthermore, it was found that stakeholders involved in earlier phases of the project, felt more ownership of the community. This was also found by Gottlieb (2006).

Another recommendation is to have a training session with the community coordinator and moderators to ensure that everyone understands their role (Design Principle 6). One of the main weaknesses of the SEB community was the lack of moderator involvement. It would have been better to identify this problem up front and perhaps replace moderators who were not fully prepared to participate. This might have been possible had a training session been held.

Sustainability of the SEB website after research concluded was carefully considered during the planning stage (Design Principle 2). The more users that registered and made use of the community throughout later phases of design, the more important it became to ensure that SEB could be sustained. One of the most important steps was transferring the website to servers at Sofia University. Once the website was transferred, the researcher offered to continue assisting, but officially donated the software to the university (see Section 4.7, Ethical considerations, on page 97, for more information regarding intellectual property). As long as the community is in use by its members, it is in the best interest of Sofia University to ensure that it remains operational. In addition, the involvement of TENCompetence has helped to ensure that the website will remain online. The related design principle is that from the beginning, online communities created for research purposes should be designed with sustainability in mind.

Another consideration to make during the start-up stage is that the software chosen should already have a record of being used in the way that the online community will use it (Design Principle 2). In this regard, Moodle was a good choice but perhaps not the ideal choice. It has an excellent track record as a course management system but very little record of supporting CoPs. In retrospect, the use of an open-source content management system such as Drupal (Buytaert, 2008) or Joomla (Open Source Matters, 2008) might

have been better. SEB research participants reported that some of the other open-source software available had better discussion forum interfaces and features. Moodle could always be integrated for course management at a later date.

Hough, Smithey, and Evertson (2004) found that preexisting relationships among members are important to the success of virtual CoPs (Design Principle 5). For SEB, about half of the participants in the core group already knew each other or where students enrolled in one or more of the special education courses taught by the forum moderators from Sofia University. It can be concluded that preexisting relationships had a positive impact on website activity.

During the planning stage, a finding by Stephens and Hartmann (2004) was also considered. They found that when online conference participants of their study were from the same school, they participated less in discussions. The researchers reasoned that the participants did not have as great a need for online aspects of the community. For SEB, efforts were made to interview potential participants from schools other than Sofia University. Despite efforts, most SEB participants were from Sofia and many of them were students enrolled at Sofia University. It may be that Sofia University's sponsorship of the community deterred participation by members from other Bulgarian universities. The lesson here is that the choice of sponsor can have an indirect effect on levels of interest in the community (Design Principle 3).

During Stage 2: Start-up/coalescing, McDermott (2000) recommends making clear the immediate value of membership in the community and creating artifacts of community activity (Design Principle 9, see Table 10-2); and legitimating the community's core leader and building a core group (Design Principle 10). It is also important during this stage to advertise and market the community website as appropriate to achieve desired membership numbers and levels of participation (Design Principle 7). With respect to this principle, the terms *first to market* and *critical mass*, are relevant.

Table 10-2. Stage 2: Start-up/coalescing design principles for virtual CoPs

7. Website marketing	• Advertise and market the community website as appropriate to achieve desired membership numbers and levels of participation.
8. Personal space	• Develop personal space in the community by providing the ability to make detailed member profiles with photos. - Provide tools for both public and one-on-one communication. - Organize small group activities to foster personal relationships in the community.
9. Membership value	• Make clear the immediate value of membership in the community. - Create artifacts of community activity. - Focus on emergent values rather than early values that were predicted to apply to the new community.
10. Central and satellite groups	• Maintain a central cell for everyone with a global facilitator but have local coordinators for the other cells. - Legitimate the community's core leader. - Build a core group of active participants.
11. Rhythm of activity	• Build a rhythm of activity with regular events such as synchronous online meetings and email reminders of events. - Maintain group cohesion by scheduling regular face-to-face meetings with the entire group or its subgroups.

First to market is a business and marketing term but still relevant to the development of online communities. It refers to a pioneering new instance of a product that results in a new product category or a substantial subdivision of an existing category. Research by Robinson and Min (2002) found that, "The pioneer's temporary monopoly over the early followers plus its first-mover advantages typically offset the survival risks associated with market and technological uncertainties. These results are consistent with previous research in the sense that first-mover advantages that increase a pioneer's market share also help protect the pioneer from outright failure (p. 120)." Project results indicated SEB was the first instance of an online community dedicated to special education in Bulgaria. It was predicted that being the first to market would encourage a higher level of participation in the community. It is empirically uncertain to what extent this was true, but given the relatively high number of registrations to the site, 350 and growing, it can be concluded that the novelty of the concept was attractive to new users.

Critical mass was discussed in the literature review and later chapters. It was argued that one of the reasons that SEB did not fully coalesce into a virtual CoP may be that a critical mass of active participants was not reached. In other words, the core group of active participants may not have been sufficiently large or productive. Given the high number of registrations, however, it may be argued that a critical mass of registrations was reached—a mass large enough to give the impression that the community was worth joining.

More advertising could still have been done, especially in the form of cross-posting links between SEB and relevant Bulgarian websites. The most successful advertising method was a letter sent from the Bulgarian Ministry of Education to regional special education directors that announced the site. Results of that campaign are highlighted in the quantitative data presented toward the end of Chapter 6. SEB was also listed in the article titled, *Special education*, posted on the Bulgarian Wikipedia website (Wikipedia Bulgaria Community, 2008) and announced at a special education conference held in Kiten, Bulgaria.

At present, SEB remains in the start-up/coalescing stage of CoP development. Progression past this stage may be a fundamental distinction between online communities and virtual CoPs. For SEB to progress to the growing/maturing stage of development, the lead moderator needs to take charge of the core group of active participants and form a subgroup focused on knowledge that is worth sharing (Design Principle 10). As proposed in Chapter 9, an IKC should be formed on the topic of integration. If the core group remains active, the development of artifacts of community activity should follow.

As a final note regarding lessons learned, it is important to contribute back to open-source projects. In this case, further Bulgarian translation was needed by the Moodle community. By contributing back, other developers of Moodle websites in Bulgaria had the chance to review the translations contributed and make improvements. Had the translations been shared with the Moodle community earlier, SEB's help system would have been fully translated at a much earlier stage of the project.

10.1.4 Phase 4: Impact evaluation

The scope of the SEB study, its budget, and its timeline did not allow for all of the phases of evaluation recommended by Reeves and Hedberg (2003) to be conducted. Additional data for an *impact evaluation* could be collected to determine the extent to which the online community affected the knowledge, skills, and attitudes of the practitioners and experts that used the website. After the impact evaluation, additional data for a *maintenance evaluation* could be collected to determine the viability of website and community design over time. These long-term evaluation methods have to do with a type of research credibility that Mertens (2005) terms *catalytic authenticity* (p. 258). This type of credibility comes from proof that research outcomes spurred action in the target community.

In the future, if a Phase 4, impact evaluation, was conducted, some of the research questions addressed might read as follows:

- In what ways and to what extent has SEB impacted the practice of special education in Bulgaria?
- In what ways and to what extent were participant attitudes about issues in Bulgarian special education affected?
- It what ways and to what extent did knowledge building occur in the SEB community?
- It what ways and to what extent has SEB affected government policy with regard to special education in Bulgaria?
- In what ways and to what extent can results from the SEB study be applied to the development of online communities for other professions and regions of the EU?

Phase 4 development plans might include increased website advertising; increasing the number of documents available in SEB's repositories; interviewing and recruiting parents as potential SEB members; the implementation and evaluation of e-portfolios using Mahara software (Mahara Community, 2008); further partnership development; the development and evaluation of an SEB IKC; the completion of a pilot course with TEN-Competence on social inclusion; and the development of an action research project on social inclusion facilitated by or run in conjunction with the IKC.

For the IKC to be a success as proposed in Chapter 9, the Bulgarian Ministry of Education should send a follow-up letter to the regional directors of special education in Bulgaria about the pilot course on social inclusion to be offered in partnership with TEN-Competence. The course is briefly described in Chapter 9 and describe in detail in Peterson et al. (in press). Cross-links should be posted between SEB and the Ministry of Education website.

Participants of the pilot course could be recruited from two or more mainstream schools in a region of Bulgaria where integration has been most active. Research by Ainscow, Howes. Farrell, and Frankham (2003) indicates that participants from a group of schools can be successfully engaged in one "collaborative action research network" (p. 227) with characteristics that resemble a CoP. All of the schools with teachers that participate in the pilot should be within a relatively short distance of each other to allow for a

blend of face-to-face and web-based instruction. Schools in Sofia, Plovdiv, or Varna, Bulgaria's largest cities, should be among the first locations considered. Pilot participants would be invited to participate in the IKC following completion of the course. Though TENCompetence will be available to assist with running the course, the Ministry of Education will need to provide funding. A course facilitator and assistants should be recruited from a university in the same region as the schools chosen for the pilot.

Sofia and Varna are particularly good locations because the cities have active parents associations for children with special needs. Parents should be recruited from each of the various associations to complete the pilot course and participate in the subsequent IKC. The action research project on integration proposed would operate in conjunction with the online IKC. Essentially, a face-to-face IKC would exist at each of the mainstream schools involved in action research. The online IKC would facilitate interaction between the schools and act as an archive for results of the action research project.

It is a relatively new idea to approach the challenges of social inclusion from the standpoint of web-based teacher competence development using action research and CoPs or IKCs. Arguments for taking a competence-based approach are presented in Peterson et al. (in press). Central to the arguments presented is that as Bulgaria converts to a system of integration, it faces the challenges of restructuring hundreds of special schools and institutions and retraining special educators and general educators nationwide. Such undertakings are predicted to result in a major shift in the competences required for the practice of special education in Bulgaria. The challenge then is to reinvent schools by interrupting old ways of thinking and encouraging the exploration of new and overlooked possibilities rather than simply adding to or correcting existing practices (Ainscow, 2005; Ferguson, 2008).

Moreover, the definition of *competence* has evolved in the last decade to include both skills and knowledge in a practice. Speaking on behalf of the TENCompetence project, Herder et al. (2006) argue that a person's competences include their "knowledge, skills, and attitude, or any psychomotor or mental activity which may require mastery" (p. 89). Professional development with regard to teacher knowledge, skills, and attitude are required for the integration of special needs and Roma minority students to be successful. A second online IKC and associated action research project could focus on competences

needed for the education of children with multiple of more severe disabilities. Until recently, such children were completely excluded from the Bulgarian education system.

In addition to developments regarding integration and social inclusion, SEB's document repository could be significantly enhanced with the posting of issues from Sofia University's journal on special education. Since it is a subscription-based journal, SEB could be set up to accept payment. Moodle has this capability. Exemplary articles and sample copies could still be available on SEB for free.

The implementation of Mahara on SEB for e-portfolios is another potential area for development. Mahara has already been tested and uploaded to SEB's host server. It fully integrates with Moodle, allowing for single sign on and registration between the two software packages. Sample portfolios still need to be created and the final design details implemented. Research participants have already indicated that they would be interested in using an e-portfolio to make electronic versions of their resumes and to post other documentation regarding their competences in special education. Participants that complete the pilot course would be invited to post their new certification in social inclusion to their e-portfolio.

There are a number of new possibilities for research and development in Phase 4. Phase 4 will not be possible, however, without further support from the Bulgarian Ministry of Education. Initial plans have now been documented based on the exploratory research presented in this thesis. Should the Ministry decide to support any aspect of the plans and ideas put forth, the researcher will be available to assist. The opportunity to provide competence development opportunities to Bulgarian special educators; connect special education research with practice; scrutinize the theoretical and design principles of IKCs; and target the challenges related to social inclusion could lead to tremendously beneficial outcomes for the academic community and Bulgaria as a nation.

10.2 Summary of the study

The SEB study was organized around three phases of research: needs assessment, formative evaluation, and effectiveness evaluation. The outcome of each phase of research was a new version of the SEB online community website. A prototype was created for Phase 1, the needs assessment. The outcome of Phase 1 was the alpha website version, Phase 2 the beta website, and Phase 3 the final website.

The needs assessment was completed first and directed by Research Subquestion 1: *In what ways and to what extent is an online community needed by Bulgarian special education stakeholders?* Subquestion 1 guided the completion of three research goals:

- G1: Document the practice of special education in Bulgaria including major areas of the practice and historical, political, and cultural contexts.
- G2: Report on the need for an online community and professional development opportunities for special education stakeholders in Bulgaria.
- G3: Report on the feasibility of developing an online community and providing online professional development opportunities for special education stakeholders in Bulgaria.

Regarding Goal 1, it was found that Bulgaria has a large network of special schools and institutions. The institutions are widely considered to be obsolete and in urgent need of restructuring. The special schools, at least those in the major cities, appear to be relatively well run. A disproportionately high enrollment of Roma minority students in the special schools, however, indicates that the special schools also require reform. Other issues in the practice, such as inadequate attention and resources allocated to the study and treatment of learning disabilities are, by comparison, of lower immediate concern.

Regarding Goals 2 and 3, it was found that there was significant interest in the development of an online community for special education stakeholders in Bulgaria. The stakeholder group included university students, researchers, and lecturers; employees of NGOs for special education; special education practitioners; and the parents of special needs children. It was also found that Internet access and stakeholder skill with the Internet are sufficient to enable participation in an online community.

Since Phase 1, needs assessment, results were positive, Phases 2 and 3 could be carried out. The research question posed to guide all three phases of research was: *In what ways and to what extent does an online community developed according to CoP design principles support the practice of special education in Bulgaria?* The question guiding Phase 2, the formative evaluation, was Research Subquestion 2: *In what ways and to what extent does the community website facilitate usability, support sociability, and provide the features required for successful CoPs?* Subquestion 2 guided the completion of the following research goal:

- G4: Develop and evaluate a community website for special education stakeholders in Bulgaria.

The website was created according to the design principles for virtual CoPs discussed in Chapter 2. Usability evaluations were completed with all four website versions. All of the features necessary to support sociability suggested by Preece (2000) were incorporated into the design.

Research Subquestion 3 guided Phase 3, the effectiveness evaluation. It read: *In what ways and to what extent was the online community an effective CoP?* Subquestion 3 guided the completion of three research goals:

- G5: Evaluate the effectiveness of the online community in terms of existing theoretical and design principles for CoPs.
- G6: Define design principles for the establishment of online communities for special education in countries or regions with cultural dimensions similar to those found in Bulgaria.
- G7: Define paths for future research based on effectiveness evaluation results and lay the foundation for long-term success of the online community.

SEB was found to be an effective online community but only partially effective as a virtual CoP. Because of the concentration of activity on the topic of integration and the core group of active participants that emerged around this topic, it was argued that SEB is poised to mature into an IKC. In conjunction with the development of a SEB IKC on the topic of integration, a pilot course on social inclusion and an action research project were proposed.

The study contributed theoretically to the study of virtual CoPs with a reevaluation of the role of lurkers in online communities. The activity of lurking was considered to be a form of peripheral participation that can be tracked and significantly adds to the critical mass needed to launch and sustain online communities. The project was also an example of a how to conduct a multiphase exploratory mixed-methods study framed by the design-based research approach.

The results of this study may be generalizable to countries with cultural dimensions similar to Bulgaria. Macedonia, Romania, and Croatia were identified as three culturally similar countries with comparable future prospects regarding changes in the

practice of special education due to recent or planned entry into the EU. Design principles found to be effective for the development of SEB were recommended to guide research and development on similar online communities. A fourth phase of research and development on SEB was then proposed that would take the form of an impact evaluation. Research questions for this phase and new design considerations were presented.

This study resulted in highly positive international press on the practice of special education in Bulgaria at a time when it was most needed. Bulgaria just entered the EU in 2007 and continues to struggle to meet certain requirements for change. The SEB project is an example of how researchers worked with practitioners to make progress toward improving living conditions and educational outcomes for Roma minorities and children with special needs. The project also facilitated significant researcher-practitioner, practitioner-practitioner, and student-practitioner collaboration in the areas of speech therapy, learning disability, hearing impairment, visual impairment, and multiple and intellectual disability. It opened to academics from Western universities a practice that had previously been hidden. Moreover, the use of an online community for data collection resulted in a lasting artifact from the study, an artifact that may continue to promote development in the practice for years to come. The researcher is very proud of the study's outcomes and will be available in the future should further research with SEB or similar online communities be sponsored by Bulgaria or the EU.

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A. RESEARCH TIMELINE

2005	
Feb-July	✓ Research preparation and coursework, began **needs assessment, Phase 1** ✓ Posted **prototype** version of website (HTML, phpBB)
August	✓ Presented MEd (Research) proposal at UOW Faculty of Education colloquium ✓ Research approved by UOW Human Ethics Committee
September	✓ Visited Bulgaria for one month, collected needs assessment data
October	✓ Published two papers in the proceedings of the E-Learn conference in Vancouver, Canada (Peterson, 2005a; Peterson & Herrington, 2005)
Nov-Dec	✓ Returned to Australia, analyzed data, completed needs assessment ✓ Posted **alpha** version of website (Moodle)
2006	
Jan-April	✓ Presented proposal for upgrade to PhD (Education) at Faculty colloquium ✓ Awarded full UOW postgraduate stipend and tuition scholarship for PhD candidature ✓ Began **formative evaluation, Phase 2**
May	✓ Published two papers in the proceedings of the Comparative Education conference in Sofia (Peterson, 2006b; Peterson & Konza, 2006) ✓ Visited Bulgaria for one month, collected formative evaluation data ✓ Transferred website to servers at Sofia University, domain changed from www.specialedbulgaria.com to www.specialeducationbulgaria.com
June	✓ Awarded scholarship to present poster at educational development conference in Sheffield, UK (Peterson, 2006a)
July-Dec	✓ Returned to Australia, analyzed data ✓ Human ethics annual renewal application approved ✓ Formally announced website in letter from Bulgarian Ministry of Education and Science to regional heads of special education ✓ Won best poster award at UOW research conference (Peterson, 2006d) ✓ Sent greeting cards, in Bulgarian, to all research and website participants
2007	
Jan-Mar	✓ Completed expert reviews of website, analyzed data, completed formative evaluation ✓ Posted **beta** version of website (Moodle) ✓ Thesis writing ✓ Preparation for extended trip to Bulgaria, began **effectiveness evaluation, Phase 3**
April-Sept	✓ Visited Bulgaria for 5.5 months ✓ Completed four, 3-week Bulgarian language and culture courses, 240 hours course time ✓ Certified at ALTE B1 (intermediate) proficiency in the Bulgarian language (Association of Language Testers in Europe, 2007) ✓ Awarded Advanced Certificate for Practical Bulgarian by Sofia University's Department for Language Teaching and International Students ✓ Collected effectiveness evaluation data ✓ Collaborated with the European Union's TENCompetence project ✓ Defined competencies for pilot course to test SEB website and TENCompetence software ✓ Presented at TENCompetence pilot planning workshop (Peterson, 2007c) ✓ Presented, in Bulgarian, TENC partnership plan to the Department of Special Education at Sofia University (Peterson, 2007b)
October	✓ Attended quarterly TENCompetence workshop in Maastricht, The Netherlands ✓ Won best academic paper award at the ePortfolio conference in Maastricht (Peterson, Herrington, Konza, Tzvetkova-Arsova, & Stefanov, 2007) ✓ Opened research account at Sofia University with ePortfolio conference prize money for Bulgarian student workers on TENCompetence-SEB pilot course ✓ Published article in UOW's *Rhizome* research magazine (Peterson, 2007a)
Nov-Dec	✓ Returned to Australia, analyzed data ✓ Human ethics annual renewal application approved ✓ Posted **final** version of website (Moodle)

2008	
Jan-Mar	✓ Presented at UOW Faculty of Education research seminar (Peterson, 2008) ✓ Published peer-reviewed journal article in *Campus Wide Information Systems* (Peterson, Herrington, Konza, Tzvetkova-Arsova, & Stefanov, 2008) ✓ Second peer-reviewed article accepted for 2009 publication in the *International Journal of Training and Development* (Peterson et al., in press)
April-May	✓ Completed effectiveness evaluation ✓ Thesis writing
June	✓ TENCompetence-SEB pilot course conducted with research partners in Bulgaria
July-Sept	✓ Thesis writing
Oct-Dec	✓ Thesis review and submission

B. RESEARCH INSTRUMENTS

Personal and usability interview protocol, needs assessment, Phase 1

Personal Interview & Usability Protocol

Needs Assessment
Bulgaria, Sept/Oct 2005

Investigator
Rob Peterson
Candidate for Master of Education (Research)
University of Wollongong, Faculty of Education, Australia

Participant CV ☐ Qustnr ☐

Intrvw #	Date & Time	Location	File & Tape Info

Internet Use Questionnaire (Version 1.0)

1) How often do you use the Internet?
    a. Never
    b. Once per year
    c. Once per month
    d. 1 hour per week
    e. 2 to 5 hours per week
    f. 5 to 10 hours per week

2) Where do you access the Internet? (circle all that apply)
    a. Home
    b. Work
    c. Library
    d. Café / kiosk
    e. Other: _____

3) Of the time you spend on the Internet, what percent do you take part in the following?
    a. Browsing / searching ___%
    b. E-mail ___%
    c. Online chat ___%
    d. Discussion forums ___%
    e. Other:_____%
    f. Other:_____%

4) Which Internet browser do you use? (circle all that apply)
    a. Internet Explorer (Microsoft)
    b. Mozilla Firefox
    c. Netscape Navigator
    d. Safari (Apple)
    e. Other: _____

5) Why do you access the Internet?

6) List the websites that you most often visit?

Interview #1

Special Education in Bulgaria

1) How would you define the term *special education*?
2) Describe the job of a special educator in Bulgaria?
   a. Are there special education classes in general Bulgarian elementary schools? If so, describe them.
   b. Do some student's in mainstream classes have specific learning programs? In the United States, we refer to these as IEPs (individualized education plans). IEPs are created by special educators and updated as the child progresses through school.
3) What does the Bulgarian special education system do well? In what areas could it improve?
   a. What changes in the special education system do you expect in the next 5 years?

4) In your opinion, what is the political climate regarding special education in Bulgaria?
   a. What is your opinion about the inclusion of students with special needs in regular classrooms?
5) Describe the role of family in education in Bulgaria.
   a. In what ways are parents involved in the education of their children?
   b. Let's say that a child is be born with a serious complication such as Spina Bifida or Down Syndrome. The child is born into the average Bulgarian family. Predict what would happen with the child from age one through adulthood.
      i. Describe the schooling that the child would receive.
      ii. How would a father typically react?
      iii. How would the mother typically react?
      iv. How would siblings typically react?

Special Ed Bulgaria (www.specialedbulgaria.org)

1) Determine how to go to www.specialedbulgaria.org on the Internet. [time ___:___]
2) Switch the language from English to Bulgarian. [time ___:___]
3) Find out what the website is about. [time ___:___]
4) Find a definition for the word dyslexia. [time ___:___]
5) Find an article about learning disabilities. [time ___:___]
6) Find some quick information about reading learning disabilities. [time ___:___]
7) Determine how to send a message to the website administrator. [time ___:___]
8) Go to the discussion forums. [time ___:___]
9) Determine how to register for the discussion forums. [time ___:___]
10) Find "I registered but cannot log in!" in the FAQ. [time ___:___]
11) Read the messages in the Research Bulletins forum. [time ___:___]
12) Determine how to post a message. [time ___:___]

Actions	Comments	Type of Assist	Type of Error
1.			

Closing Comments

That covers the things that I wanted to ask. Anything that you would like to add?

Usability Notes

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post-Interview Notes

interview setting, rapport w/ participant, problems w/ certain questions, appropriateness of topics, how did I do asking, how did participant do answering

Phase 1 Personal Interview Protocol, page 7 of 24 Bulgaria, Sept/Oct 2005

Interview #2

Special Ed Bulgaria (www.specialedbulgaria.org)

1) Go to www.specialedbulgaria.org and complete any tasks that remain from interview #1.
2) What information would you like to have available on Special Ed Bulgaria?
3) Can you think of specific items or links to add to the following website sections?
    a. Quick reference
    b. Library of articles
    c. Internet resources
    d. Glossary
4) How do you foresee yourself using Special Ed Bulgaria?
5) Is there anything else that you would like to add about the website?

Evaluation of Special Education Knowledge

Question Category	Interview Group	Questions
Individualized education & inclusion	General K-6 Special Educator Researcher	1) How are different skill levels managed in the classroom? a. Have you heard of the planning pyramid? Review **Figure 1** and explain how it relates to education in Bulgaria.
Special education	All	1) Describe the categories used to classify students according to ability in Bulgaria?
	Special Educator Researcher	2) How are students in Bulgaria selected for special education services? a. Are you familiar with the following IQ curve **Figure 3**?
Legislation	All	1) Discuss the special education policies and regulations of the Bulgarian education system. a. What does Bulgarian law require for children with special needs?

Cultural diversity	All	1) Describe the cultural diversity found in typical Bulgarian K-6 classrooms. a. In your experience, what modifications in assessment and instruction, if any, are made for minority students? Gypsies, for example.
Society	All	1) The notion of disability is determined by society. Generally speaking, in the United Stated and Australia we believe that the cause of a disability can be treated scientifically. Families from other cultures may express a belief in fate, spiritual reasons, or other possible causes a disability. In Asian families, a disability is often thought to bring great shame upon a family. In other cultures, there may be no word for disability. The child and adult are simply integrated into the community, fulfilling roles commensurate with their abilities. In light of these comments and in comparison to what you know about other cultures, how would you describe the term disability in Bulgaria?
	Special Educator Researcher	2) Have you heard of the Principle of Normalization? In what ways does it apply to the Bulgarian education system? a. To what extent is self-determination an important goal for the intellectually disabled?

Intellectual disability (mental retardation)	All	1) Are you familiar with the term intellectual disability? How would you define it? 2) Describe the education available for students with intellectual disability.
	Special Educator Researcher	3) What assessments are used to classify students as intellectually disabled? a. Stanford-Binet / Wechsler IQ tests b. mild, moderate, severe, profound c. educable, trainable, non-trainable
Learning disabilities	All	1) How would you define the term learning disability? a. What do you believe are some of the areas in which students may have learning disabilities? 2) Where are students with learning disabilities educated in Bulgaria? Refer to **Figure 2**.

Attention Deficit Hyperactivity Disorder (ADHD)	All	1) Are you familiar with the term Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (ADHD)? How would you define it?
	Special Educator Researcher	2) What do you know about Ritalin (Methylphenidate), Adderall (Dextroamphetamine Sulfate), and similar medications? a. To what extent are they administered in Bulgaria?
Behavior	All	1) Describe some of the behavior problems that you have had with students. How have you managed these students?

Gifted and talented	All	1) Are you familiar with the term gifted and talented? Is there a similar classification used in Bulgaria? 2) How have you managed gifted and talented students in the classroom? a. Curriculum adapted to challenge students that move more quickly? b. Brighter students grouped with other bright students?
Speech and language	All	1) Describe some of the techniques used to assist students with speech and language problems in Bulgaria. a. How common are speech and language problems with students in Bulgaria?

Hearing	All	1) How and at what age are children checked for hearing loss?
	Special Educator Researcher	2) Describe the technology available for teaching hearing-impaired students in Bulgaria. a. Sound-field systems (speakers) b. Alerting devices (phones) c. Captioning for television d. Hearing aids e. Cochlear implants **Figure 4** 3) How are adults with hearing impairments integrated into the community?
	General K-6	4) Have you ever had a hearing impaired student in your classroom. Describe what special arrangements, if any, you made.

Vision	Special Educator Researcher	1) Describe what visually-impaired students are taught? a. Do they receive vocational skills training at an early age? 2) What technology is available to help in teaching the visually impaired in Bulgaria? a. Screen readers **Figure 6** b. Voice recognition software c. Braille printers d. Refreshable Braille displays **Figure 6** e. Radio reading services f. Books on tape g. Talking calculators h. Talking watches / clocks i. Closed-circuit television (increase size of text) j. Optical character recognition systems
	General K-6	3) Have you ever had a vision impaired student in your classroom. Describe what special arrangements, if any, that you made.

Autism	All	1) Are you familiar with the term autism? a. At age 10, the student likes routines and is upset by the least little change. b. … wants everything done the same way. c. … can do any mental arithmetic problem but can't write it down. How have you helped students that exhibit these types of behaviors?
Physical disabilities	Special Educator Researcher	1) What assistive technology is available to students with physical disabilities or special needs in Bulgaria? a. Physical therapy equipment **Figure 7** b. Voice recognition software c. Alternate keyboards **Figure 8** i. Picture overlays ii. Large keys d. Eye gaze systems (hands free operation) **Figure 9** e. Touch Screen displays **Figure 11** f. Large switches **Figure 10** g. Mouth sticks h. Electric page turners i. Robotic arms j. Sports wheelchairs

Closing Comments

What should I have asked you that I didn't think to ask?

Post-Interview Notes

interview setting, rapport w/ participant, problems w/ certain questions, appropriateness of topics, how did I do asking, how did participant do answering

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Introductory Scripts

Interview #1

Explain who I am and briefly describe my background and qualifications.

During the next 45 minutes, I would like to discuss:

1. Special education in Bulgaria and
2. The preliminary website that I have created.

The purpose of our conversations is to determine what information and features to provide on the website, www.specialedbulgaria.org. If at anytime you would like to end this interview, please feel free to do so. Also, you do not need to answer all of my questions. If you would prefer not to answer, that is OK.

I will take written notes and will also be recording our interview using these two lapel microphones and my laptop. I will also use this audio-cassette recorder for backup purposes. Some of the results from this interview may be published in written form, but you will not be identifiable any publications. This interview will be transcribed. The transcription will be sent to you for review.

Do you have any questions for me before we get started? Feel free to stop and ask questions at any time.

1. Conduct sound check.
2. At end of interview, record sentence, "This is the end of interview with _____."

Interview #2

During the next 45 minutes, I would like to discuss:

1. The preliminary website that I have created and
2. Your knowledge of special education.

Please keep in mind that I am not testing you. Further, I am not an expert in special education. The purpose of our conversations is only to determine what information and features to provide on the website, www.specialedbulgaria.org. So please just answer honestly and to the best of your ability. Some of the terms that I use or issues that I raise may be misunderstood due to language barriers or cultural definitions. Please do not worry about not being able to answer or not being able to understand my questions.

If at anytime you would like to end this interview, please feel free to do so. Also, you do not need to answer all of my questions. If you would prefer not to answer, that is OK. Do you have any questions for me before we get started? Feel free to stop and ask questions at any time.

Figures

	Bulgarian special ed assessments and statistics (e.g., IQ curve)
	Special education worksheets / reports (e.g., behavior worksheet)
	Cyrillic speech pronunciation chart by age
	Hearing check equipment
	Bulgarian sign language chart (finger spelling)
	Bulgarian version of Snellan chart
	Bulgarian Braille card

Photos to Take while in Bulgaria

Figure 1

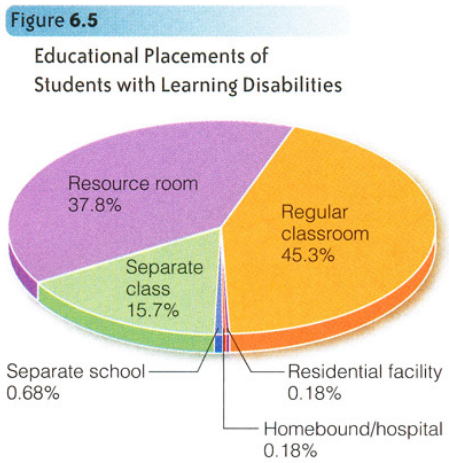

Figure 2: g230

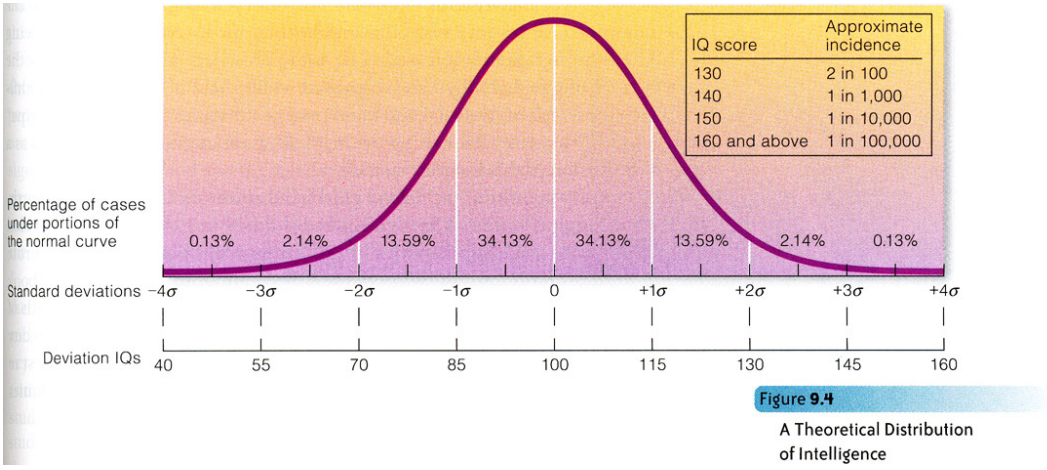

Figure 3: g353

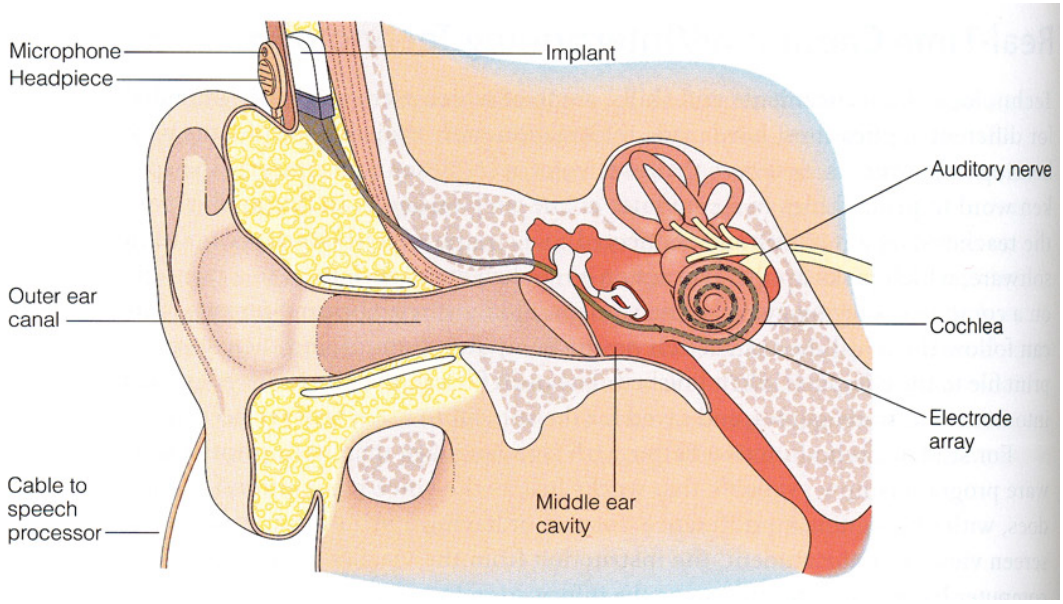

Figure 4: g472

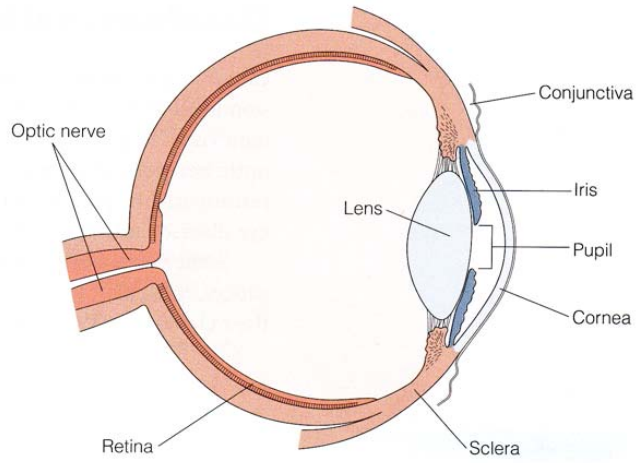

Figure 5: g485

Please see print copy for figure 6: g512

Figure 6: g512

Please see print copy for figure 7: g576

Figure 7: g576

Please see print copy for figure 8: g606

Figure 8: g606

Figure 9

Figure 10

Please see print copy for figure 11

Figure 11

Please see print copy for figure 12: g436

Figure 12: g436

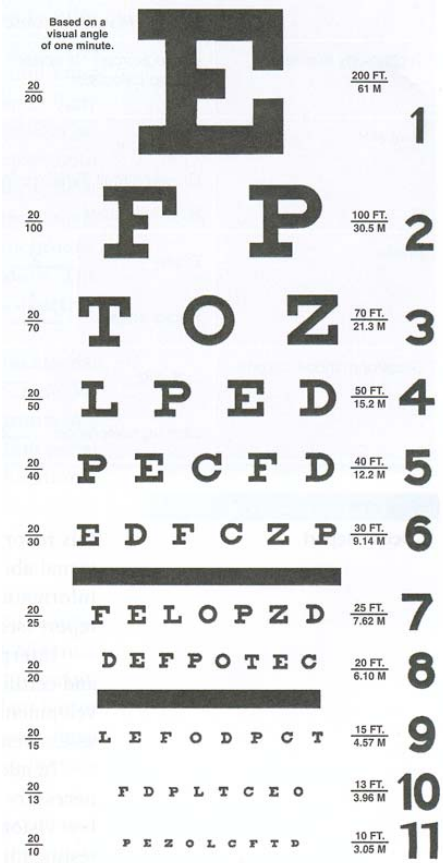

Figure 13: g495

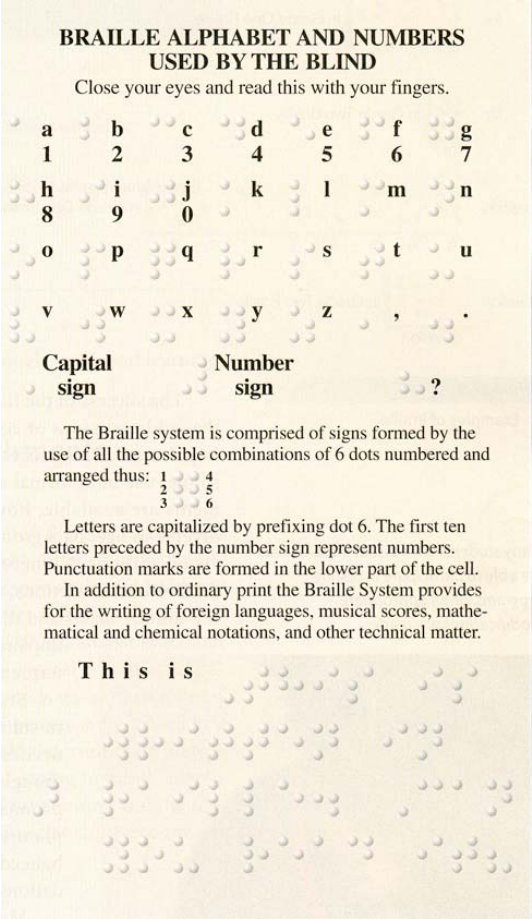

Figure 14: g499

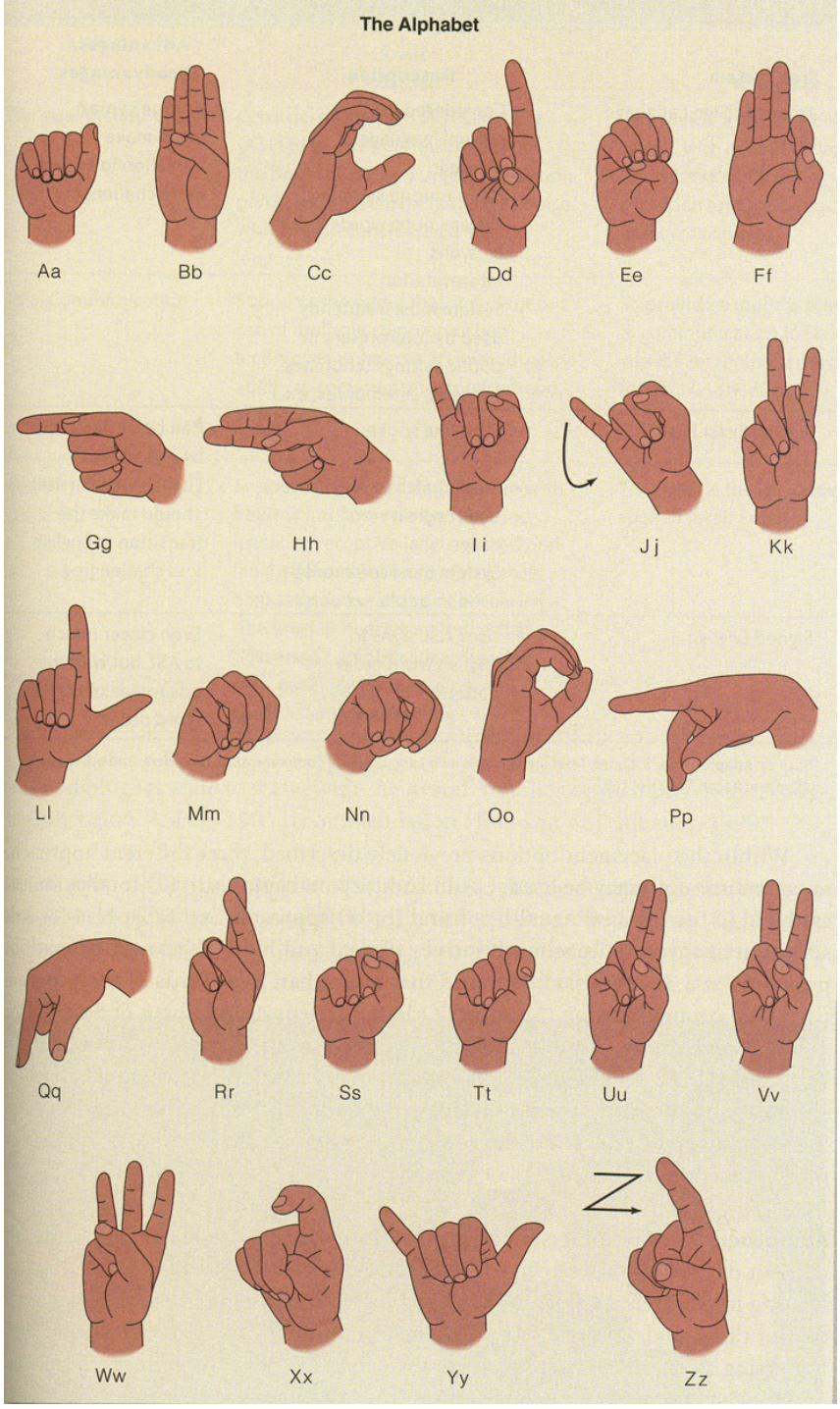

Figure 15: g457

Usability interview protocol, formative evaluation, Phase 2

Usability Protocol

Formative Evaluation
Bulgaria, May 2006

Investigator
Rob Peterson
Candidate for PhD (Education)
University of Wollongong, Australia

Participant Contact Information

Intrvw #	Date & Time	Location	File & Tape Info

- ☐ Consent Form (10 minutes)
- ☐ Photo
- ☐ Internet Use Questionnaire (15 minutes)
- ☐ Scenario 1, Registration (15 minutes)
- ☐ Scenario 2, Chat (15 minutes)
- ☐ Scenario 3, Discussion (10 minutes)
- ☐ Scenario 4, Lost Password (15 minutes)
- ☐ Scenario 5, Upload (15 minutes)
- ☐ Post Test (10 minutes)

Internet Use Questionnaire (Version 2.0)

1) How long have you been using the Internet?
   a. 0 to 3 months
   b. 6 months
   c. 1 year
   d. Other: _____

2) How often do you use the Internet?
   a. Never
   b. Once per month
   c. 1 to 2 hours per week
   d. Other: _____

3) On a scale of 1 (low) to 10 (high), how would you rate your skill with using the Internet?

4) Where do you access the Internet? If more than one, rank (1 = most used).
   ☐ Home
   ☐ Work / school
   ☐ Library
   ☐ Café / kiosk / Internet club
   ☐ Other: _____

5) Tell me about your computer or the computer you most often use to access the Internet?
   a. How old:
   b. Make:
   c. Monitor:
   d. Hard drive:
   e. Processor:
   f. Internet connection method:
   g. Internet connection reliability / speed:
   Scale of 1 (low) to 10 (high) reliability:
   Scale of 1 (low) to 10 (high) speed:

6) Of the time you spend on the Internet, what percent do you take part in the following?
   a. Browsing / searching %
   b. E-mail %
   c. Online chat %
   d. Discussion forums %
   e. Games %
   f. Other: %
   g. Other: %

7) Which Internet browser do you use? If more than one, rank (1 = most used).
   ☐ Internet Explorer (Microsoft)
   ☐ Mozilla Firefox
   ☐ Netscape
   ☐ Other: _____

8) Who provides your e-mail account? If more than one, rank (1 = most used).
   ☐ abv
   ☐ Gmail
   ☐ Hotmail
   ☐ Yahoo!
   ☐ Sofia University
   ☐ Other: _____

9) Which program do you use for chat? If more than one, rank (1 = most used).
   ☐ Skype
   ☐ MSN
   ☐ Google
   ☐ Yahoo!
   ☐ ICQ
   ☐ Other: _____

10) Which websites do you most often visit? Answer on reverse of page.

11) Describe how computers and the Internet are used in your classes? Answer on reverse.

Scenario 1, Registration (10 minutes): THINK OUT LOUD AS YOU WORK!!
You recently decided to join Special Ed Bulgaria.

- Go to www.specialedbulgaria.org.
- Sign up.
- If two participants, have the second sign up as well.
- After signing up, take some time to look around the site and explore its features.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 1 Questions (5 minutes):

1. On the following scale, rate how easy or difficult it was to register for Special Ed Bulgaria.

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

2. What was most difficult to understand when registering?
3. What was easiest about registering?
4. Did you notice any words that were confusing or that could be more clear?
5. Do you have any additional comments?

Scenario 2, Chat Room (10 minutes): THINK OUT LOUD AS YOU WORK!!

- Log in and enter the chat room.
- Chat with the other participants in the chat room.
- Discuss why you decided to become a special educator. What is it about special education that you find interesting?
- Exit the chat room.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 2 Questions (5 minutes):

1. How easy or difficult was it to use the chat room?

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

2. What was most difficult about the chat room?
3. Did you notice any words that were confusing or that could be more clear?
4. Do you have any additional comments?

Scenario 3, Discussion Forum (10 minutes): THINK OUT LOUD AS YOU WORK!!

- Enter the vision discussion forum.
- Find the posting about multiple disabilities.
- Reply to it. You may have a question or comment about multiple disabilities. If so ask. If not, you may enter a new topic. Mira will have a look and respond if you like.
- Exit the discussion forum.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 3 Questions (5 minutes):

1. How easy or difficult was it to use the discussion forum?

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

2. What was most difficult to understand about the discussion forums?
3. What was easiest to understand about the discussion forums?
4. Did you notice any words that were confusing or that could be more clear?
5. Do you have any additional comments?

Scenario 4, Lost Password (10 minutes): THINK OUT LOUD AS YOU WORK!!

- Log out from Special Ed Bulgaria.
- Close Internet Explorer.
- You forgot your username and password.
- Determine how to log in.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation

1.

Post Scenario 4 Questions (5 minutes):

1. How easy or difficult was it to log in after losing your username and password?

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

2. What was most difficult?
3. What was easiest?
4. Did you notice any words that were confusing or that could be more clear?
5. Do you have any additional comments?

Scenario 5, Upload Information (10 minutes): THINK OUT LOUD AS YOU WORK!!

- Open the library, Internet resources, or glossary of terms.
- Upload a document and brief description.
    a. National Plan for Integrated Education
    b. Regulation 6 (2002)
- Add an Internet resource and brief description.
    - Go to www.minedu.government.bg
    - Go to www.bg-mamma.com
        i. See discussion forum on special needs children.
    - Go to signlanguage-bg.com
    - Go to www.dechica.com
- Choose a glossary term. Provided a definition in Bulgarian.
- Log out.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 5 Questions (5 minutes):

1. How easy or difficult was it to complete this task?

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

2. What was most difficult?
3. What was easiest?
4. Did you notice any words that were confusing or that could be more clear?
5. Do you have any additional comments?

Post Usability-Test Questionnaire (10 Minutes)

1. On the following scale, rate your interest in Special Ed Bulgaria.

☐ No interest ☐ Low interest ☐ Do not feel strongly either way ☐ Interested ☐ Very interested

2. On the following scale, rate your impression the website's speed and responsiveness.

☐ Very Poor ☐ Poor ☐ No Opinion ☐ Good ☐ Excellent

3. Will you use this website in the future?

☐ No ☐ Probably not ☐ Maybe ☐ Likely ☐ For certain

4. If you plan to use the website at all in the future, please indicate how you might use it:

☐ To ask your professors questions
☐ To keep in contact with your classmates after you graduate
☐ To improve your understanding of special education techniques and trends
☐ Other: _____
☐ Other: _____

5. What did you like most about Special Ed Bulgaria?
6. What did you like least about Special Ed Bulgaria?
7. What information would you like to be available on Special Ed Bulgaria?
8. What would you change about Special Ed Bulgaria?

Closing Comments
That covers the things that I wanted to ask. Anything that you would like to add?

Post-Test Notes
interview setting, rapport w/ participant, problems w/ certain questions, appropriateness of topics, how did I do asking, how did participant do answering

Introductory Script

1 - Introduce	Explain who I am and briefly describe my background and qualifications.
2 - Describe the purpose	During the next 60 minutes I will have you review the website www.SpecialEdBulgaria.org. Please understand that this is a test of the website and not you. I am looking for places where the website is difficult to use. If you have trouble with some tasks, it's the product's fault, not yours. If I can locate the trouble spots, then I can go back and improve the website.
3 - OK to withdraw at any time, confidentiality	I will take notes and will also be recording the monitor, keyboard, and mouse on video camera as well as your voice. Some of the results from this interview may be published in written form, but you will not be identifiable in any publication. If at anytime you would like to end this test, feel free to do so.
4 - Talk about the equipment	Camera, tape recorder, stopwatch.
5 - Explain how to "think aloud"	As you work through tasks, please think out loud and speak clearly as I am also recording sound. Just say whatever comes to mind. Listening to users as they work provides useful information that I can get in no other way. Demonstrate how to do it. It may be a bit awkward at first, but it's really very easy once you get used to it. All you have to do is speak your thoughts as you work. If you forget to think aloud, I'll remind you to keep talking.
6 - Describe why you will not be able to help	As you're working through the exercises, I won't be able to provide help or answer questions. This is because I want to create the most realistic situation possible. Even though I won't be able to answer most of your questions, please ask them anyway. It's very important that I capture all your questions and comments on tape. When you've finished all the exercises, I'll answer any questions you still have.
8 - Ask if there are questions	Do you have any questions for me before we get started? Feel free to stop and ask questions at any time, but remember, I will wait and answer most of your questions at the end of each exercise.

Camera Settings:
- Long Play (LP)
- 16-bit sound
- 360 x 240

Computer Monitor Settings:
- 100Htz refresh
- 800 x 600 resolution
- Mid (45) contrast
- Low (0) brightness

Environment:
- Closed curtains
- Dim room without lights only daylight through curtains

Equipment:
- Mirror to capture facial expressions
- Laptop for notes on usability test protocol (used track changes feature to see notes)
- Canon MVX4i (Optus 600) digital video camcorder, used built-in stereo microphone
- Camera tripod
- Tape recorder on top of monitor, external microphone pointed to speaker's mouth

Personal interview protocol, formative evaluation, Phase 2

Personal Interview Protocol

Formative Evaluation
Bulgaria, May 2006

Investigator
Rob Peterson
Candidate for PhD (Education)
University of Wollongong, Australia

Participant Contact Information

Intrvw #	Date & Time	Location	File & Tape Info

- ☐ Consent Form (10 minutes)
- ☐ Photo
- ☐ Business Card / Contact Info
- ☐ Internet Use Questionnaire (15 minutes)
- ☐ Scenario 1, Registration (15 minutes)
- ☐ Personal Interview (30 minutes)

Internet Use Questionnaire (Version 2.0)

1) How long have you been using the Internet?
   a. 0 to 3 months
   b. 6 months
   c. 1 year
   d. Other: _____

2) How often do you use the Internet?
   a. Never
   b. Once per month
   c. 1 to 2 hours per week
   d. Other: _____

3) On a scale of 1 (low) to 10 (high), how would you rate your skill with using the Internet?

4) Where do you access the Internet? If more than one, rank (1 = most used).
   - ☐ Home
   - ☐ Work / school
   - ☐ Library
   - ☐ Café / kiosk / Internet club
   - ☐ Other: _____

5) Tell me about your computer or the computer you most often use to access the Internet?
   a. How old:
   b. Make:
   c. Monitor:
   d. Hard drive:
   e. Processor:
   f. Internet connection method:
   g. Internet connection reliability / speed:
   Scale of 1 (low) to 10 (high) reliability:
   Scale of 1 (low) to 10 (high) speed:

6) Of the time you spend on the Internet, what percent do you take part in the following?
   a. Browsing / searching %
   b. E-mail %
   c. Online chat %
   d. Discussion forums %
   e. Games %
   f. Other: %
   g. Other: %

7) Which Internet browser do you use? If more than one, rank (1 = most used).
   - ☐ Internet Explorer (Microsoft)
   - ☐ Mozilla Firefox
   - ☐ Netscape
   - ☐ Other: _____

8) Who provides your e-mail account? If more than one, rank (1 = most used).
   - ☐ abv
   - ☐ Gmail
   - ☐ Hotmail
   - ☐ Yahoo!
   - ☐ Your School / Employer
   - ☐ Other: _____

9) Which program do you use for chat? If more than one, rank (1 = most used).
   - ☐ Skype
   - ☐ MSN
   - ☐ Google
   - ☐ Yahoo!
   - ☐ ICQ
   - ☐ Other: _____

10) Which websites do you most often visit? Answer on reverse of page.

11) Describe how computers and the Internet are used in your classes? Answer on reverse.

Scenario 1, Registration (10 minutes): THINK OUT LOUD AS YOU WORK!!
You recently decided to join Special Ed Bulgaria.

- Go to www.specialedbulgaria.org.
- Sign up.
- If two participants, have the second sign up as well.
- After signing up, take some time to look around the site and explore its features.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 1 Questions (5 minutes):

1. On the following scale, rate how easy or difficult it was to register for Special Ed Bulgaria.

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

2. What was most difficult to understand when registering?
3. What was easiest about registering?
4. Did you notice any words that were confusing or that could be clearer?
5. Do you have any additional comments?

1. On the following scale, rate your interest in Special Ed Bulgaria.

☐ No interest ☐ Low interest ☐ Do not feel strongly either way ☐ Interested ☐ Very interested

2. Will you use this website in the future?

☐ No ☐ Probably not ☐ Maybe ☐ Likely ☐ For certain

3. If you plan to use the website at all in the future, please indicate how you might use it:

☐ To ask your professors questions
☐ To keep in contact with your classmates after you graduate
☐ To improve your understanding of special education techniques and trends
☐ Other: _____
☐ Other: _____

4. What did you like most about Special Ed Bulgaria?
5. What did you like least about Special Ed Bulgaria?
6. What information would you like to be available on Special Ed Bulgaria?
7. What would you change about Special Ed Bulgaria?

Personal Interview (30 Minutes):

1) Describe the contact that you have with other special educators in Bulgaria.
    a. How often?
    b. By what medium, phone, e-mail, fax, discussion forums, letters.
        i. Percentage for each …
    c. For what reason?
    d. In what ways could communication between special eductors across Bulgaria be improved?

2) Describe the special educators in Bulgaria.
    a. What gender, roughly?
    b. What age, roughly?
    c. What are the trends in terms of the types of Bulgarians entering special education?
    d. Briefly discuss your background in special education, both professional and personal.
3) What does the Bulgarian special education system do well? In what areas could it improve?
4) What changes in the special education system do you expect in the next 5 years? 10 years?
5) Discuss the use of computers and the Internet in the Bulgarian education system.
    a. What affect are computers and the Internet having on the Bulgarian education system?
6) Discuss the differences between the Ministry of Education and the Ministry of Social Affairs in terms of students with special needs.
    a. Too many teachers in villages and small towns?
    b. Retraining need? Transfer from under Ministry of Education to Ministry of Social Affairs?
7) Discuss the movement toward integration in Bulgaria.
    a. Positive aspects?
    b. Negative aspects?
    c. I have heard that integration and inclusion are important issues right now in Bulgaria. I know that some teachers in Bulgaria are very much against it as well as some parents. What is your opinion on the matter and maybe discuss the counter side to that.
8) How are different skill levels managed in the classroom? How is disruptive behavior managed in the classroom.
    a. In terms of integration or behavior problem children, disability or just a bad child?
    b. How have you managed gifted and talented students in the classroom?
    c. Have you heard of the planning pyramid? Review Figure 1 and explain how it relates to education in Bulgaria.
    d. Describe the cultural diversity found in typical Bulgarian K-6 classrooms.
    e. In your experience, what modifications in assessment and instruction, if any, are made for minority students? Gypsy or Turkish students, for example.
    f. Learning disabilities, disability or not?
    g. Behavior, disability or not?
9) Let's discuss the political climate regarding special education in Bulgaria.
    a. Could you discuss some of the current politics and legislation that is going on in your field? Some of the developments with the politicians and possibly the NGOs. What are the current movements?
    b. What does Bulgarian law require for children with special needs?
        i. Discuss the special education policies and regulations of the Bulgarian education system.
        ii. How are students in Bulgaria selected for special education services?
        iii. Discuss some of the disabilities that are not supported.
        iv. What assessments are used to classify students as intellectually disabled? Stanford-Binet / Wechsler IQ tests?

10) Let's say that a child is be born with a serious complication such as Down Syndrome. The child is born into the average Bulgarian family. Predict what would happen with the child from age one through adulthood.
    a. Can you describe or predict what would happen with the child from age 1 to adulthood.

Closing Comments:
That covers the things that I wanted to ask. Anything that you would like to add?

Post-Interview Notes:
interview setting, rapport w/ participant, problems w/ certain questions, appropriateness of topics, how did I do asking, how did participant do answering

Introductory Script

1) Introduce:	Explain who I am and briefly describe my background and qualifications.
2) Purpose:	During the next 45 minutes I will be asking you questions about your background and about special education in Bulgaria. The purpose of the personal interviews is to gain a general understanding about the trends and issued in Bulgarian special education as well as how it is practiced. Ultimately, the results from the personal interviews will direct what information is available on www.SpecialEdBulgaria.org and how the website is used.
3) Confidentiality, OK to withdraw:	Some of the results from this interview may be published in written form, but you will not be identifiable in any publication. If at anytime you would like to end this test, feel free to do so.
4) Transcriptions:	I will take notes and will also be recording your voice. The interview will be transcribed. I will e-mail the transcription to you for approval.
5) Questions:	Do you have any questions for me before we get started? Feel free to stop and ask questions at any time.

Usability and personal interview protocol, effectiveness evaluation, Phase 3

Usability & Personal Interview Protocol

Effectiveness Evaluation
Bulgaria August 2007

Investigator
Rob Peterson
Candidate for PhD (Education)
University of Wollongong, Australia

Participant Details

Name:

Title (Mr/Mrs/Ms/Dr):

Full Professional Title:

Company /
School Name:

Address:

Phone:

E-mail:

Other:

Intrvw #	Date & Time	Location, Language	File & Tape Info

- ☐ Intro script / consent form (10 minutes)
- ☐ Photo (2 minutes)
- ☐ Internet use questionnaire (10 minutes)
- ☐ Scenario 1, registration (15 minutes)
- ☐ Logo / theme / images (5 minutes)
- ☐ RSS feed (5 minutes)
- ☐ Scenario 2, chat (15 minutes)
- ☐ Scenario 3, discussion, activity block (10 min)
- ☐ Scenario 4, lost password (10 minutes)
- ☐ Scenario 5, database upload (10 minutes)
- ☐ SpecPedia-wikipedia (10 minutes)
- ☐ Questionnaire, surveys, feedback (10 min)
- ☐ Post test (5 minutes)
- ☐ Backup interview questions (30 minutes)

Internet Use Questionnaire and Personal Details (Version 3.0)

1) What is/are your current roles in the special education field?
   a. Student
   b. Teacher
   c. Parent
   d. Nonprofit / government employee
   e. Professor / lecturer
2) What is/are your area(s) of expertise in Special Education or in what area(s) do you study?
   a. Hearing
   b. Intellectual disabilities
   c. Learning disabilities
   d. Multiple disabilities
   e. Physical disabilities
   f. Speech / Logopedics
   g. Vision
3) What is your age?
   a. 17-22
   b. 23-30
   c. 31-40
   d. 40+
4) How long have you been using the Internet?
   a. 0 to 6 months
   b. 1 year
   c. 2-3 years
   d. Other: _____
5) How often do you use the Internet?
   a. Never
   b. Once per month
   c. 1 to 2 hours per week
   d. Other: _____
6) On a scale of 1 (low) to 10 (high), how would you rate your skill with using the Internet?

7) Where do you access the Internet? If more than one, rank (1 = most used).
   ☐ Home
   ☐ Work / school
   ☐ Library
   ☐ Café / kiosk / Internet club
   ☐ Other: _____
8) Tell me about your computer or the computer you most often use to access the Internet?
   a. How old:
   b. Make:
   c. Monitor:
   d. Hard drive:
   e. Processor:
   f. Internet connection method:
   g. Operating system:
   h. Internet connection reliability / speed:
   Scale of 1 (low) to 10 (high) reliability: ___
   Scale of 1 (low) to 10 (high) speed: ___
9) Of the time you spend on the Internet, what percent do you take part in the following?
   a. Browsing / searching %
   b. E-mail %
   c. Online chat %
   d. Discussion forums %
   e. Games %
   f. Other: %
   g. Other: %
10) Which Internet browser do you use? If more than one, rank (1 = most used).
   ☐ Internet Explorer (Microsoft)
   ☐ Mozilla Firefox
   ☐ Netscape
   ☐ Other: _____

Over →

11) Who provides your e-mail account? If more than one, rank (1 = most used).

- ☐ abv
- ☐ Gmail
- ☐ Hotmail
- ☐ Yahoo!
- ☐ Sofia University
- ☐ Other: _____

12) Which program do you use for chat? If more than one, rank (1 = most used).

- ☐ Skype
- ☐ MSN
- ☐ Google
- ☐ Yahoo!
- ☐ ICQ
- ☐ Other: _____

13) Which websites do you most often visit? Answer on reverse of page.

14) Describe how computers and the Internet are used in your classes? Answer on reverse.

Scenario 1, Registration: THINK OUT LOUD AS YOU WORK!!
You have decided to search for information about Special Education in Bulgaria on the web.

- How would you search for such information?
    a. Go to www.google.com and enter the search terms "Special Education Bulgaria".
    b. Go to www.specialeducationbulgaria.com.
- Spend a few minutes reviewing the website.
    a. Make sure to view the discussion forums.
- Register for it. Log in.
- **If two participants, have the second sign up as well.**
- After signing up, take anther minute or so to explore the site. Let me know when you are ready to proceed.
- Log out.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 1 Questions (5 minutes):

1. When you went to the homepage, what was the first thing that you looked at?
    a. Second?
    b. Third?
2. How do you feel about the task you just completed?
    a. Describe what was difficult about it.
    b. Describe what was easy.
3. On the following scale, rate how easy or difficult it was to register for Special Ed Bulgaria.

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

4. Did you notice any words that were confusing or that could be more clear?
5. Do you have any additional comments?

***Check e-mail message still confusing?**

→Logo and theme design. (5 minutes)

What does the logo say to you.
What color do you like better and why?
Do you think that one gender would prefer one or the other more?
What changes would you like to see in the design, coloring, and logo?

***RSS feed. Review the postings from Darik.net. (5 minutes)**
Where any of those articles interesting. Where they appropriate to the site? Would you use this feature again (1 no to 5 yes)

→Go to Lost Password / Username Scenario #4 …. p. 7
→Go to Scenario #3 Discussion Forum …. p. 6

Scenario 2, Chat Room: THINK OUT LOUD AS YOU WORK!!

- Enter the chat room.
- Chat with the other participants in the chat room.
- Discuss why you decided to become a special educator. What is it about special education that you find interesting?
- Exit the chat room.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 2 Questions (5 minutes):

1. How do you feel about the task you just completed?
    a. Describe what was difficult about it.
    b. Describe what was easy.
2. How easy or difficult was it to use the chat room?

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

3. Did you notice any words that were confusing or that could be more clear?
4. Do you have any additional comments?

Scenario 3, Discussion Forum: THINK OUT LOUD AS YOU WORK!!

- Enter the _____ discussion forum.
- Find the posting about _____.
- Reply to it. You may have a question or comment about _____. If so ask. If not, you may enter a new topic.
- Exit the discussion forum.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 3 Questions (5 minutes):

1. How do you feel about the task you just completed?
    a. Describe what was difficult about it.
    b. Describe what was easy.
2. How easy or difficult was it to use the discussion forum?

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

3. Did you notice any words that were confusing or that could be more clear?
4. Do you have any additional comments?

***Recent activity block**

***Questionnaire and surveys**

→ Go to Post Usability-Test Questionnaire … p.9

Scenario 4, Lost Password / Username: THINK OUT LOUD AS YOU WORK!!

- *<<Log in and change participant's username and password.>>*
- Log out from Special Ed Bulgaria.
- Close Internet Explorer.
- You forgot your username and/or password.
- Determine how to log in.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 4 Questions (5 minutes):

1. How do you feel about the task you just completed?
    a. Describe what was difficult about it.
    b. Describe what was easy.
2. How easy or difficult was it to log in after losing your username and password?

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

3. Did you notice any words that were confusing or that could be more clear?
4. Do you have any additional comments?

Въведете своя електронен адрес, за да получите името Ви и временената Ви парола.

→ Go to Scenario 5, Upload Information … p.8

Scenario 5, Upload Information: THINK OUT LOUD AS YOU WORK!!

- Open the Participant Gallery.
    a. Upload a document, photo, and/or Internet link and a brief description.

- **SpecPedia, wikiedia**
    a. Log in and figure out how to edit a posting.

- Open the Glossary.
    a. Add a term or make a comment about an existing term.

- Log out.

Design Element	Importance (A-C) Severity (1-5)	Problem / Recommendation
1.		

Post Scenario 5 Questions (5 minutes):

1. How do you feel about the task you just completed?
    a. Describe what was difficult about it.
    b. Describe what was easy.
2. How easy or difficult was it to complete this task?

☐ Very difficult ☐ Difficult ☐ Neither easy nor difficult ☐ Easy ☐ Very easy

3. Did you notice any words that were confusing or that could be more clear?
4. Do you have any additional comments?

Is there a document of some kind or an Internet link that you would like to add to the website?

List of BG special education schools and universities
Special school that you visited
Important legislation in BG special education
Online resources, in Eng or Bul, for special education

***Questionnaire, feedback, surveys**

→ If time … Scenario 3, Discussion Forum ... p. 6

→ Go to Post Usability-Test Questionnaire … p.9

Post Usability-Test Questionnaire

1. On the following scale, rate your interest in Special Education Bulgaria.

☐ No interest ☐ Low interest ☐ Do not feel strongly either way ☐ Interested ☐ Very interested

2. On the following scale, rate your impression the website's speed and responsiveness.

☐ Very poor ☐ Poor ☐ Neither good nor poor ☐ Good ☐ Excellent

3. Will you use this website in the future?

☐ No ☐ Probably not ☐ Maybe ☐ Likely ☐ For certain

4. **What would prompt you to visit the website for assistance with something at work?**
   a. I need to find answers to the question, "In what ways does this Internet-facilitated CoP help special educators in Bulgaria do their job better."

5. If you plan to use the website at all in the future, please indicate how you might use it:

☐ To ask questions
☐ To participate in discussion forums
☐ To find special education documents
☐ To find other special education websites
☐ To find definitions of special education terms
☐ To find lesson plans
☐ To keep in contact with friends and colleagues
☐ To upload special education documents
☐ To upload links to useful websites
☐ Other: _____
☐ Other: _____

6. What information would you like to be available on Special Education Bulgaria?

7. What would you change about Special Education Bulgaria?

8. What did you like most about Special Education Bulgaria?

9. What did you like least about Special Education Bulgaria?

→ **Show** the participant the online **questionnaire** and **surveys**. Show them the **anonymous feedback** and how to **contact the webmaster or Mira** and the **profiles**.

Closing Comments
That covers the things that I wanted to ask. Anything that you would like to add?

Post-Test Notes

interview setting, rapport w/ participant, problems w/ certain questions, appropriateness of topics, how did I do asking, how did participant do answering

Personal Interview Questions (Backup if Internet is Down):

1) Describe the contact that you have with other special educators in Bulgaria.
    a. How often?
    b. By what medium, phone, e-mail, fax, discussion forums, letters.
        i. Percentage for each …
    c. For what reason?
    d. In what ways could communication between special eductors across Bulgaria be improved?
2) Discuss the use of computers and the Internet in the Bulgarian special education.
    a. What affect are computers and the Internet having on the Bulgarian education system?
3) Describe special educators in Bulgaria.
    a. What gender, roughly?
    b. What age, roughly?
    c. What are the trends in terms of the types of Bulgarians entering special education?
    d. Briefly discuss your background in special education, both professional and personal.
4) What does the Bulgarian special education system do well? In what areas could it improve?
5) What changes in the special education system do you expect in the next 5 years? 10 years?
6) Let's say that a child is be born with a serious complication such as Down Syndrome. The child is born into the average Bulgarian family. Predict what would happen with the child from age one through adulthood.
    a. Can you describe or predict what would happen with the child from age 1 to adulthood.
7) Discuss the movement toward integration in Bulgaria.
    a. Positive aspects?
    b. Negative aspects?
    c. I have heard that integration and inclusion are important issues right now in Bulgaria. I know that some teachers in Bulgaria are very much against it as well as some parents. What is your opinion on the matter and maybe discuss the counter side to that.
8) How are different skill levels managed in the classroom? How is disruptive behavior managed in the classroom.
    a. In terms of integration or behavior problem children, disability or just a bad child?
    b. How have you managed gifted and talented students in the classroom?
    c. Have you heard of the planning pyramid? Review Figure 1 and explain how it relates to education in Bulgaria.
    d. Describe the cultural diversity found in typical Bulgarian K-6 classrooms.
    e. In your experience, what modifications in assessment and instruction, if any, are made for minority students? Gypsy or Turkish students, for example.
    f. Learning disabilities, disability or not?
    g. Behavior, disability or not?
9) Discuss the differences between the Ministry of Education and the Ministry of Social Affairs in terms of students with special needs.
    a. Too many teachers in villages and small towns?
    b. Retraining need? Transfer from under Ministry of Education to Ministry of Social Affairs?
10) Let's discuss the political climate regarding special education in Bulgaria.
    a. Could you discuss some of the current politics and legislation that is going on in your field? Some of the developments with the politicians and possibly the NGOs. What are the current movements?
    b. What does Bulgarian law require for children with special needs?
        i. Discuss the special education policies and regulations of the Bulgarian education system.
        ii. How are students in Bulgaria selected for special education services?
        iii. Discuss some of the disabilities that are not supported.
        iv. What assessments are used to classify students as intellectually disabled? Stanford-Binet / Wechsler IQ tests?

Introductory Script:

1 - Introduce	Explain who I am and briefly describe my background and qualifications.
2 - Describe the purpose	During the next 60 minutes I will have you review the website www.SpecialEdBulgaria.org. Please understand that this is a test of the website and not you. I am looking for places where the website is difficult to use. If you have trouble with some tasks, it's the product's fault, not yours. If I can locate the trouble spots, then I can go back and improve the website.
3 - OK to withdraw at any time, confidentiality	I will take notes and will also be recording the monitor, keyboard, and mouse on video camera as well as your voice. Some of the results from this interview may be published in written form, but you will not be identifiable in any publication. If at anytime you would like to end this test, feel free to do so.
4 - Talk about the equipment	Camera, tape recorder, stopwatch.
5 - Explain how to "think aloud"	As you work through tasks, please think out loud and speak clearly. Just say whatever comes to mind. Listening to users as they work provides useful information that I can get in no other way. <<perform a tasks and demonstrate how to think out loud as I go>> It may be a bit awkward at first, but it's really very easy once you get used to it. All you have to do is speak your thoughts as you work. If you forget to think aloud, I'll remind you to keep talking.
6 - Describe why you will not be able to help	As you're working through the exercises, I won't be able to provide help or answer questions. This is because I want to create the most realistic situation possible. Even though I won't be able to answer most of your questions, please ask them anyway. It's very important that I capture all your questions and comments on tape. When you've finished all the exercises, I'll answer any questions you still have.
8 - Ask if there are questions	Do you have any questions for me before we get started? Feel free to stop and ask questions at any time, but remember, I will wait and answer most of your questions at the end of each exercise.

Expert Consultation Protocol

www.SpecialEducationBulgaria.com
Australia, Dec/Jan 2006/07
Bulgaria, July 2007

Investigator
Rob Peterson
PhD (Education) Candidate
University of Wollongong, Australia

Expert 1 (Moodle)

Name:
Title:
Professional
Title:
Company /
School Name:
Address:
Phone:
E-mail:

Expertise:

Date & Time	**Location**	**File & Tape Info**

☐ Consent Form (4 min)
☐ Relevant expertise list (1 min)
☐ Expert website demonstrations (45 min)
☐ Walkthrough and checklist (15 min)
☐ Discussion (15 min)

Introductory script / consent (Moodle)

1 - Introduce	Explain who I am and briefly describe my background and qualifications.
2 - Describe the purpose	Formative evaluation. During the next 60 minutes we will review the website www.SpecialEdBulgaria.org. First, I will walk you through some of the site's features and describe how I have built the site. Next, we will go through a few of the questions that I have written down to guide a discussion about the site. And finally, I will give you a checklist to fill out, and you will have a chance to review the website on your own.
3 - Withdraw at any time, confidentiality	I will take notes and will also be using a tape recorder. Some of the results from this interview may be published in written form. Your relevant credentials may be listed in a publication, you will not be directly identified. If at anytime you would like to stop, feel free to do so.
4 - Talk about the equipment	Tape recorder, laptop
5 - Honest opinion	I am looking for your honest expert opinion. You will not hurt my feelings, so please do not hold back criticism during this review.
6 - Questions	Do you have any questions for me before we get started?

Expert website demonstrations (Moodle)

Walkthrough (Moodle)

Site purpose

☐ Research question
☐ Welcome
☐ Audience
    100+ participants
    Ministry letter
    70+ posts
☐ Bulgarian language

Site features

☐ Site blueprint
☐ About / roles / features / contact us
☐ Forums
☐ Participants list
    SEB only class
    How to fix the permissions problem
☐ Quick surveys
    Survey block (only version 1.6?)
☐ Questionnaire
☐ Special education glossary
☐ Term of the day
☐ Internet links
    Change Internet resources layout and increase postings
    Something besides the glossary module
    New improved "links store"
☐ Library
    Change library layout and increase postings
    Something besides the glossary module
    New improved "document repository"
☐ Gallery concept for both types of documents (like studywiz)
    Sortable is key
    Also for photos
☐ Chat
    Least interested in chat, all other Moodle features about equal
    Have you found this too?
    What about better integration with MSN or ICQ somehow, ideas?
☐ Activity log?
    Have you seen it used for all participants

How I work on the site

☐ XAMMP
☐ Dreamweaver
☐ Ipswitch_WS FTP
☐ PhotoShop
☐ FlexType 2K
☐ SA Bulgarian dictionary
☐ Word

☐ phpMyAdmin
☐ Setup with SU
    FTP (what program do you use?)
    Permissions issue keeps popping up

Development plans

☐ Make site more fun, like a sandbox, a safe place to play
☐ Anonymous posting possible to discussion forums
    Must still be logged in though
☐ Fully translated / except forums or user postings
    Trouble with menu items
☐ RSS feed (from EU source or Bg education maybe)
    RSS feed of SpecialEducationBulgaria itself
☐ How to use this site walkthrough "take a tour"
☐ User photo gallery
    Trouble creating new database for the photo gallery
☐ Blogs for each participant (not private, searchable)
☐ Search website (Google, other?) in version 1.7
    Fulltext of all uploaded documents
    Sortable by document type (like Google desktop search)
☐ Events list (user updateable)
☐ Upgrade from Moodle 1.5.4 (worried about language compatibility / UTF-8)
    SU server not running MySQL 4.1.16 or higher (4.1.13)
    Use Windows 1251 character set not iso-8859-1 (latin)
☐ TENCompetence / special education competency development
☐ New look graphically

☐ New logo
☐ Announcements block
☐ Whiteboard type workspace (e.g., SubEthaEdit)
☐ Drag and drop file uploads / moving possible?
☐ Activity / task list "a store of site improvements and events"
☐ Several themes to choose from
☐ Usability improvements
    Usability data document
    Jump-to menu
    Participant profiles

Marketing plans

☐ Increase findability and search rank on search engines
☐ Link to / from other sites (moodle.org under Bulgaria already)
☐ List in BG spec ed journals and newsletter
☐ Marketed through SU and other Special Ed courses

Other sites (Moodle)

- ☐ Academy automotive (go through this one fully) http://www.automotive-academy.com/lms
- ☐ TSOF (rss feed block) http://moodle.tsof.edu.au
- ☐ Open University (forums block) http://openlearn.open.ac.uk
- ☐ Chameleoon accordion theme / Chameleon (1.5.x ?) http://chameleon-theme.unodo.de/login/index.php
  http://chameleon-theme.unodo.de/login/index.php
- ☐ smc.monte.nsw.edu.au / playpen (see welcome block) / Imagine theme
- ☐ Snow theme (Monte Net) / CyberTAFE / pteppic.net
  Moodlezine (navigation bar, Imagine theme?) http://playpen.monte.nsw.edu.au/
  http://montenet.monte.nsw.edu.au/ http://www.cybertafe.com/
  http://moodle.pteppic.net/ http://playpen.monte.nsw.edu.au/newsletter/
- ☐ Formal blue theme (see large icons in center)
- ☐ Nature color theme (see color blend, see video for how to tutorial)
- ☐ Moodle @ ycg https://moodle.yvg.vic.edu.au/
- ☐ Funnybytes.net (see chatbox) http://funnybytes.net/e107_plugins/content/content.php
- ☐ Scope (see featured profiles of members) http://scope.lidc.sfu.ca/
- ☐ Athabasca uni / Moodle site (simplicity, also nav on top with search) http://train.lms.athabascau.ca/
  http://moodle.athabascau.ca/
- ☐ Themegurus.com (heard of them?)
- ☐ AoC NILTA (attractive, simple) http://www.aocnilta.co.uk/moodle/
- ☐ The Open Polytechnic (see resources block) http://campus.openpolytechnic.ac.nz/moodle/
- ☐ EDNA (centered on page, simple, login only on top right corner takes up less space)
  http://www.groups.edna.edu.au/
- ☐ Elearn @ CSS (hand graphic, overall colors) http://www.catrionaward.com/
- ☐ TAFE Competence (competency TENCompetence) http://www.ictdesign.swsi.edu.au/main/

- ☐ Moodlebug (why is there a calendar, people add this block and do not use it!)
  http://fraser.typepad.com/moodle/
- ☐ Teenwire (webby award education) http://www.teenwire.com/
- ☐ Barbican (webby award education) http://www.barbican.org.uk/canihaveaword/
- ☐ BBC (search along with nav across top) http://www.open2.net/
- ☐ Newseum (interesting image use for navigation, interesting format) http://www.newseum.org/
- ☐ Inetzeal.com / Plone.org (Mambo / Plone, see nav across the top)
  http://www.inetzeal.com/ http://plone.org/accessibility-info
- ☐ Drupal (again, nav across top, plus colors!) http://drupal.org/about
- ☐ Joomla (see polls, nav across top with main menu)
  http://demo.joomla.org/demo15/index.php?option=com_content&view=frontpage&Itemid=1
- ☐ e107 (nav across top) http://e107.org/news.php
- ☐ moodle.org/sites

Is there a list of award-winning Moodle sites? Which Moodle sites do you think are particularly good?

A good theme or organization scheme for a CoP?

What other website and community development projects do you know of that are similar to mine?

Discussion guide (Moodle)

☐ Please give your candid reaction to the website as a whole.

☐ In what ways might other open-source CMS programs a better choice for this application (e.g., Joomla, DRUPAL, or e107)?

Migration from Moodle to another SQL-based CMS (SCORM, LAMS, standards compliant)

☐ In what ways was does the website follow or does it not follow established practices for the development of Moodle websites?

☐ Graphically, what are some suggestions for improving the website?

☐ What improvements do you suggest in the tools that I am using to develop the site or the manner in which I am going about developing the site?

☐ What skills would be most important for me to develop to complete this project?

☐ Do not need php, HTML and CSS is enough, you do not want to start changing the php code anyway, it makes it too difficult to upgrade.

What books or references do you recommend?

☐ Is there anything that you would like to add that we have not discussed today. Was there anything that I forgot to ask?

Post interview notes (Moodle)

Expert 1 Checklist (Moodle)

Area 1: Technology (Moodle)

Use of Moodle features and plug-ins

1 2 3 4 5 6 7 8 9 10

◄- ►

Not used or misused — Used fully and correctly

Compared to other Moodle websites …	Disagree - - - - - Agree
The coding and file structure are clean.	1 2 3 4 5
The site is easily upgradeable to the latest Moodle version.	1 2 3 4 5
Moodle was the best choice for this particular application (i.e., versus DRUPAL or Joomla)	1 2 3 4 5
Other:	1 2 3 4 5
Other:	1 2 3 4 5

Comments:

Area 2: Visual Design (Moodle)

Aesthetics
1 2 3 4 5 6 7 8 9 10
◄- -►
Displeasing Pleasing

Compared to other Moodle websites …	Disgree - - - - - Agree				
Color is used appropriately.	1	2	3	4	5
The website has a consistent look.	1	2	3	4	5
The design of the web pages makes them easy to scan.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 3: Organization (Moodle)

Navigation
1 2 3 4 5 6 7 8 9 10
◄- -►
Difficult Easy

Cognitive load
1 2 3 4 5 6 7 8 9 10
◄- -►
Unmanageable Manageable

Compared to other Moodle websites …	Disagree - - - - - Agree				
Menu items are organized logically.	1	2	3	4	5
Users do not get lost when navigating the website.	1	2	3	4	5
There is always a clear indication of your current location in the site.	1	2	3	4	5
Links match the titles of the web pages to which they refer.	1	2	3	4	5

Comments:

Area 4: Functionality (Moodle)

Ease of use

1 2 3 4 5 6 7 8 **9** 10

Difficult ←----------→ Easy

Overall functionality

1 2 3 4 5 6 7 8 **9** 10

Dysfunctional ←----------→ Functional

Compared to other Moodle websites …	Disagree - - - - - Agree				
Web pages download quickly.	1	2	3	4	**5**
No error messages appear.	1	2	3	4	**5**
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Expert 2 (Graphic Design)

Name:
Title:
Professional
Title:
Company /
School Name:
Address:
Phone:
E-mail:
Expertise:

Date & Time **Location** **File & Tape Info**

- ☐ Consent Form (4 min)
- ☐ Business card, resume, expertise (1 min)
- ☐ Walkthrough (10 min)
- ☐ New logo examples (15 min)
- ☐ Other sites (20 min)
- ☐ Discussion (5 min)
- ☐ Checklist (5 min)

Introductory script / consent (Graphic Design)

1 - Introduce	Explain who I am and briefly describe my background and qualifications.
2 - Describe the purpose	Formative evaluation. During the next 60 minutes we will review the website www.SpecialEdBulgaria.org. First, I will walk you through some of the site's features and describe how I have built the site. Next, we will go through a few of the questions that I have written down to guide a discussion about the site. And finally, I will give you a checklist to fill out, and you will have a chance to review the website on your own.
3 - Withdraw at any time, confidentiality	I will take notes and will also be using a tape recorder. Some of the results from this interview may be published in written form. Your relevant credentials may be listed in a publication, you will not be directly identified. If at anytime you would like to stop, feel free to do so.
4 - Talk about the equipment	Tape recorder, laptop
5 - Honest opinion	I am looking for your honest expert opinion. You will not hurt my feelings, so please do not hold back criticism during this review.
6 - Questions	Do you have any questions for me before we get started?

Walkthrough (Graphic Design)

Site purpose

☐ Research question
☐ Welcome
☐ Audience
    100+ participants
    Ministry letter
    70+ posts
☐ Bulgarian language

Site features

☐ About / roles / features / contact us
☐ Forums
☐ Participants list
    SEB only class
    How to fix the permissions problem
☐ Quick surveys
☐ Questionnaire
☐ Special education glossary
☐ Term of the day
☐Internet links
☐ Chat
    Least interested in chat, all other Moodle features about equal
☐ Library

How I work on the site

☐ XAMMP
☐ Dreamweaver
☐ Ipswitch_WS FTP
☐ PhotoShop

Development plans

☐ **New look graphically**
☐ **New logo**
☐ TENCompetence / special education competency development
☐ RSS feed, International news
    "Would like an international view, we are a little society, we already know each other we can discuss things in person, not interested in them normally, we almost know the same things, more interested in the world." - Add links to other special education portals with discussion forums and such from around the world, especially those in English.
☐ Usability improvements
    Usability data document
    Jump-to menu
    Participant profiles
    Not much in terms of graphically, mostly text, organization or functionality
☐ Fully translated / except forums or user postings
    Trouble with menu items
☐ RSS feed
☐ How to use this site walkthrough "take a tour"
☐ Change library layout and increase postings
    Something besides the glossary module

☐ Change Internet resources layout and increase postings
Something besides the glossary module
☐ User photo gallery
Trouble creating new database for the photo gallery
☐ Survey block (only version 1.6?)
☐ Blogs for each participant (not private, searchable) / ELGG integration
☐ Search website (Google, other?)
☐ Events list (user updateable)

Marketing plans

☐ Increase findability and search rank on search engines
☐ Link to / from other sites
☐ List in BG spec ed journals and newsletter

New logo (Graphic Design)

☐ Go through example logos and review existing logo.

I found that women like curves as where men like straight lines. This site is mostly women, I did a Google image search on logos and Balkan countries and this one kind of stood out.

I saw maybe SEB working in with the swoosh somehow.

This one reminded me of almost a blanket or I was thinking Bulgarian craft.

I saw SEB in there.

Please see print copy for logos

This is kind of like what I currently have, arrows…

This one I was seeing putting Special Education Bulgaria around it somehow and changing the colors.

These are two special ed sites, actual websites.

Please see print copy for logos

Too corporate.

Other sites (Graphic Design)
Note: Use Delicious website (rrpete1)

Moodle sites:
☐ Academy automotive (go through this one fully) http://www.automotive-academy.com/lms
☐ **Open University (forums block) http://openlearn.open.ac.uk**

Please see print copy for web page

☐ Chameleoon accordion theme / Chameleon (1.5.x ?) http://chameleon-theme.unodo.de/login/index.php
http://chameleon-theme.unodo.de/login/index.php
☐ smc.monte.nsw.edu.au / playpen (see welcome block) / Imagine theme
☐ Snow theme (Monte Net) / CyberTAFE / pteppic.net
☐ Moodlezine (navigation bar, Imagine theme?) http://playpen.monte.nsw.edu.au/
http://montenet.monte.nsw.edu.au/ http://www.cybertafe.com/
http://moodle.pteppic.net/ http://playpen.monte.nsw.edu.au/newsletter/
☐ Formal blue theme (see large icons in center)
☐ Nature color theme (see color blend, see video for how to tutorial)

Please see print copy for web page

- ☐ Moodle @ ycg https://moodle.yvg.vic.edu.au/
  Kind of like the jigsaw thing here
- ☐ Funnybytes.net (see chatbox) http://funnybytes.net/e107_plugins/content/content.php
- ☐ **Scope (see featured profiles of members) http://scope.lidc.sfu.ca**

Please see print copy for web page

☐ Athabasca uni / Moodle site (simplicity, also nav on top with search) http://train.lms.athabascau.ca
http://moodle.athabascau.ca/

Please see print copy for web page

☐ Themegurus.com (heard of them?)
☐ AoC NILTA (attractive, simple) http://www.aocnilta.co.uk/moodle/
☐ The Open Polytechnic (see resources block) http://campus.openpolytechnic.ac.nz/moodle/

☐ EDNA (centered on page, simple, login only on top right corner takes up less space)
http://www.groups.edna.edu.au/
☐ Elearn @ CSS (hand graphic, overall colors) http://www.catrionaward.com/
☐ TAFE Competence (competency TENCompetence) http://www.ictdesign.swsi.edu.au/main/
☐ Monterey secondary college (standard Moodle stie) http://moodle.monterey.vic.edu.au/

Other sites:
☐ ELLG site Earthblog.ca (like a My Space, integrates with Moodle) http://www.earthblog.ca/
☐ Moodlebug (why is there a calendar, people add this block and do not use it!)
http://fraser.typepad.com/moodle/
☐ **Drupal (again, nav across top, plus colors!) http://drupal.org/about**

Please see print copy for web page

☐ Joomla (see polls, nav across top with main menu)
http://demo.joomla.org/demo15/index.php?option=com_content&view=frontpage&Itemid=1
☐ Plone.org (Mambo, Plone, see nav across the top) http://plone.org/accessibility-info
☐ Teenwire (webby award education) http://www.teenwire.com/
☐ Barbican (webby award education) http://www.barbican.org.uk/canihaveaword/
☐ BBC (search along with nav across top) http://www.open2.net/
☐ Newseum (interesting image use for navigation, interesting format) http://www.newseum.org/

A good theme or organization scheme for a CoP?

What other website and community development projects do you know of that are similar to mine?

Discussion guide (Graphic Design)

Please give your candid reaction to the website as a whole.

In what ways might other open-source CMS programs a better choice for this application (e.g., Joomla, DRUPAL, or e107)?

In what ways was does the website follow or does it not follow established practices for web design?

Graphically, what are some suggestions for improving the website?

What improvements do you suggest in the tools that I am using to develop the site or that manner in which I am going about developing the site?

What skills would be most important for me to develop to complete this project?

What books or references do you recommend?

Is there anything that you would like to add that we have not discussed today. Was there anything that I forgot to ask?

Post interview notes (Graphic Design)

Expert 2 Checklist (Graphic Design)

Area 1: Visual Design

Interface design
1 2 3 4 5 6 7 8 9 10
◄- ►
Poor Strong

Aesthetics
1 2 3 4 5 6 7 8 9 10
◄- ►
Displeasing Pleasing

Compared to other websites …	Disagree - - - - - Agree				
The website logo is appropriate to the audience and purpose of site.	1	2	3	4	5
The website has a professional look.	1	2	3	4	5
Color is used appropriately.	1	2	3	4	5
The website has a consistent look.	1	2	3	4	5
The design of the web pages makes them easy to scan.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 2: Organization (Graphic Design)

Navigation
1 2 3 4 5 6 7 8 9 10
Difficult Easy

Cognitive load
1 2 3 4 5 6 7 8 9 10
Unmanageable Manageable

Compared to other websites …	Disagree - - - - - Agree				
Menu items are organized logically.	1	2	3	4	5
The meanings of icons are clear.	1	2	3	4	5
There is always a clear indication of your current location in the site.	1	2	3	4	5
Links match the titles of the web pages to which they refer.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 3: Functionality (Graphic Design)

Ease of use

1 2 3 4 5 6 7 8 9 10

← - →

Difficult Easy

Overall functionality

1 2 3 4 5 6 7 8 9 10

← - →

Dysfunctional Functional

Compared to other websites …	Disagree - - - - - Agree				
Web pages download quickly.	1	2	3	4	5
No error messages appear.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Expert 3 (CoPs)

Name:
Title:
Professional
Title:
Company /
School Name:
Address:
Phone:
E-mail:
Expertise:

Date & Time **Location** **File & Tape Info**

- ☐ Consent Form (4 min)
- ☐ Business card, resume, expertise (1 min)
- ☐ Walkthrough (10 min)
- ☐ CoP documentation (10 min)
- ☐ Other sites, logos, graphics (10 min)
- ☐ Discussion (15 min)
- ☐ Checklist (10 min)

Introductory script / consent (CoPs)

1 - Introduce	Explain who I am and briefly describe my background and qualifications.
2 - Describe the purpose	Formative evaluation. During the next 60 minutes we will review the website www.SpecialEdBulgaria.org. First, I will walk you through some of the site's features and content. Then, I will explain some of the future design plans. Next, we will go through a few of the questions that I have written down to guide a discussion about the site. And finally, I will give you a checklist to fill out, and you will have a chance to review the website on your own.
3 - Withdraw at any time, confidentiality	I will take notes and will also be using a tape recorder. Some of the results from this interview may be published in written form. Your relevant credentials may be listed in a publication, you will not be directly identified. If at anytime you would like to stop, feel free to do so.
4 - Talk about the equipment	Tape recorder, laptop
5 - Honest opinion	I am looking for your honest expert opinion. You will not hurt my feelings, so please do not hold back criticism during this review.
6 - Questions	Do you have any questions for me before we get started?

Extended introductory script (CoPs)

Note: Full text

☐ Why Bulgaria, why special education, why Australia?
☐ Proposed benefits of the SEB IFCoP
☐ Why Moodle?

Walkthrough (CoPs)

Site purpose

☐ Research question
☐ Welcome
☐ Audience
    110+ participants
    Ministry letter
    80+ posts
☐ Bulgarian language

Site features

☐ Register for the site
☐ Site blueprint
☐ Wenger required features for DCoPs
    See also Encyclopedia of CoPs features list
☐ Forums
☐ Participants list
☐ Quick surveys
☐ Questionnaire
☐ Special education glossary
☐ Term of the day
☐ Internet links
☐ Chat
    Least interested in chat, all other Moodle features about equal
☐ Library

Content

Usability Sociability Content Map

☐ Welcome
☐ About
☐ Roles
☐ Features
☐ Contact us
☐ Questionnaire
☐ Survey

TENCompetence (CoPs)

☐ TENCompetence overview (see overview document)
☐ Antelope screenshots (see architecture document)
☐ Official member of Bulgaria team (see pilots document / PhD network and training)
    Cycle 2 pilot
    Seminar idea

Features to come (CoPs)

☐ Bottleneck, setup with SU

Graphic design

☐ New look graphically

- Feminine but some masculine too
  - Soften the site, warm and welcoming
  - Less rigid more colorful
  - Not too corporate
- Medium power distance, show off expertise and maintain credibility
- Keep site simple, navigation simple, clear pathways, not overwhelming
- Complete and rich help system

☐ New logo

☐ Hofstede

Usability improvements

☐ Usability data document

☐ Language / translation issues

☐ Participant profiles viewing

☐ Glossary module problems (Library, internet resources, photos)

Moodle 1.5 features

☐ RSS feed

☐ Google site search

☐ Feedback module

☐ How to use this site walkthrough "take a tour"

☐ Online seminars / courses with video presentations and chatroom

☐ Fully translated help to Bulgarian, update open-source Moodle Bulgarian language files

Moodle 1.6-1.7 features

☐ ELGG "my spaces" (http://elgg.net)

- Blogs
- Featured profiles

☐ Gallery block (database module) for all types of documents

- Library
- Internet links
- Photos

☐ Full-text site search

☐ Shared workspace, virtual whiteboard

Marketing plans

☐ Increase findability and search rank on search engines

☐ Link to / from other sites

☐ List in BG spec ed journals and newsletter

☐ TENCompetence partnership

☐ Ministry of education support

☐ Online conference along with actual conference

Logo design (CoPs)
☐ Go through example logos uploaded to SEB site.

Other sites (CoPs)
☐ Note: Use Delicious website (rp765)
☐ Note: Consider integrating wikis, like the Wikipedia concept

☐ http://www.specialeducationbulgaria.com/backupoldseb (prototype)
http://www.uni-sofia.bg (Sofia University / power distance)
☐ http://www.specialeducationbulgaria.com (present theme)
☐ http://www.specialeducationbulgaria.com (blue theme)
☐ http://www.specialeducationbulgaria.com (purple theme)

☐ http://openlearn.open.ac.uk
☐ http://www.eduspaces.net (elgg portfolios)
☐ http://www.signlanguage-bg.com
☐ http://drupal.org
☐ http://scope.lidc.sfu.ca
☐ http://montenet.monte.nsw.edu.au
☐ http://www.partners.tencompetence.org
http://www.tencompetence.org
http://www.tencompetence.com

☐ http://www.logopedbg.com (Bulgarian speech therapy school)
☐ http://www.ivanapostolov.bg (Bulgarian high school / power distance)
☐ http://www.alinadesign.net (Bulgarian website design firm)
☐ http://www.gradina-rai.com (Bulgarian private kindergarten)
☐ http://www.pberon.com (Bulgarian private elementary school)

☐ Is there a list of award-winning CoP sites? Which CoP sites do you think are particularly good?

☐ What other website and community development projects do you know of that are similar to mine?

Discussion guide (CoPs)

☐ Please give your candid reaction to the website as a whole.

☐ Which virtual or distributed community of practice features appear to be missing from Special Education Bulgaria?

☐ In what ways does the website's design follow or not follow established practices for online CoPs?

☐ In what ways do you foresee the TENCompetence partnership positively or negatively affecting the SEB community and my thesis research?

☐ Graphically, what are some suggestions for improving the website?

☐ What books or references do you recommend?

☐ Is there anything that you would like to add that we have not discussed today. Was there anything that I forgot to ask?

Post interview notes (CoPs)

Expert 3 Checklist (CoPs)

Area 1: Technology (CoPs)

Technology

1 2 3 4 5 6 7 8 9 10

Inappropriate ◄----------► Appropriate

Aesthetics / interface design

1 2 3 4 5 6 7 8 9 10

Displeasing ◄----------► Pleasing

Compared to other CoP websites …	Disagree - - - - - Agree				
The basic technical features required for all online CoPs, as described by Wenger, Preece, and other experts, are provided.	1	2	3	4	5
The additional technical features provided are appropriate.	1	2	3	4	5
The learning management system (LMS) used, Moodle, is the best choice for this application, e.g., versus a content management system (CMS) such as Drupal or Joomla.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 2: Content (CoPs)

Content required for community building
1 2 3 4 5 6 7 8 9 10
◄- -►
Inadequate Ideal

Compared to other CoP websites …	Agree - - - - - Disagree				
From the home page, the purpose of the website is clear.	1	2	3	4	5
The about page is clear and answers important questions a first-time visitor might have.	1	2	3	4	5
The user agreement is clear and suits the site's purpose.	1	2	3	4	5
The questionnaire is clearly written, and the questions are appropriate to the site's audience and for the research.	1	2	3	4	5
The one-question surveys are clearly written and appropriate to the site's audience and for the research.	1	2	3	4	5
Help documentation is adequate and easy to access.	1	2	3	4	5
The language used is appropriate and writing style is clear.	1	2	3	4	5
It is easy to contact the website administrator.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 3: Organization (CoPs)

Navigation

1 2 3 4 5 6 7 8 9 10

Difficult ◄----------► Easy

Cognitive load

1 2 3 4 5 6 7 8 9 10

Unmanageable ◄----------► Manageable

Compared to other CoP websites …	Disagree - - - - - Agree				
Menu items are organized logically.	1	2	3	4	5
The meanings of icons are clear.	1	2	3	4	5
Users do not get lost when navigating the website.	1	2	3	4	5
There is always a clear indication of your current location in the site.	1	2	3	4	5
Links match the titles of the web pages to which they refer.	1	2	3	4	5
Important information is easy to find.	1	2	3	4	5
What the website is about……	1	2	3	4	5
Participant profiles……...	1	2	3	4	5
Roles…….…..	1	2	3	4	5
User agreement / disclaimer to protect the website…….	1	2	3	4	5
Why should I become a member / why should I come back…..	1	2	3	4	5
Research project description……	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 4: Functionality (CoPs)

Ease of use
1 2 3 4 5 6 7 8 9 10
← - →
Difficult Easy

Overall functionality
1 2 3 4 5 6 7 8 9 10
← - →
Dysfunctional Functional

Compared to other CoP websites …	Disagree - - - - - Agree				
Registration is easy.	1	2	3	4	5
Web pages download quickly.	1	2	3	4	5
No error messages appear.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Name:
Title:
Professional
Title:
Company /
School Name:
Address:
Phone:
E-mail:

Expertise:

Date & Time	**Location**	**File & Tape Info**

☐ Consent Form (5 min)
☐ Business card, resume, relevant expertise (5 min)
☐ Walkthrough (15 min)
☐ Discussion (15 min)
☐ Checklists (15 min)

Introductory script / consent (Moodle)

1 - Introduce	Explain who I am and briefly describe my background and qualifications.
2 - Describe the purpose	Formative evaluation. During the next 60 minutes we will review the website www.SpecialEdBulgaria.org. First, I will walk you through some of the site's features and describe how I have built the site. Next, we will go through a few of the questions that I have written down to guide a discussion about the site.
3 - Withdraw at any time, confidentiality	I will take notes and will also be using a tape recorder. Some of the results from this interview may be published in written form. Your relevant credentials may be listed in a publication, you will not be directly identified. If at anytime you would like to stop, feel free to do so.
4 - Talk about the equipment	Tape recorder, laptop
5 - Honest opinion	I am looking for your honest expert opinion. You will not hurt my feelings, so please do not hold back criticism during this review.
6 - Questions	Do you have any questions for me before we get started?

- ☐ Research question
- ☐ Welcome
- ☐ Audience
  - 200+ participants
  - Ministry letter
  - 150+ posts
- ☐ Bulgarian language

Site features

- ☐ Site blueprint
- ☐ About / roles / features / contact us
- ☐ Forums
- ☐ Participants list
  - SEB only class
  - How to fix the permissions problem
- ☐ Quick surveys
  - Survey block (only version 1.6?)
- ☐ Questionnaire
- ☐ Special education glossary
- ☐ Term of the day
- ☐ Internet links
  - Change Internet resources layout and increase postings
  - Something besides the glossary module
  - New improved "links store"
- ☐ Library
  - Change library layout and increase postings
  - Something besides the glossary module
  - New improved "document repository"
- ☐ Gallery concept for both types of documents (like studywiz)
  - Sortable is key
  - Also for photos
- ☐ Chat
  - Least interested in chat, all other Moodle features about equal
  - Have you found this too?
  - What about better integration with MSN or ICQ somehow, ideas?
- ☐ Activity log?
  - Have you seen it used for all participants

How I work on the site

- ☐ XAMMP
- ☐ Dreamweaver
- ☐ Ipswitch_WS FTP
- ☐ PhotoShop
- ☐ FlexType 2K
- ☐ SA Bulgarian dictionary
- ☐ Word
- ☐ phpMyAdmin
- ☐ Setup with SU

☐ Anonymous posting possible to discussion forums
    Must still be logged in though
☐ Fully translated / except forums or user postings
    Trouble with menu items
☐ RSS feed (from EU source or Bg education maybe)
    RSS feed of SpecialEducationBulgaria itself
☐ How to use this site walkthrough "take a tour"
☐User photo gallery
    Trouble creating new database for the photo gallery
☐ Blogs for each participant (not private, searchable)
☐ Search website (Google, other?) in version 1.7
    Fulltext of all uploaded documents
    Sortable by document type (like Google desktop search)
☐ Events list (user updateable)
☐ Upgrade from Moodle 1.5.4 (worried about language compatibility / UTF-8)
    SU server not running MySQL 4.1.16 or higher (4.1.13)
    Use Windows 1251 character set not iso-8859-1 (latin)
☐ TENCompetence / special education competency development
☐ New logo
☐ Announcements block
☐ Whiteboard type workspace (e.g., SubEthaEdit)
☐ Drag and drop file uploads / moving possible?
☐ Activity / task list "a store of site improvements and events"
☐ Several themes to choose from
☐ Usability improvements
    Usability data document

Marketing plans

☐ Increase findability and search rank on search engines
☐ Link to / from other sites (moodle.org under Bulgaria already)
☐ List in BG spec ed journals and newsletter
☐ Marketed through SU and other Special Ed courses

Discussion guide (TENC)

1) ☐ Please give your candid reaction to the website as a whole.

2) ☐ In what ways might other open-source CMS programs a better choice for this application (e.g., Joomla, DRUPAL, or e107)?

3) ☐ Graphically, what are some suggestions for improving the website?

4) ☐ Is there anything that you would like to add that we have not discussed today. Was there anything that I forgot to ask?

Post interview notes (TENC)

Expert 1 Checklist (Moodle)

Area 1: Technology (TENC)

Technology

1 2 3 4 5 6 7 8 9 10

◄- ►

Inappropriate Appropriate

Compared to other CoP websites …	Disagree - - - - - Agree				
The basic features required for all online CoPs are provided.	1	2	3	4	5
The learning management system (LMS) used, Moodle, is the best choice for this application, e.g., versus a content management system (CMS) such as Drupal or Joomla.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 2: Visual Design (TENC)

Aesthetics / interface design
1 2 3 4 5 6 7 8 9 10
◄- ►
Displeasing Pleasing

Compared to other special education websites …	Disagree - - - - - Agree
The website logo is appropriate to the audience and purpose of site.	1 2 3 4 5
The website has a professional look.	1 2 3 4 5
Color is used appropriately.	1 2 3 4 5
The website has a consistent look.	1 2 3 4 5
The design of the web pages makes them easy to scan.	1 2 3 4 5
Other:	1 2 3 4 5
Other:	1 2 3 4 5

Comments:

Area 3: Organization (TENC)

Navigation

1	2	3	4	5	6	7	8	9	10
Difficult									Easy

Cognitive load

1	2	3	4	5	6	7	8	9	10
Unmanageable									Manageable

Compared to other special education websites …	Disagree - - - - - Agree				
From the home page, the purpose of the website is clear.	1	2	3	4	5
Menu items are organized logically.	1	2	3	4	5
The meanings of icons are clear.	1	2	3	4	5
Users do not get lost when navigating the website.	1	2	3	4	5
There is always a clear indication of your current location.	1	2	3	4	5
Links match the titles of the web pages to which they refer.	1	2	3	4	5
Important information is easy to find.	1	2	3	4	5
Participant profiles…………………………………...	1	2	3	4	5
Participant roles……………………………….…..	1	2	3	4	5
Website features……………………………….….	1	2	3	4	5
User agreement / disclaimer ……….…….….…….	1	2	3	4	5
Why should I become a member / why come back ……	1	2	3	4	5
Research project description……………	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 4: Functionality (TENC)

Ease of use

1 2 3 4 5 6 7 8 9 10

Difficult ◄----------► Easy

Overall functionality

1 2 3 4 5 6 7 8 9 10

Dysfunctional ◄----------► Functional

Compared to other CoP websites …	Disagree - - - - - Agree				
Registration is easy.	1	2	3	4	5
Web pages download quickly.	1	2	3	4	5
No error messages appear.	1	2	3	4	5
Other:	1	2	3	4	5
Other:	1	2	3	4	5

Comments:

Area 5: TENC and SEB (TENC)

Relevance to TENC objective #1

1 2 3 4 5 6 7 8 9 10

Irrelevant — Highly Relevant

"Methods and technologies for the creation, storage, use, and exchange of knowledge resources"

Relevance to TENC objective #2

1 2 3 4 5 6 7 8 9 10

Irrelevant — Highly Relevant

"Standards-based methods and tools for the creation, storage, use, and exchange of formal and informal learning activities and units of learning"

Relevance to TENC objective #3

1 2 3 4 5 6 7 8 9 10

Irrelevant — Highly Relevant

"Methods and technologies for the creation, storage, use, and exchange of formal and informal competence development programs"

Relevance to TENC objective #4

1 2 3 4 5 6 7 8 9 10

Irrelevant — Highly Relevant

"Models, methods and technologies for the creation, storage, use, and exchange of networks of competence development programs"

Relevance to TENC with proposed online course(s)

1 2 3 4 5 6 7 8 9 10

Irrelevant — Highly Relevant

Relevance to TENC with proposed ePortfolios

1 2 3 4 5 6 7 8 9 10

Irrelevant — Highly Relevant

Web-based questionnaire (English / Bulgarian)

Please complete this brief questionnaire to help with the development of the Special Education Bulgaria community. All responses are anonymous.

1) How did you find this website (you can choose more than one answer)?
   a. Received a letter
   b. Received an e-mail
   c. Searched the Internet
   d. A colleague told me
   e. Link from another website
   f. Other

2) Rate the following website features from 1 (least interested) to 10 (most interested):
   a. Discussion forums
   b. Chat
   c. Online library
   d. List of Internet links
   e. Special education glossary
   f. Calendar of events
   g. Online seminars
   h. Online courses
   i. Upload photos to a gallery
   j. Scheduled chat sessions with experts

3) I wish that the website or Special Education Bulgaria _____ (optional).
4) Did you know that you can upload documents to participant gallery?
5) How many times per week do you access this website (1, 2, 5, 10, …)?
6) Did you know that you can add terms to special education glossary?

7) I am MOST interested in the following special education areas (you can choose more than one answer):
   a. Hearing
   b. Intellectual disabilities
   c. Learning disabilities
   d. Multiple disabilities
   e. Physical disabilities
   f. Speech and language
   g. Vision

8) I feel alone or isolated in my work as a special educator.
   a. Strongly agree
   b. Agree
   c. Somewhat agree
   d. Somewhat disagree
   e. Disagree
   f. Strongly disagree

9) If you feel alone or isolated in your work as a special educator, why?
10) Did you know that you can edit the information in the SpecPedia?
11) Comments about anything related to Special Education Bulgaria or this questionnaire (optional):

Thank you for completing the questionnaire.

Моля попълнете тази кратка анкета, за да помогнете за развитието на формираното чрез Специална Педагогика България общество. Всички отговори са анонимни.

1) Как открихте този уебсайт (можете да изберете повече от един отговор)?
   a. Получих писмо
   b. Получих имейл
   c. При търсене в интернет
   d. Научих от колега
   e. От линк на друг уебсайт
   f. Други

2) Оценете следните възможности на уебсайта от 1 (най-безинтересно) to 5 (най-интересно):
   a. Дискусионен форум
   b. Чат
   c. Библиотека он-лайн
   d. Списък на интернет линкова
   e. Речник по специална педагогика
   f. Календар на важни събития
   g. Онлайн семинари
   h. Онлайн курсове
   i. Зареди снимки в галерията
   j. Уговори си чат-среща с експерти

3) Бих предложил уебсайтът Специална Педагогика България да ...../ по желание/
4) Знаехте ли, че можете да зареждате документи в Библиотеката?
5) Колко пъти на седмица посещавате тази уебстраница (1, 2, 5, 10, …)?
6) Знаехте ли, че можете да допълвате термини в речника по специална педагогика?

7) Моите интереси в областта на специалната педагогика са предимно в сферата на:/можете да изберете повече от един отговор/
   a. Слухови
   b. Интелектуална недостатъчност
   c. Обучителни трудности
   d. Множество увреждания
   e. Физическа увреждания
   f. Говорни и езикови нарушения
   g. Зрителни

8) Чувствам се пренебрегван и изолиран, работейки като специален педагог.
   a. Напълно съм съгласен
   b. Съгласен съм
   c. Донякъде съм съгласен
   d. Не съм напълно съгласен
   e. Не съм съгласен
   f. Категорично не съм съгласен

9) Ако се чувствате пренебрегван и изолиран, работейки като специален педагог – защо?
10) Знаехте ли, че можете да редактирате информациите в СпецПедията (bg.wikipedia.org)?
11) Имате ли коментари относно Специална Педагогика България или тази анкета /по желание/

Благодарим, че попълнихте анкетата.

Web-based survey questions (English / Bulgarian)

What is your professional or academic role in the special education field? Are you the parent of a special needs student?

a. Student
b. Student and teacher
c. Teacher
d. Professor / lecturer
e. Nonprofit employee
f. Nonprofit or government employee and teacher
g. Specialist
h. Parent of student with special needs
i. Parent and teacher

What is your secondary role?

a. Student
b. Student and teacher
c. Teacher
d. Professor / lecturer
e. Nonprofit employee
f. Nonprofit or government employee and teacher
g. Specialist
h. Parent of student with special needs
i. Parent and teacher

What is your primary area of interest / expertise in the special education field?

a. Hearing
b. Intellectual disabilities
c. Learning disabilities
d. Multiple disabilities
e. Physical disabilities
f. Speech and language
g. Vision

What is your secondary area of interest / expertise in the special education field?

a. Hearing
b. Intellectual disabilities
c. Learning disabilities
d. Multiple disabilities
e. Physical disabilities
f. Speech and language
g. Vision

Каква професионална или академична длъжност изпълнявате в сферата на специалната педагогика? Родител ли сте на ученик със специални нужди?

a. Студент
b. Студент и учител
c. Учител
d. Преподавател/ Научен работник
e. Държавен служител
f. Служител в организация с идеална цел
g. Специалист
h. Родител на ученик със специални нужди
i. Родител и учител

Каква е Вашата втора длъжност?

a. Студент
b. Студент и учител
c. Учител
d. Преподавател/ Научен работник
e. Държавен служител
f. Служител в организация с идеална цел
g. Специалист
h. Родител на ученик със специални нужди
i. Родител и учител

Каква е Вашата тясна специализация или към коя сфера от специалната педагогика е насочен основно Вашият интерес?

a. Слухови
b. Интелектуална недостатъчност
c. Обучителни трудности
d. Множество увреждания
e. Физическа увреждания
f. Говорни и езикови нарушения
g. Зрителни

Каква е Вашата втора специалност/ имате ли и друга сфера на интерес в областта на специалната педагогика?

a. Слухови
b. Интелектуална недостатъчност
c. Обучителни трудности
d. Множество увреждания
e. Физическа увреждания
f. Говорни и езикови нарушения
g. Зрителни

Email questionnaire (English / Bulgarian)

Dear Special Education Bulgaria member:

My name is Rob Peterson. I am one of the researchers working on Special Education Bulgaria. I will be in Bulgaria until the end of September (2007) to investigate how the Special Education Bulgaria website is being used.

I have prepared a short questionnaire for you to fill out and return by e-mail. If you would like to meet in person to talk about the website, please let me know. I have an intermediate level with the Bulgarian language, but if you speak some English, that would be preferable. Though primarily in Sofia, I am available to travel to other locations.

Regards,
Rob Peterson
0894242353 (BG Globul)
www.specialeducationbulgaria.com

1. What is your job title? In what area of special education do you work? If you are student, in what area of special education do you study?

2. In what city do you work? If you are a student, in what city do you study?

3. Who have you met through Special Education Bulgaria? Why did you meet? Do you plan to speak with them again in the future? If you have not met anyone, who would you like to meet?

4. On a scale of 1 to 10, to what extent do you feel like just another user of Special Education Bulgaria or part of a community? (Delete all unused numbers.)

Just another user...1...2…3...4…5...6…7...8…9...10…member of community

5. In what ways has Special Education Bulgaria helped you do your job better? If you are a student, in what ways has it helped you with school?

6. Special Education Bulgaria would be more useful to me in my profession or as a student if …

7. My greatest complaint(s) about Special Education Bulgaria is/are …

8. On a scale of 1 (low) to 10 (high), how would you rate you skill with using the Internet. (Delete all unused numbers.)

Unskilled...1...2…3...4…5...6…7...8…9...10…highly skilled

9. Other comments …

Уважаеми участници от Специална Педагогика България,

Казвам се Роб Питърсън. Аз съм един от изследователите на Специална Педагогика България в Уолонгонгски университет, Австралия и Софийски университет. В България съм да изследвам уебстраница на Специална педагогика която аз поддържам. Бих желал да отговорите на няколко мои въпроса свързани с уебстраницата, което ще спомогне за нейното усъвършенстване. Вашите отговори можете да изпратите на този емайл. В България ще бъда до края на Септември тази година. Ако вие имате въпроси или интерес към уебстраницата можете да се свържете с мен. Аз говоря български език средно ниво. В момента живея в София, но мога да пътувам до други места.

Роб
0894242353 (BG Globul)
www.specialeducationbulgaria.com

Въпроси:

1. Каква е вашата специализация в областта на специална педагогика? Студент ли сте, каква е вашата специалност?

2. В кой град работите? Ако сте студент, в кой град учите?

3. Познавате ли някой от Специална Педагогика България? Ако познавате, как се свързахте с него? Говорите ли все още с него? Ако не познавате никой от Специална Педагогика България и искате, какъв човек би представлявал интерес за вас?

4. Определете с числа от 1 до 10 как се чувствате, когато използвате Специална Педагогика България: като още един човек използващ страницата
(1)…(2)…(3)…(4)…(5)…(6)…(7)…(8)…(9)…(10) като човек намиращ се в общество.

5. С какво Специална Педагогика България Ви улеснява при работа? Ако сте студент, как Ви помага.

6. Как Специална Педагогика България ще бъде по-полезна за вас?

7. Какво Ви затруднява при работа в уебстраница Специална Педагогика България?

8. Определете с числа от 1 до 10 умението си за работа с Интернет: аз имам най-ниско ниво
(1)…(2)…(3)…(4)…(5)…(6)…(7)…(8)…(9)…(10) аз имам най-високо ниво.

9. Други коментари …

Feedback (English / Bulgarian)

Anonymous feedback

Use this form to make comments about anything related to Special Education Bulgaria.
Postings are e-mailed to the lead moderator and administrator.

All postings are anonymous.

If you would like us to reply, and do not care if your feedback is anonymous, please include your e-mail address.

Анонимна обратна информация

Използвайте тази форма, за да направите коментари относно tази уеб-страница. Вашите мнения ще бъдат изпратени чрез имейл до водещия модератор и администратор.

Всички публикувани мнения са анонимни.

Ако искате да Ви отговорим и не държите вашите коментари да са анонимни, моля дайте вашия имейл адрес.

C. PARTICIPANT INFORMATION PACKETS

Participant information packet, Phase 1 (English / Bulgarian)

Letter of Invitation

Research Title: Developing an Internet-Based Community for Special Education in Bulgaria

Dear Sir or Madam:

You are invited to participate in a research study regarding the Internet, special education, and the development of online communities. An online community is as a group whose members are connected by the Internet.

In this case, the online community will be connected by a website. The website will have information about special education and will provide a discussion forum—a place where people can go on the Internet to exchange text messages of common interest. It is expected that teachers, special education experts, education researchers, and representatives from Bulgarian education organizations will participate in the online community.

Please keep in mind that it is not a requirement that you already have knowledge of special education practices. Your professional involvement with education may be the only reason that you were selected.

The goals of the research project are to:

1. Investigate the incorporation of special education research with practice in Bulgaria.
2. Investigate Bulgarian cultural contexts regarding special education.
3. Investigate the feasibility of implementing Internet-based instruction in Bulgaria.
4. Design, implement, and evaluate a useful online community for the Bulgarian education system.

For information specific to your involvement in this study, please refer to the Participant Information Sheet, attached.

Sincerely,

Rob Peterson
Chief Investigator

rp765@uow.edu.au
+61 2 4221 5249 (office)
+61 2 4221 3961 (general)

Тема на проучването: Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Уважаема Госпожо/Господине:

Поканен/а сте да участвувате в академичен проект за създаване и развитие онлайн общество, свързано с проблемите на специалната педагогика. Членовете на това общество ще контактуват чрез Интернет .

В случая, членовете на онлайн обществото ще бъдат свързани чрез специализирана уебстраница в Интернет. На тази уебстраница ще бъде предоставена информация в областта на специалната педагогика, а също така ще бъде и поле за дискусии – място, където всички заинтересовани ще могат да си разменят съобщения, свързани с проблемите на специалната педагогика. Очакваме учители, експерти в сферата на специалната педагогика, научни работници и представители на различни български педагогически институции да участват в това онлайн общество.

Моля имайте пред вид, че не е необходимо да имате академична подготовка в областта на специалната педагогика. Фактът, че професионално сте свързани със сферата на образованието, може да е причината, поради която сте поканени да участвате в това общество.

Целите на този академичен проект са:

1. Проучване на връзката между научните разработки в областта на специалната педагогика и образователната практика в България.
2. Проучване на българските постижения в областта на специалната педагогика.
3. Проучване на възможността за обучение чрез Интернет в България.
4. Създавене и развитие на полезно за българската образователна система онлайн общество.

За по-специфична информация, свързана с Вашия ангажимент към това проучване, моля прочетете прикрепената към тази покана Информация за участника.

С уважение,
Роб Питърсон,
Главен изследовател

rp765@uow.edu.au
+61 2 4221 5249
+61 2 4221 3961

Letter of Invitation to Manager

Research Title: Developing an Internet-Based Community for Special Education in Bulgaria

Dear Sir or Madam:

I would like to invite _____, your employee, to participate in a research study regarding the Internet, special education, and the development of online communities. An online community is as a group whose members are connected by the Internet.

In this case, the online community will be connected by a website. The website will have information about special education and will provide a discussion forum—a place where people can go on the Internet to exchange text messages of common interest. It is expected that teachers, special education experts, education researchers, and representatives from Bulgarian education organizations will participate in the online community.

Please keep in mind that it is not a requirement that your employee already have knowledge of special education practices. Their professional involvement with education may be the only reason that they were selected.

The goals of the research project are to:

1. Investigate the incorporation of special education research with practice in Bulgaria.
2. Investigate Bulgarian cultural contexts regarding special education.
3. Investigate the feasibility of implementing Internet-based instruction in Bulgaria.
4. Design, implement, and evaluate a useful online community for the Bulgarian education system.

For information specific to your involvement in this study, please refer to the Participant Information Sheet, attached.

Sincerely,

Rob Peterson
Chief Investigator

rp765@uow.edu.au
+61 2 4221 5249 (office)
+61 2 4221 3961 (general)

Тема на проучването: Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Уважаема Госпожо / Господине

Бих искал да поканя ....., който е ваш подчинен, да участвува в академичен проект, свързан с областта на специалната педагогика и създаване на онлайн общество, ангажирано с проблемите на децата със специални образователни нужди. Членовете на тази общност ще контактуват чрез Интернет.

В случая, членовете на онлайн обществото ще бъдат свързани чрез специализирана уебстраница в Интернет. На тази уебстраница ще бъде предоставена информация в областта на специалната педагогика, а също така ще бъде и поле за дискусии – място, където всички заинтересовани ще могат да си разменят съобщения, свързани с проблемите на специалната педагогика. Очакваме учители, експерти в сферата на специалната педагогика, научни работници и представители на различни български педагогически институции да участват в това онлайн общество.

Моля имайте пред вид, че вашият подчинен не е необходимо да има академична подготовка в областта на специалната педагогика. Фактът, че професионално е свързан със сферата на образованието, може да е причината, поради която той/ тя е избран/а да участва в тази общност.

Целите на този академичен проект са:

1. Проучване на връзката между научните разработки в областта на специалната педагогика и образователната практика в България.
2. Проучване на българските постижения в областта на специалната педагогика.
3. Проучване на възможността за обучение чрез Интернет в България.
4. Създавене и развитие на полезна за българската образователна система Интернет-общност.

За по-специфична информация, свързана с Вашия ангажимент към това проучване, моля прочетете прикрепената към тази покана Информация за участника.

С уважение,
Роб Питърсон,
Главен изследовател

rp765@uow.edu.au
+61 2 4221 5249
+61 2 4221 3961

Participant Information Sheet

Research title:	Developing an Internet-Based Community for Special Education in Bulgaria
Time investment:	20 hours
Length of study:	9 months
Location:	At participant's desired location in Bulgaria, on the Internet, and by e-mail
Participant roles:	September/October 2005 • Two 30-45 minute interviews at participant's desired location • Discuss historical and cultural contexts of special education in Bulgaria • Internet-searching task during first interview • Evaluation of special education knowledge during second interview October 2005 - May 2006 • Participate in discussion forums available on the Internet • Brief anonymous Internet-based survey • Final evaluation of special education knowledge by e-mail
Audio taping:	Personal interviews will be audio taped. Transcriptions will be sent to participant for review.
Online discussion forums:	Username and password will be required to access discussion forums. Discussion forum communication will be monitored by researchers.
Confidentiality:	Participant confidentiality will be maintained at all times. No personally sensitive questions will be asked during the study. All research data will be stored in a locked file cabinet or on a password-protected computer.
Publication:	Study results will be published in a bound thesis and in research articles. No names of people, specific places, or facilities will be mentioned in published documents. You will not be identifiable in the publications.
Access to results:	If requested, a summary of results will be provided.
Withdrawing from study:	You are free to withdraw data or withdraw completely from this study at anytime and without giving a reason. You are free to refuse to participate with any part of the study. Refusal to participate will not impact existing relationships, if any, with the researchers or their institutions.

Chief investigator:

- **Rob Peterson**, Candidate for Master of Education (Research), University of Wollongong, Faculty of Education, Bldg 23.106, Wollongong, NSW 2522 AUSTRALIA, rp765@uow.edu.au, +61 2 4221 5249 (office), +61 2 4221 3961 (main), +61 2 4221 4657 (Fax)

Other investigators:

- Jan Herrington, Associate Professor, University of Wollongong, Faculty of Education, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
- Deslea Konza, Senior Lecturer, University of Wollongong, Faculty of Education, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
- Mira Tzvetkova-Arsova, Professor, Sofia University, Department of Special Education, 69A Shipchensky Prohod Str., Sofia 1574 BULGARIA, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

ИНФОРМАЦИЯ ЗА УЧАСТНИКА

Тема на проучването	Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България
Ангажирано време	20 часа
Продължителност	9 месеца
Място	На избрано от участника място, чрез интернет или имейл.
Ангажименти на участника:	Септември/Октомври 2005 • Две интервюта по 30-45 минути на избрано от участника място • Обсъждане на историческите и културните постижения в областта на специалната педагогика в България • Задача за търсене в интернет по време на първото интервю • Оценка на специалната педагогическа компетентност по време на второто интервю Октомври 2005 – Май 2006 • Участие в онлайн дискусиите • Кратка анонимна анкета, проведена чрез Интернет • Крайна оценка на специалната педагогическа компетентност чрез имейл
Аудио запис:	Индивидуалните интервюта ще бъдат записвани на аудионосител. Писмен запис на интервюто ще бъде изпратен на участника за преглеждане.
Онлайн дискусия	Име на потребителя и парола ще се изискват за достъп до дискусионния форум. Изследователите ще следят развитието на онлайн дискусиите.
Поверителност:	Информацията, предоставена от участниците, ще бъде поверителна през цялото време на проучването. Няма да бъдат задавани персонални въпроси по време на изследователската дейност. Събранните данни ще бъдат съхранявани отговорно в заключен сейф или в защитен със специална парола компютър.
Публикация:	Резултатите от проучването ще бъдат публикувани като едно цялостно издание, а също и в отделни статии. Няма да се споменават имена на хора, специфични места или институции в публикуваните документи. Вие няма да бъдете разпознат/а в тези публикации.
Резултатите:	При заявка, синтезиран вариант на събраните разултати може да ви бъде предоставен.
Оттегляне от проучването:	Свободен/а сте да оттеглите данни или напълно да се оттеглите от този изследователски проект по всяко време, без да се ангажирате с изтъкване на причините за това решение. Свободен/а сте да откажете участие в която и да е част от това проучване. Отказът ви за участие няма да се отрази на съществуващите взаимоотношения /ако има такива/ с изследователите или институциите, които те представят.

Главен изследовател:
Роб Питърсон (Rob Peterson), Кандидат за Магистърска степен по педагогика, Уолонгонгски Университет, Педагогически факултет, Bldg 23.106,Wollongong, NSW 2522 AUSTRALIA, rp765@uow.edu.au, +61 2 4221 5249 (офис), +61 2 4221 3961 (централа), +61 2 4221 4657 (факс)

Други изследователи:
- Доц. Жан Херингтон (Jan Herrington), Уолонгонгски университет, Педагогически факултет, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
- Деслеа Конза (Deslea Konza), старши лектор, Уолонгонгски университет, Педагогически факултет, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
- Проф. Мира Цветкова – Арсова, Софийски университет, Катедра Специална педагогика, 69А, Шипченски проход, София, 1574, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Consent Form

Research Title: Developing an Internet-Based Community for Special Education in Bulgaria

Please answer the following questions by circling your response*:*

Have you read the information sheet about this study?	YES	NO
Have you been able to ask questions about this study either verbally or by e-mail?	YES	NO
Have you received answers to all your questions?	YES	NO
Do you understand that you are free to withdraw from this study:		
• At any time?	YES	NO
• Without giving a reason for withdrawing?	YES	NO
Do you agree to take part in this study?	YES	NO

Signature of participant:..... Date:.....

Name (block letters):.....

Please mail or fax this one-page consent form to:

Rob Peterson
University of Wollongong
Faculty of Education, Bldg 23
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

Upon receipt of this consent form, one of the study's investigators will contact you by e-mail or postal mail to arrange for two 30-45 minute interviews to take place between September 15 and October 8, 2005.

Please list your e-mail address: .....

If you would like to be contacted by postal mail or do not have an e-mail address, please list your postal address:

.....
.....
.....
.....

Direct questions concerning the project to Rob Peterson or any of the investigators listed on the Participant Information Sheet.

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

Тема на проучването: Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Моля отговорете на следните въпроси чрез ограждане на вашия отговор:

Прочетохте ли приложената "Информация за участника" за характера на това проучване?	ДА	НЕ
Имахте ли възможност да задавате въпроси относно това проучвне устно или чрез имейл?	ДА	НЕ
Получихте ли отговор на всичките си въпроси?	ДА	НЕ

Разбрали ли сте, че имате право да се оттеглите от това проучване:

• По всяко време?	ДА	НЕ
• Без да е нужно да обяснявате причините за оттеглянето си?	ДА	НЕ
Съгласен/а ли сте да участвувате в това проучване?	ДА	НЕ

Подпис на участника..... Дата.....

Име /с печатни букви/ .....

Моля изпратете по пощата или чрез факс това споразумение до

Rob Peterson
University of Wollongong
Faculty of Education, Bldg 23
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

След получаване на това подписано от вас споразумение, някой от изследователите ще се свърже с Вас чрез имейл или обикновена поща, за да уговори две 35-40 минутни интервюта, които ще бъдат проведени между 15 септември и 8 октомври 2005 година.

Моля напишете четливо вашия имейл адрес: .....

Ако искате да контактуваме чрез обикновена поща или нямате имейл адрес, моля напишете своя пощенски адрес

.....
.....
.....
.....

Ако имате въпроси, свързани със самия изследователски проект, моля отправете ги към Роб Питърсон (Rob Peterson) или към някой от останалите изследователи, посочени в "Информация за участника".

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Consent Form for Manager

Research Title: Developing an Internet-Based Community for Special Education in Bulgaria

Please answer the following questions by circling your response*:*

Have you read the information sheet about this study?	YES	NO
Have you been able to ask questions about this study either verbally or by e-mail?	YES	NO
Have you received answers to all your questions?	YES	NO
Do you understand that you are free to withdraw your employee from this study:		
• At any time?	YES	NO
• Without giving a reason for withdrawing?	YES	NO
Do you allow your employee to take part in this study?	YES	NO

Signature of manager: ..... Date:.....

Name (block letters): .....

Name of employee (block letters):.....

Please mail or fax this one-page consent form to:

Rob Peterson
University of Wollongong
Faculty of Education, Bldg 23
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

Upon receipt of this consent form, one of the study's investigators will contact your employee by e-mail or postal mail to arrange for two 30-45 minute interviews to take place between September 15 and October 8, 2005.

If you would like to be notified when your employee is contacted, please list your e-mail address: .....

Direct questions concerning the project to Rob Peterson or any of the investigators listed on the Participant Information Sheet.

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

Тема на проучването: Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Моля отговорете на следните въпроси чрез ограждане на вашия отговор:

Прочетохте ли приложената "Информация за участника" за характера на това проучване?	ДА	НЕ
Имахте ли възможност да задавате въпроси за това проучвне устно или чрез имейл?	ДА	НЕ
Получихте ли отговор на всичките си въпроси?	ДА	НЕ
Разбрали ли сте, че имате право да оттеглите вашия подчинен от това проучване:		
• По всяко време?	ДА	НЕ
• Без да е нужно да обяснявате причините за оттеглянето му/й?	ДА	НЕ
Съгласен/а ли сте вашият подчинен да участвува в това проучване?	ДА	НЕ

Подпис на работодателя ..... Дата .....

Име /с печатни букви/ .....

Име на подчинения /с печатни букви/ .....

Моля изпратете по пощата или чрез факс това споразумение до

Rob Peterson
University of Wollongong
Faculty of Education, Bldg 23
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

След получаване на това подписано от вас споразумение, някой от изследователите ще се свърже с Вашия подчинен чрез имейл или обикновена поща, за да уговори две 35-40 минутни интервюта, които ще бъдат проведени между 15 септември и 8 октомври 2005 година.

Ако искате да бъдете уведомен/а при осъществяване на контакт с вашия подчинен, моля напишете четливо вашия имейл адрес .....

Ако имате въпроси, свързани със самия изследователски проект, моля отправете ги към Роб Питърсон (Rob Peterson) или към някой от останалите изследователи, посочени в "Информация за участника".

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Participant information packet, Phase 2 (English / Bulgarian)

Letter of Invitation

Research Title: Developing an Internet-Based Community for Special Education in Bulgaria

Dear Sir or Madam:

You are invited to participate in a research study regarding the Internet, special education, and the development of online communities. An online community is as a group whose members are connected by the Internet.

In this case, the online community will be connected by a website. The website will have information about special education and will provide a discussion forum—a place where people can go on the Internet to exchange text messages of common interest. It is expected that teachers, special education experts, education researchers, parents, and representatives from Bulgarian education organizations will participate in the online community.

Please keep in mind that it is not a requirement that you already have knowledge of special education practices. Your professional involvement with education may be the only reason that you were selected.

The goals of the research project are to:

1. Investigate Bulgarian cultural contexts regarding special education.
2. Investigate the feasibility of implementing Internet-based instruction in Bulgaria.
3. Design, implement, and evaluate a useful online community for the Bulgarian education system.

For information specific to your involvement in this study, please refer to the Participant Information Sheet, attached.

Sincerely,

Rob Peterson
Chief Investigator

rp765@uow.edu.au
+61 2 4221 5249 (office)
+61 2 4221 3961 (general)

Тема на проучването: Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Уважаема Госпожо/Господине:

Поканен/а сте да участвувате в академичен проект за създаване и развитие онлайн общество, свързано с проблемите на специалната педагогика. Членовете на това общество ще контактуват чрез Интернет.

В случая, членовете на онлайн обществото ще бъдат свързани чрез специализирана уебстраница в Интернет. На тази уебстраница ще бъде предоставена информация в областта на специалната педагогика, а също така ще бъде и поле за дискусии – място, където всички заинтересовани ще могат да си разменят съобщения, свързани с проблемите на специалната педагогика. Очакваме учители и изследователи в областта на специалната педагогика, управленчески кадри в сферата на образованието, родители и всички заинтересовани да участват в това онлайн общество.

Моля имайте пред вид, че не е необходимо да имате академична подготовка в областта на специалната педагогика. Фактът, че професионално сте свързани със сферата на образованието, може да е причината, поради която сте поканени да участвате в това общество.

Целите на този академичен проект са:

1. Проучване на българските постижения в областта на специалната педагогика.
2. Проучване на възможността за обучение чрез Интернет в България.
3. Създавене и развитие на полезно за българската образователна система онлайн общество.

За по-специфична информация, свързана с Вашия ангажимент към това проучване, моля прочетете прикрепената към тази покана Информация за участника.

С уважение,

Роб Питърсон,
Главен изследовател

rp765@uow.edu.au
+61 2 4221 5249
+61 2 4221 3961

Letter of Invitation for Manager

Research Title: Developing an Internet-Based Community for Special Education in Bulgaria

Dear Sir or Madam:

I would like to invite _____, your employee, to participate in a research study regarding the Internet, special education, and the development of online communities. An online community is as a group whose members are connected by the Internet.

In this case, the online community will be connected by a website. The website will have information about special education and will provide a discussion forum—a place where people can go on the Internet to exchange text messages of common interest. It is expected that teachers, special education experts, education researchers, parents, and representatives from Bulgarian education organizations will participate in the online community.

Please keep in mind that it is not a requirement that your employee already have knowledge of special education practices. Their professional involvement with education may be the only reason that they were selected.

The goals of the research project are to:

1. Investigate Bulgarian cultural contexts regarding special education.
2. Investigate the feasibility of implementing Internet-based instruction in Bulgaria.
3. Design, implement, and evaluate a useful online community for the Bulgarian education system.

For information specific to your involvement in this study, please refer to the Participant Information Sheet, attached.

Sincerely,

Rob Peterson
Chief Investigator

rp765@uow.edu.au
+61 2 4221 5249 (office)
+61 2 4221 3961 (general)

Тема на проучването: Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Уважаема Госпожо / Господине

Бих искал да поканя ....., който е ваш подчинен, да участвува в академичен проект, свързан с областта на специалната педагогика и създаване на онлайн общество, ангажирано с проблемите на децата със специални образователни нужди. Членовете на тази общност ще контактуват чрез Интернет.

В случая, членовете на онлайн обществото ще бъдат свързани чрез специализирана уебстраница в Интернет. На тази уебстраница ще бъде предоставена информация в областта на специалната педагогика, а също така ще бъде и поле за дискусии – място, където всички заинтересовани ще могат да си разменят съобщения, свързани с проблемите на специалната педагогика. Очакваме учители и изследователи в областта на специалната педагогика, управленчески кадри в сферата на образованието, родители и всички заинтересовани да участват в това онлайн общество.

Моля имайте пред вид, че вашият подчинен не е необходимо да има академична подготовка в областта на специалната педагогика. Фактът, че професионално е свързан със сферата на образованието, може да е причината, поради която той/ тя е избран/а да участва в тази общност.

Целите на този академичен проект са:

1. Проучване на българските постижения в областта на специалната педагогика.
2. Проучване на възможността за обучение чрез Интернет в България.
3. Създавене и развитие на полезна за българската образователна система Интернет-общност.

За по-специфична информация, свързана с Вашия ангажимент към това проучване, моля прочетете прикрепената към тази покана Информация за участника.

С уважение,

Роб Питърсон,
Главен изследовател

rp765@uow.edu.au
+61 2 4221 5249
+61 2 4221 3961

Participant Information Sheet, Usability Session

Research title:	Developing an Internet-Based Community for Special Education in Bulgaria
Time investment:	1 hour
Location:	At participant's desired location
Participant role:	• One interview • Internet-searching task
Video taping:	Personal interviews will be video taped.
Confidentiality:	Participant confidentiality will be maintained at all times. No personally sensitive questions will be asked during the study. All research data will be stored in a locked file cabinet or on a password-protected computer.
Publication:	Study results will be published in a bound thesis and in research articles. No names of people, specific places, or facilities will be mentioned in published documents. You will not be identifiable in the publications.
Access to results:	If requested, a summary of results will be provided.
Withdrawing from study:	You are free to withdraw data or withdraw completely from this study at anytime and without giving a reason. You are free to refuse to participate with any part of the study. Refusal to participate will not impact existing relationships, if any, with the researchers or their institutions.

Chief investigator:

- **Rob Peterson**, Candidate for Master of Education (Research), University of Wollongong, Faculty of Education, Wollongong, NSW 2522 AUSTRALIA, rp765@uow.edu.au, +61 2 4221 3961 (phone), +61 2 4221 4657 (Fax)

Other investigators:

- Jan Herrington, Associate Professor, University of Wollongong, Faculty of Education, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
- Deslea Konza, Senior Lecturer, University of Wollongong, Faculty of Education, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
- Mira Tzvetkova-Arsova, Professor, Sofia University, Department of Special Education, 69A Shipchensky Prohod Str., Sofia 1574 BULGARIA, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

ИНФОРМАЦИЯ ЗА УЧАСТНИКА, ИЗПОЛЗВАЕМ ПРОУЧВАНЕ

Тема на проучването:	Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България
Ангажирано време:	1 час
Място:	На избрано от участника място
Ангажименти на участника:	• Един интервюта • Задача за търсене в интернет
Видио запис:	Индивидуалните интервюта ще бъдат записвани на видионосител.
Поверителност:	Информацията, предоставена от участниците, ще бъде поверителна през цялото време на проучването. Няма да бъдат задавани персонални въпроси по време на изследователската дейност. Събранните данни ще бъдат съхранявани отговорно в заключен сейф или в защитен със специална парола компютър.
Публикация:	Резултатите от проучването ще бъдат публикувани като едно цялостно издание, а също и в отделни статии. Няма да се споменават имена на хора, специфични места или институции в публикуваните документи. Вие няма да бъдете разпознат/а в тези публикации.
Резултатите:	При заявка, синтезиран вариант на събраните разултати може да ви бъде предоставен.
Оттегляне от проучването:	Свободен/а сте да оттеглите данни или напълно да се оттеглите от този изследователски проект по всяко време, без да се ангажирате с изтъкване на причините за това решение. Свободен/а сте да откажете участие в която и да е част от това проучване. Отказът ви за участие няма да се отрази на съществуващите взаимоотношения /ако има такива/ с изследователите или институциите, които те представят.

Главен изследовател:

- **Роб Питърсон (Rob Peterson)**, Кандидат за Магистърска степен по педагогика, Уолонгонгски Университет, Педагогически факултет,Wollongong, NSW 2522 AUSTRALIA, rp765@uow.edu.au, +61 2 4221 3961 (централа), +61 2 4221 4657 (факс)

Други изследователи:

- Доц. Жан Херингтон (Jan Herrington), Уолонгонгски университет, Педагогически факултет, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
- Деслеа Конза (Deslea Konza), старши лектор, Уолонгонгски университет, Педагогически факултет, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
- Проф. Мира Цветкова – Арсова, Софийски университет, Катедра Специална педагогика, 69А, Шипченски проход, София, 1574, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Participant Information Sheet, Personal Interview

Research title:	Developing an Internet-Based Community for Special Education in Bulgaria
Time investment:	30 hours
Length of study:	20 months
Location:	At participant's desired location in Bulgaria, on the Internet, and by e-mail
Participant roles:	May 2006 • One 45 minute interview • Discuss historical and cultural contexts of special education in Bulgaria • Internet-searching task June 2006 - December 2007 • Participate in discussion forums available on the Internet • Brief anonymous Internet-based survey
Audio taping:	Personal interviews will be audio taped. Transcriptions will be sent to participant for review.
Online discussion forums:	Username and password will be required to access discussion forums. Discussion forum communication will be monitored by researchers.
Confidentiality:	Participant confidentiality will be maintained at all times. No personally sensitive questions will be asked during the study. All research data will be stored in a locked file cabinet or on a password-protected computer.
Publication:	Study results will be published in a bound thesis and in research articles. No names of people, specific places, or facilities will be mentioned in published documents. You will not be identifiable in the publications.
Access to results:	If requested, a summary of results will be provided.
Withdrawing from study:	You are free to withdraw data or withdraw completely from this study at anytime and without giving a reason. You are free to refuse to participate with any part of the study. Refusal to participate will not impact existing relationships, if any, with the researchers or their institutions.

Chief investigator:

- **Rob Peterson**, Candidate for Master of Education (Research), University of Wollongong, Faculty of Education, Wollongong, NSW 2522 AUSTRALIA, rp765@uow.edu.au, +61 2 4221 3961 (main), +61 2 4221 4657 (Fax)

Other investigators:

- Jan Herrington, Associate Professor, University of Wollongong, Faculty of Education, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
- Deslea Konza, Senior Lecturer, University of Wollongong, Faculty of Education, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
- Mira Tzvetkova-Arsova, Professor, Sofia University, Department of Special Education, 69A Shipchensky Prohod Str., Sofia 1574 BULGARIA, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

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ИНФОРМАЦИЯ ЗА УЧАСТНИКА, ИНТЕРВЮТА

Тема на проучването	Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България
Ангажирано време	30 часа
Продължителност	20 месеца
Място	На избрано от участника място, чрез интернет или имейл.
Ангажименти на участника:	Май 2006 • Един интервюта по 45 минути • Обсъждане на историческите и културните постижения в областта на специалната педагогика в България • Задача за търсене в интернет Юни 2006 – Декември 2007 • Участие в онлайн дискусиите • Кратка анонимна анкета, проведена чрез Интернет
Аудио запис:	Индивидуалните интервюта ще бъдат записвани на аудионосител. Писмен запис на интервюто ще бъде изпратен на участника за преглеждане.
Онлайн дискусия	Име на потребителя и парола ще се изискват за достъп до дискусионния форум. Изследователите ще следят развитието на онлайн дискусиите.
Поверителност:	Информацията, предоставена от участниците, ще бъде поверителна през цялото време на проучването. Няма да бъдат задавани персонални въпроси по време на изследователската дейност. Събранните данни ще бъдат съхранявани отговорно в заключен сейф или в защитен със специална парола компютър.
Публикация:	Резултатите от проучването ще бъдат публикувани като едно цялостно издание, а също и в отделни статии. Няма да се споменават имена на хора, специфични места или институции в публикуваните документи. Вие няма да бъдете разпознат/а в тези публикации.
Резултатите:	При заявка, синтезиран вариант на събраните разултати може да ви бъде предоставен.
Оттегляне от проучването:	Свободен/а сте да оттеглите данни или напълно да се оттеглите от този изследователски проект по всяко време, без да се ангажирате с изтъкване на причините за това решение. Свободен/а сте да откажете участие в която и да е част от това проучване. Отказът ви за участие няма да се отрази на съществуващите взаимоотношения /ако има такива/ с изследователите или институциите, които те представят.

Главен изследовател:

- **Роб Питърсон (Rob Peterson)**, Кандидат за Магистърска степен по педагогика, Уолонгонгски Университет, Педагогически факултет, Wollongong, NSW 2522 AUSTRALIA, rp765@uow.edu.au, +61 2 4221 3961 (централа), +61 2 4221 4657 (факс)

Други изследователи:

- Доц. Жан Херингтон (Jan Herrington), Уолонгонгски университет, Педагогически факултет, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
- Деслеа Конза (Deslea Konza), старши лектор, Уолонгонгски университет, Педагогически факултет, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
- Проф. Мира Цветкова – Арсова, Софийски университет, Катедра Специална педагогика, 69А, Шипченски проход, София, 1574, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Consent Form

Research Title: Developing an Internet-Based Community for Special Education in Bulgaria

Please answer the following questions by circling your response*:*

Have you read the information sheet about this study?	YES	NO
Have you been able to ask questions about this study either verbally or by e-mail?	YES	NO
Have you received answers to all your questions?	YES	NO
Do you understand that you are free to withdraw from this study:		
• At any time?	YES	NO
• Without giving a reason for withdrawing?	YES	NO
Do you agree to take part in this study?	YES	NO

Signature of participant:..... Date:.....

Name (block letters):.....

Please mail or fax this one-page consent form to:

Rob Peterson
University of Wollongong
Faculty of Education
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

Upon receipt of this consent form, one of the study's investigators will contact you by e-mail or postal mail to arrange a time **between May 8 and 26, 2006**.

Please list your e-mail address: .....

If you would like to be contacted by postal mail or do not have an e-mail address, please list your postal address:

.....
.....
.....
.....

Direct questions concerning the project to Rob Peterson or any of the investigators listed on the Participant Information Sheet.

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

Тема на проучването: Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Моля отговорете на следните въпроси чрез ограждане на вашия отговор:

Прочетохте ли приложената "Информация за участника" за характера на това проучване?	ДА	НЕ
Имахте ли възможност да задавате въпроси относно това проучвне устно или чрез имейл?	ДА	НЕ
Получихте ли отговор на всичките си въпроси?	ДА	НЕ

Разбрали ли сте, че имате право да се оттеглите от това проучване:

• По всяко време?	ДА	НЕ
• Без да е нужно да обяснявате причините за оттеглянето си?	ДА	НЕ
Съгласен/а ли сте да участвувате в това проучване?	ДА	НЕ

Подпис на участника..... Дата.....

Име /с печатни букви/ .....

Моля изпратете по пощата или чрез факс това споразумение до

Rob Peterson
University of Wollongong
Faculty of Education
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

След получаване на това подписано от вас споразумение, някой от изследователите ще се свърже с Вас чрез имейл или обикновена поща, за да уговори заседание, които ще бъдат проведени **между 8 май и 26 май 2006 година**.

Моля напишете четливо вашия имейл адрес: .....

Ако искате да контактуваме чрез обикновена поща или нямате имейл адрес, моля напишете своя пощенски адрес

.....
.....
.....
.....

Ако имате въпроси, свързани със самия изследователски проект, моля отправете ги към Роб Питърсон (Rob Peterson) или към някой от останалите изследователи, посочени в "Информация за участника".

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Consent Form for Manager

Research Title: Developing an Internet-Based Community for Special Education in Bulgaria

Please answer the following questions by circling your response*:*

Have you read the information sheet about this study?	YES	NO
Have you been able to ask questions about this study either verbally or by e-mail?	YES	NO
Have you received answers to all your questions?	YES	NO
Do you understand that you are free to withdraw your employee from this study:		
• At any time?	YES	NO
• Without giving a reason for withdrawing?	YES	NO
Do you allow your employee to take part in this study?	YES	NO

Signature of manager: ..... Date:.....

Name (block letters): .....

Name of employee (block letters):.....

Please mail or fax this one-page consent form to:

Rob Peterson
University of Wollongong
Faculty of Education
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

Upon receipt of this consent form, one of the study's investigators will contact your employee by e-mail or postal mail to arrange a time **between May 8 and May 26, 2006**.

If you would like to be notified when your employee is contacted, please list your e-mail address: .....

Direct questions concerning the project to Rob Peterson or any of the investigators listed on the Participant Information Sheet.

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

Тема на проучването: Установяване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Моля отговорете на следните въпроси чрез ограждане на вашия отговор:

Прочетохте ли приложената "Информация за участника" за характера на това проучване?	ДА	НЕ
Имахте ли възможност да задавате въпроси за това проучвне устно или чрез имейл?	ДА	НЕ
Получихте ли отговор на всичките си въпроси?	ДА	НЕ
Разбрали ли сте, че имате право да оттеглите вашия подчинен от това проучване:		
• По всяко време?	ДА	НЕ
• Без да е нужно да обяснявате причините за оттеглянето му/й?	ДА	НЕ
Съгласен/а ли сте вашият подчинен да участвува в това проучване?	ДА	НЕ

Подпис на работодателя ..... Дата .....

Име /с печатни букви/ .....

Име на подчинения /с печатни букви/ .....

Моля изпратете по пощата или чрез факс това споразумение до

Rob Peterson
University of Wollongong
Faculty of Education, Bldg 23
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

След получаване на това подписано от вас споразумение, някой от изследователите ще се свърже с Вашия подчинен чрез имейл или обикновена поща, за да уговори заседание, които ще бъдат проведени **между 8 май и 26 май 2006 година**.

Ако искате да бъдете уведомен/а при осъществяване на контакт с вашия подчинен, моля напишете четливо вашия имейл адрес .....

Ако имате въпроси, свързани със самия изследователски проект, моля отправете ги към Роб Питърсон (Rob Peterson) или към някой от останалите изследователи, посочени в "Информация за участника".

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Participant information packet, Phase 3 (English / Bulgarian)

Letter of Invitation

Research Title: The Development and Promotion of a Website to Catalyze the Formation of a Community of Practice that connects existing Special Education Communities Across Bulgaria

Dear Sir or Madam:

You are invited to participate in a research study regarding the Internet, special education, and the development of online communities. An online community is as a group whose members are connected by the Internet.

In this case, the online community is connected by a website. The website allows users to share and organize documents, including text files, pictures, and videos. It provides instant messaging, discussion forums, and a user-managed encyclopedia of special education. The website also supports live online conferencing. Almost 200 teachers, special education experts, education researchers, and representatives from Bulgarian education organizations are already participating.

The goals of the research project are to:

1. Design, implement, and evaluate a website for special education in Bulgaria.
2. Nurture the development of a community of practice (professional community) that is supported by the website.
3. Investigate Bulgarian cultural contexts regarding special education.
4. Investigate the feasibility of implementing Internet-based instruction in Bulgaria.

For information specific to your involvement in this study, please refer to the Participant Information Sheet, attached.

Sincerely,

Rob Peterson
Chief Investigator

robp@uow.edu.au
robpeterson@mail.bg
+61 2 4221 5249 (Office)
+61 2 4221 3961 (General)
+359 894242353 (Bulgaria)

Тема на проучването: Създаване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Уважаема Госпожо/Господине:

Поканен/а сте да участвате в академичен проект за създаване и развитие на онлайн общество, свързано с проблемите на специалната педагогика. Неговите членове ще контактуват чрез интернет.

В случая членовете на онлайн обществото ще бъдат свързани чрез специализирана уебстраница в интернет. Тя ще предоставя информация в областта на специалната педагогика, а също ще бъде и поле за дискусии – място, където всички заинтересовани ще могат да установяват бърза връзка помежду си и да си разменят съобщения, свързани с проблемите на специалната педагогика, в това число текстови файлове, илюстрации и видеоматериали, за да съставят самите те своеобразна енциклопедия на специалната педагогика.

Новата уебстраница вече е била посещавана от близо двеста учители, експерти в областта на специалната педагогика и представители на български образователни институции.

Целите на този академичен проект са:

1. Създаване, прилагане и оценяване на уебсайт, посветен на специалната педагогика в България.
2. Изграждане и развитие на професионална общност, подпомагана от уебсайта.
3. Проучване на спецификата на културната среда в България с оглед на нуждите на специалната педагогика.
4. Проучване на възможностите за обучение чрез интернет в България.

За по-специфична информация, свързана с Вашия ангажимент към това проучване, моля прочетете прикрепената към тази покана Информация за участника.

С уважение,

Роб Питърсон
Главен изследовател

robp@uow.edu.au
robpeterson@mail.bg
+61 2 4221 5249 (Кабинет)
+61 2 4221 3961 (Секретар)
0894242353 (BG Globul)

Letter of Invitation to Manager

Research Title: The Development and Promotion of a Website to Catalyze the Formation of a Community of Practice that connects existing Special Education Communities Across Bulgaria

Dear Sir or Madam:

I would like to invite _____, your employee, to participate in a research study regarding the Internet, special education, and the development of online communities. An online community is as a group whose members are connected by the Internet.

In this case, the online community is connected by a website. The website allows users to share and organize documents, including text files, pictures, and videos. It provides instant messaging, discussion forums, and a user-managed encyclopedia of special education. The website also supports live online conferencing. Almost 200 teachers, special education experts, education researchers, and representatives from Bulgarian education organizations are already participating.

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Sincerely,

Rob Peterson
Chief Investigator

robp@uow.edu.au
robpeterson@mail.bg
+61 2 4221 5249 (Office)
+61 2 4221 3961 (General)
+359 894242353 (Bulgaria)

Тема на проучването: Създаване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Уважаема Госпожо / Господине

Бих искал да поканя ....., който е ваш подчинен, да участвува в академичен проект, свързан с областта на специалната педагогика и създаване на онлайн общество, ангажирано с проблемите на децата със специални образователни нужди. Членовете на тази общност ще контактуват чрез Интернет.

В случая членовете на онлайн обществото ще бъдат свързани чрез специализирана уебстраница в интернет. Тя ще предоставя информация в областта на специалната педагогика, а също ще бъде и поле за дискусии – място, където всички заинтересовани ще могат да установяват бърза връзка помежду си и да си разменят съобщения, свързани с проблемите на специалната педагогика, в това число текстови файлове, илюстрации и видеоматериали, за да съставят самите те своеобразна енциклопедия на специалната педагогика.

Новата уебстраница вече е била посещавана от близо двеста учители, експерти в областта на специалната педагогика и представители на български образователни институции.

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2. Изграждане и развитие на професионална общност, подпомагана от уебсайта.
3. Проучване на спецификата на културната среда в България с оглед на нуждите на специалната педагогика.
4. Проучване на възможностите за обучение чрез интернет в България.

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С уважение,

Роб Питърсон,
Главен изследовател

robp@uow.edu.au
robpeterson@mail.bg
+61 2 4221 5249 (Кабинет)
+61 2 4221 3961 (Секретар)
0894242353 (BG Globul)

Participant Information Sheet

Research title:	The Development and Promotion of a Website to Catalyze the Formation of a Community of Practice that connects extant Special Education Communities Across Bulgaria
Time investment:	1 hour
Location:	At participant's desired location
Participant role:	1. One 60 minute interview 2. Discuss special education in Bulgaria 3. Internet-searching task
Recording:	Personal interviews will be audio taped.
Confidentiality:	Participant confidentiality will be maintained at all times. No personally sensitive questions will be asked during the study. All research data will be stored in a locked file cabinet or on a password-protected computer.
Publication:	Study results will be published in a bound thesis and in research articles. No names of people, specific places, or facilities will be mentioned in published documents. You will not be identifiable in the publications.
Access to results:	If requested, a summary of results will be provided.
Withdrawing from study:	You are free to withdraw data or withdraw completely from this study at anytime and without giving a reason. You are free to refuse to participate with any part of the study. Refusal to participate will not impact existing relationships, if any, with the researchers or their institutions.

Chief investigator:

1 **Rob Peterson**, Candidate for Master of Education (Research), University of Wollongong, Faculty of Education, Bldg 23.106, Wollongong, NSW 2522 AUSTRALIA, robp@uow.edu.au, robpeterson@mail.bg, +61 2 4221 5249 (office), +61 2 4221 3961 (main), +61 2 4221 4657 (Fax), +359 894242353 (BG Globul GSM)

Other investigators:

2 Jan Herrington, Associate Professor, University of Wollongong, Faculty of Education, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277

3 Deslea Konza, Senior Lecturer, University of Wollongong, Faculty of Education, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603

4 Mira Tzvetkova-Arsova, Associate Professor, Sofia University, Department of Special Education, 69A Shipchensky Prohod Str., Sofia 1574 BULGARIA, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

ИНФОРМАЦИЯ ЗА УЧАСТНИКА

Тема на проучването:	Създаване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България
Ангажирано време:	1 час
Място:	На избрано от участника място
Ангажименти на участника:	1. Едно интервю от 60 минути 2. Обсъждане на областта на специалната педагогика в България 3. Задача за търсене в интернет
Записване:	Индивидуалните интервюта ще бъдат записвани на магнетофон (аудио).
Поверителност:	Информацията, предоставена от участниците, ще бъде поверителна през цялото време на проучването. Няма да бъдат задавани персонални въпроси по време на изследователската дейност. Събраните данни ще бъдат съхранявани отговорно в заключен сейф или в защитен със специална парола компютър.
Публикация:	Резултатите от проучването ще бъдат публикувани като едно цялостно издание, а също и в отделни статии. Няма да се споменават имена на хора, специфични места или институции в публикуваните документи. Вие няма да бъдете разпознат/а в тези публикации.
Резултатите:	При заявка, синтезиран вариант на събраните резултати може да ви бъде предоставен.
Оттегляне от проучването:	Свободен/а сте да оттеглите данни или напълно да се оттеглите от този изследователски проект по всяко време, без да се ангажирате с изтъкване на причините за това решение. Свободен/а сте да откажете участие в която и да е част от това проучване. Отказът ви за участие няма да се отрази на съществуващите взаимоотношения /ако има такива/ с изследователите или институциите, които те представят.

Главен изследовател:

1. **Роб Питърсон (Rob Peterson)**, Кандидат за Магистърска степен по педагогика, Уолонгонгски Университет, Педагогически факултет, Bldg 23.106,Wollongong, NSW 2522 AUSTRALIA, **robp@uow.edu.au**, **robpeterson@mail.bg**, +61 2 4221 5249 (офис), +61 2 4221 3961 (централа), +61 2 4221 4657 (факс), **0894242353** (BG Globul GSM)

Други изследователи:

2. Доц. д-р Жан Херингтон (Jan Herrington), Уолонгонгски университет, Педагогически факултет, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
3. Д-р Деслеа Конза (Deslea Konza), старши лектор, Уолонгонгски университет, Педагогически факултет, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
4. Доц. д-р Мира Цветкова – Арсова, Софийски университет, Катедра Специална педагогика, 69А, Шипченски проход, София, 1574, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Consent Form

Research Title: The Development and Promotion of a Website to Catalyze the Formation of a Community of Practice that connects extant Special Education Communities Across Bulgaria

Please answer the following questions by circling your response:

Have you read the information sheet about this study?	YES	NO
Have you been able to ask questions about this study either verbally or by e-mail?	YES	NO
Have you received answers to all of your questions?	YES	NO
Do you understand that you are free to withdraw from this study:		
• At any time?	YES	NO
• Without giving a reason for withdrawing?	YES	NO
Do you agree to take part in this study?	YES	NO

Signature of participant:..... Date:.....

Name (block letters):.....

Please list your e-mail address (optional): .....

If you would like to be contacted by postal mail or do not have an e-mail address, please list your postal address:

.....

.....

.....

.....

Direct questions concerning the project to Rob Peterson or any of the investigators listed on the Participant Information Sheet.

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

Тема на проучването: Създаване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Моля отговорете на следните въпроси чрез ограждане на вашия отговор:

Прочетохте ли приложената "Информация за участника" за характера на това проучване?	ДА	НЕ
Имахте ли възможност да задавате въпроси относно това проучване устно или чрез имейл?	ДА	НЕ
Получихте ли отговор на всичките си въпроси?	ДА	НЕ
Разбрали ли сте, че имате право да се оттеглите от това проучване:		
1 По всяко време?	ДА	НЕ
2 Без да е нужно да обяснявате причините за оттеглянето си?	ДА	НЕ
Съгласен/а ли сте да участвувате в това проучване?	ДА	НЕ

Подпис на участника..... Дата.....

Име /с печатни букви/ .....

Моля напишете четливо вашия имейл адрес /по желание/: .....

Ако искате да контактуваме чрез обикновена поща или нямате имейл адрес, моля напишете своя пощенски адрес

.....
.....
.....
.....

Ако имате въпроси, свързани със самия изследователски проект, моля отправете ги към Роб Питърсон (Rob Peterson) или към някой от останалите изследователи, посочени в "Информация за участника".

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Consent Form for Manager

Research Title: The Development and Promotion of a Website to Catalyze the Formation of a Community of Practice that connects extant Special Education Communities Across Bulgaria

Please answer the following questions by circling your response:

Have you read the information sheet about this study?	YES	NO
Have you been able to ask questions about this study either verbally or by e-mail?	YES	NO
Have you received answers to all of your questions?	YES	NO
Do you understand that you are free to withdraw your employee from this study:		
• At any time?	YES	NO
• Without giving a reason for withdrawing?	YES	NO
Do you allow your employee to take part in this study?	YES	NO

Signature of manager: ..... Date:.....

Name (block letters): .....

Name of employee (block letters):.....

Please list your e-mail address (optional): .....

Direct questions concerning the project to Rob Peterson or any of the investigators listed on the Participant Information Sheet.

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

Тема на проучването: Създаване и развитие на онлайн общество за сътрудничество в областта на специалната педагогика в България

Моля отговорете на следните въпроси чрез ограждане на вашия отговор:

Прочетохте ли приложената "Информация за участника" за характера на това проучване?	ДА	НЕ
Имахте ли възможност да задавате въпроси за това проучване устно или чрез имейл?	ДА	НЕ
Получихте ли отговор на всичките си въпроси?	ДА	НЕ
Разбрали ли сте, че имате право да оттеглите вашия подчинен от това проучване:		
• По всяко време?	ДА	НЕ
• Без да е нужно да обяснявате причините за оттеглянето му/й?	ДА	НЕ
Съгласен/а ли сте вашият подчинен да участвува в това проучване?	ДА	НЕ

Подпис на работодателя ..... Дата .....

Име /с печатни букви/ .....

Име на подчинения /с печатни букви/ .....

Моля напишете четливо вашия имейл адрес /по желание/:
.....

Ако имате въпроси, свързани със самия изследователски проект, моля отправете ги към Роб Питърсон (Rob Peterson) или към някой от останалите изследователи, посочени в "Информация за участника".

Ако имате съображения, притеснения или оплаквания относно начина, по който ще се проведе или се провежда изследователската дейност, можете да се свържете със Секретаря на Комитета по етика на проучванията на човека към Уолингонгския университет на тел. +61 2 4221 4457 или чрез имейл: eves@uow.edu.au или leia@uow.edu.au.

Moderator invitation letter

Dear _____,

I am sending a letter to the Ministry of Education about the website Special Education Bulgaria. In that letter, I would like to list the experts who will act as discussion forum moderators.

Here is what I would expect a discussion forum moderator to do.

1 Periodically post thought-provoking topics to your forum.
2 Periodically read through posts and respond as needed.
3 Acknowledge the contributions of participants, for example, say "Thank you for the post. You comment was very important."
4 Remain involved with the forum for at least 6 months. Seek a replacement moderator when you are ready to stop.

Keep in mind that it is not necessary to review each message but rather, to guide discussions in a broad sense and be available when called upon.

In addition to the discussion forum, the website Special Education Bulgaria can host live chat sessions. Would you be available to host a chat on:

Tuesday, _ ___ from 14:00-15:00 about _____ _____

If this date will not work, please let me know when you would be available.

I will e-mail you a copy of the letter to the Ministry of Education for final approval. In the letter to the Ministry, I will refer to you as:

_____ Forum Moderator:
_____
Sofia University
email@email.com.bg

Log into the website using the following information. Once you log in, you will be asked to enter a new password and a brief description of yourself. Feel free to upload a photo or remove the photo that I may have uploaded for you. A photo is a very important part of participating online because it helps give you an identity.

www.specialedbulgaria.org
Username: xxxxxxxx
Password: xxxxxxxx

Please let me know as soon as possible if you would be interested in being a moderator. I will be in Bulgaria from 1 May until 29 May to respond, in person, to any questions that you may have.

Sincerely,
Rob Peterson
Administrator
Special Education Bulgaria

Уважаема Проф. _____,
Позволете ми да Ви информирам, че подготвям писмо до Министерстерството на образованието в България относно уеб-страницата Специална Педагогика България. В това писмо бих искал да посоча експеритете, които ще участват като водещи в дискусионния форум.

Основните функции, които водещите ще изпълняват са:

1. Периодично да поставят за обсъждане във форума интересни провокиращи теми
2. Периодично да преглеждат мненията на останалите участници и да отговарят, ако това е необходимо
3. Да изразяват благодарност на останалите участници във форума за тяхното мнение и активност, например отговори от типа на: „Благодаря за участието. Вашият коментар е много важен".
4. Водещите трябва да участват във форума поне 6 месеца. Когато един водещ иска да прекъсне участието си, трябва да може да посочи заместник.

Моля имайте пред вид, че не е необходимо да преглеждате детайлно всеки коментар, по-важно е да давате най-обща насока на форума и да сте готови да се включите, когато има нужда от това.

В допълнение на това, уеб-страницата Специална Педагогика България може да предлага определени сесии за чат наживо. Интересувате ли се от възможността да бъдете домакин на чат сесия на 9 Май, вторник, 2006 г. от 14.00 до 15.00 часа относно ----------

Ако тази дата не ви е удобна, моля информирайте ме за по-удобно за вас време.

Аз ще Ви изпратя копие от писмото си до Министерството на Образованието за вашето ободрение. В писмото си до Министерството ще Ви посоча като:

----------Водещ Форум
Проф. ----------
Софийски Университет
email@email.com.bg

Можете да се регистрирате на уебстраницата, използвайки следващата информация. Веднъж регистрирали се, ще трябва да въведете нова парола и кратка информация за себе си. Ако иската, можете да прикрепите снимка или да снемете от страницата вашата снимка, ако аз вече съм я поставил. Аз мисля, че снимката е важна част в каквото и да е онлайн участие, защото тя помага по-лесно да бъдете идентифицирани.

www.specialedbulgaria.org
Потребителско име: xxxxxxxx
Парола: xxxxxxxx

Моля информирайте ме колкото е възможно по-скоро дали се интересувате от възможността да участвате като водещ във форума. Аз ще бъда отново в България от 1 до 29 май 2006 и съм готов лично да отговарям на всички въпроси, които ви вълнуват.

С уважение,
Роб Питърсон
Уебмастер
Специална Педагогика България

Participant information packet, expert consultations

Research Title: The development and promotion of a website to drive the formation of a community of practice for special education stakeholders in Bulgaria

Dear _____:

You are invited to participate as an expert reviewer to a research study regarding the Internet, special education, Bulgaria, and the development of a web-based community. It is expected that teachers, special education experts, education researchers, parents, and representatives from Bulgarian education organizations will participate in the community. The software currently powering the website is Moodle—a popular open-source learning management system created in Australia and used widely internationally.

Research question:

- To what extent can the process of developing and promoting a website drive the formation of a sustainable nation-wide community of practice for special education stakeholders in Bulgaria?

Sub question 1, needs assessment:

- To what extent is it feasible to establish an Internet-facilitated community of practice to meet the needs of the Bulgarian special education community?

Sub question 2, formative evaluation:

- In what ways does the community of practice website facilitate usability and support sociability?

Sub question 3, effectiveness evaluation:

- In what ways does the Internet-facilitated community of practice help special educators do their job better?
- In what ways has the website facilitated community building among special education stakeholders in Bulgaria?

For information specific to your involvement in this study, please refer to the Participant Information Sheet, attached.

Sincerely,

Rob Peterson
Chief Investigator

robp@uow.edu.au
+61 2 4221 5249 (office)
+61 2 4221 3961 (general)

Participant Information Sheet, Expert Consultation

Research title:	The development and promotion of a website to drive the formation of a community of practice for special education stakeholders in Bulgaria
Time investment:	1 hour
Location:	At participant's desired location, Internet access is required
Participant role:	• Participate in interview session • Complete website-review checklist
Audio taping:	The session will be audio taped.
Confidentiality:	Participant confidentiality will be maintained at all times. No personally sensitive questions will be asked during the study. All research data will be stored in a locked file cabinet or on a password-protected computer.
Publication:	Study results will be published in a bound thesis and in research articles. No names of people, specific places, or facilities will be mentioned in published documents. You will not be identifiable in the publications, though your credentials relevant to this project may be listed as an expert reviewer.
Access to results:	If requested, a summary of results will be provided.
Withdrawing from study:	You are free to withdraw data or withdraw completely from this study at anytime and without giving a reason. You are free to refuse to participate with any part of the study. Refusal to participate will not impact existing relationships, if any, with the researchers or their institutions.

Chief investigator:

- **Rob Peterson**, Candidate for Master of Education (Research), University of Wollongong, Faculty of Education, Wollongong, NSW 2522 AUSTRALIA, robp@uow.edu.au, +61 2 4226 1185 (phone), +61 2 4221 4657 (Fax)

Other investigators:

- Jan Herrington, Associate Professor, University of Wollongong, Faculty of Education, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
- Deslea Konza, Senior Lecturer, University of Wollongong, Faculty of Education, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
- Mira Tzvetkova-Arsova, Professor, Sofia University, Department of Special Education, 69A Shipchensky Prohod Str., Sofia 1574 BULGARIA, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

Research Title: The development and promotion of a website to drive the formation of a community of practice for special education stakeholders in Bulgaria

Please answer the following questions by circling your response*:*

Have you read the information sheet about this study?	YES	NO
Have you been able to ask questions about this study either verbally or by e-mail?	YES	NO
Have you received answers to all your questions?	YES	NO

Do you understand that you are free to withdraw from this study:

• At any time?	YES	NO
• Without giving a reason for withdrawing?	YES	NO
Do you agree to take part in this study?	YES	NO

Signature of participant:..... Date:.....

Name (block letters):.....

Please list your e-mail address: .....

If you would like to be contacted by postal mail or do not have an e-mail address, please list your postal address:

.....
.....
.....
.....

Please deliver this one-page consent form to:

Rob Peterson
University of Wollongong
Faculty of Education
Wollongong, NSW 2500
AUSTRALIA
Fax: +61 2 4221 4657

Direct questions concerning the project to Rob Peterson or any of the investigators listed on the Participant Information Sheet.

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

Translator consent form

Translator Consent Form

Research Title: The Development and Promotion of a Website to Catalyze the Formation of a Community of Practice that connects existing Special Education Communities Across Bulgaria

Dear translator:

It is imperative that participant confidentiality be maintained at all times. You must not discuss information created by the participants of this study. You are free, however, to discuss the project itself as you wish. To confirm that you agree to maintain participant confidentiality at all times, please answer the following questions and sign below.

Please answer the following questions by circling your response*:*

Have you been able to ask all of your questions about this study either verbally or by e-mail?	YES	NO
Have you received answers to all of your questions?	YES	NO
Do you agree to maintain participant confidentiality at all times?	YES	NO

Signature of translator:..... Date:.....

Name (block letters):..... E-mail (optional): .....

Direct questions concerning the project to Rob Peterson or any of the investigators listed below.

Chief investigator:

- Rob Peterson, Candidate for Master of Education (Research), University of Wollongong, Faculty of Education, Bldg 23.106, Wollongong, NSW 2522 AUSTRALIA, robp@uow.edu.au, +61 2 4221 5249 (office), +61 2 4221 3961 (main), +61 2 4221 4657 (Fax), +359 894242353 (Bulgarian mobile)

Other investigators:

- Jan Herrington, Associate Professor, University of Wollongong, Faculty of Education, Bldg 23.110, Wollongong, NSW 2522 AUSTRALIA, janh@uow.edu.au, +61 2 4221 4277
- Deslea Konza, Senior Lecturer, University of Wollongong, Faculty of Education, Bldg 23: G18, Wollongong, NSW 2522 AUSTRALIA, dkonza@uow.edu.au, +61 2 4221 3603
- Mira Tzvetkova-Arsova, Associate Professor, Sofia University, Department of Special Education, 69A Shipchensky Prohod Str., Sofia 1574 BULGARIA, miratz@fnpp.uni-sofia.bg, +359 2 9706 229

If you have any concerns or complaints regarding the way in which research has been or will be conducted, contact the Secretary of the University of Wollongong Human Research Ethics Committee by calling +61 2 4221 4457 or e-mailing eves@uow.edu.au or leia@uow.edu.au.

D. WEBSITE USER AGREEMENT AND INFORMATIONAL PAGES

User agreement (English / Bulgarian)

User Policy Agreement

Special Education Bulgaria is a website that is intended to facilitate the development of a community of practice for special education professionals and the parents of students with special needs throughout Bulgaria.

While the administrators and moderators will attempt to remove or edit any generally objectionable material as quickly as possible, it is impossible to review every message. Therefore you acknowledge that all posts made express the views and opinions of the author and not the administrators or moderators, except for posts by these people, and hence will not be held liable.

You agree not to post any abusive, indecent, slanderous, threatening, or any other material that may violate any applicable laws. It is also important to adhere to Bulgarian copyright regulations when posting electronic documents. You agree that the administrator and moderators have the right to remove, edit, move or close any topic at any time should they see fit. Repeated violation of this user agreement may lead to you being banned from posting to the website.

As a user you agree to any information you have entered being stored in a database. While this information will not be disclosed to any third party without your consent, the webmaster, administrator and moderators cannot be held responsible for any hacking attempt that may lead to the data being compromised.

As personal privacy is extremely important to Special Education Bulgaria, it is considered inappropriate to mention the names of colleagues who are not members of Special Education Bulgaria or other information that might identify them. Equally important, if a member chooses not to list their full name in their user profile, then only refer to them by their username.

Please be aware too, that this website was built as part of a research project conducted by Sofia University and the University of Wollongong in Australia. Website communications and activity may be monitored with the aim of improving the website. Nevertheless, your personal privacy will be maintained at all times. And though study results will be published in a bound thesis and in research articles, no names of people, specific places, or facilities will be mentioned in published documents. You will not be identifiable. If requested, a summary of research results will be provided. To request more information about this project, click on the contact us link.

Special Education Bulgaria may choose to modify this agreement at any time and such modification shall be effective immediately upon either posting of the modified agreement or notifying you.

By clicking Yes below you agree to be bound by these conditions.

Споразумение на потребителя

Специална педагогика България е уебсайт, чиято цел е да подпомогне създаването и развитието на практическо общество от професионалисти в областта на специалната педагогика и родители на деца със специални нужди от цяла България.

Независимо от това, че администраторите и модераторите ще се стараят да отстранят или редактират всеки обиден материал колкото е възможно по-скоро след поместването му, не е възможно те да преглеждат всеки материал. Вие трябва да сте нясно, че поставите материали изразяват възгледите и мнението на съответния автор, а не на администраторите и модераторите, с изключение на материалите, поствани от самите тях, така че те не носят отговорност за чужди публикации.

Съгласни сте да не поствате никакъв груб, неприличен, клеветнически, заплашителен или всякакъв друг материал, който нарушава българските закони. Важно е също да се придържате към българските закони за авторското право, когато публикувате електронни документи.

Съгласни сте с това, че администраторът и модераторите имат правото да отстранят, редактират, преместят или закрият всяка тема по всяко време, ако намерят за уместно. Системното нарушаване на тези правила за ползването на уебсайта могат да доведат до отнемането на правото ви да публикувате съобщения на този уебсайт.

Като потребител сте съгласни всяка въведена от вас информация да бъде съхранявана в база данни. Въпреки че тази информация няма да бъде предоставяна на трети страни без вашето съгласие, уебмастърът, администраторът или модераторите на този форум не могат да бъдат отговорни за всякакви хакерски атаки, които могат да доведат до разкриване на данните.

Тъй като личната неприкосновеност е изключително важна за Специална педагогика България, смята се за недопустимо да се споменават имена на колеги, които на са членове на Специална педагогика България или да се дава информация, чрез която да бъдат лесно идентифицирани. Също така е важно, ако член на сайта е избрал да не използва пълното си име в своя потребителски профил, да се споменава единствено чрез посоченото от него име.

Не забравяйте, че този уебсайт е част от изследователски проект, провеждан от Софийския университет и Уолонгонгския университет в Австралия. Общуването и дейностите на този сайт се наблюдават с цел подобряване на сайта. Независимо то това, вашата лична информация ще бъде запазена в тайна през цялото време. Въпреки че резултатите от изследването ще бъдат публикувани в дисертация и статии, имена на хора, конкретни места и организации няма да бъдат посочени в тези документи. Няма да е възможно да бъдете идентифицирани по никакъв начин. При поискване, сме готови да осигурим конспект на изследователските резултати. За допълнителна информация по този проект, отидете на линка свържете се с нас.

Специална педагогика България може да допълва и променя този правилник на потребителя и подобни промени веднага ще бъдат публикувани на сайта или вие ще бъдете уведомени за това.

Избирайки Съгласен съм... вие приемате горепосочените условия.

Confirmation email (English / Bulgarian)

Confirmation E-mail

Subject: Confirmation of profile for Special Education Bulgaria

Hi _____,

A new account has been requested at Special Education Bulgaria using your email address.

To confirm your new account, please go to this web address:

http://www.specialeducationbulgaria.com/login/confirm.php…

In most mail programs, this should appear as a blue link which you can just click on. If that doesn't work, then cut and paste the address into the address line at the top of your web browser window.

After confirming your account, please update your member profile. Post a brief description of yourself and your interest in Special Education Bulgaria. Also upload a photo. Though it is not required, user photos have been found to be a key factor in the development of personal identity and the feeling of belonging in Internet communities.

In most mail programs, this should appear as a blue link which you can just click on. If that doesn't work, then cut and paste the address into the address line at the top of your web browser window.

If you need help, please contact the site administrator,
Rob Peterson (robp@uow.edu.au)

Subject: Потвърждение на профила за Специална педагогика България

Здравей _____,

На сайта Специална педагогика България беше поискана регистрация на твоя адрес.

За да потвърдиш регистрацията, отиди на тази страница:

http://www.specialeducationbulgaria.com/login/confirm.php…

В повечето програми за е-поща, адреса трябва да се появи като връзка, върху която можеш да щракнеш. Ако все пак не можеш да щракнеш върху връзката, копирай я в буфера за обмен и я вмъкни в адресната лента на браузъра си.

След потвърждаване на вашата регистрация, моля актуализирайте вашия потребителски профил. Публикувайте кратко представяне на себе си и какви са вашите интереси в Специална педагогика България. Също добавете снимка. Въпреки че не е задължително, проучванията показват, че прибавянето на снимка на потребителя допринася за създаването на уникален профил на участника, а също и подсилва чувството за принадлежност към определено интернет общество.

В повечето програми за е-поща, адреса трябва да се появи като връзка, върху която можеш да щракнеш. Ако все пак не можеш да щракнеш върху връзката, копирай я в буфера за обмен и я вмъкни в адресната лента на браузъра си.

Ако имаш нужда от помощ, можеш да се свържеш с администратора на сайта:
Rob Peterson (robp@uow.edu.au)

Welcome (English / Bulgarian)

Welcome to Special Education Bulgaria

This website provides tools such as discussion forums. These tools are designed to support existing communities of special education stakeholders that are geographically dispersed throughout Bulgaria. Such stakeholders include teachers, teachers in training, researchers, parents, policy makers, and others with a vested interest in the practice of special education.

You will notice that there are a number of discussion forum topics already set up for you. You are free to participate in any of them. There are also links to a library, Internet resources, and a special education glossary. You are free to upload documents or make comments on the pages available from these links or comment about what others have posted.

To participate in the discussion forums, you must first register. Click on the link create new account. More information about this website can be found by clicking on the about link.

Добре дошли на страницата на Специална Педагогика България

Тази уеб-страница предоставя достъп до дискусионни форуми. Уебстраницата е създадена, за да осигури връзка между заинтересовани лица, организации и учреждения в областта на специалната педагогика, които са пръснати по територията на цяла България. Такива заинтересовани лица са учители, студенти, научни работници, родители, специалисти от образователното министерство, законодатели и други.

Вие ще забележите, че има няколко предварително зададени основни теми на дискусионни форуми. Можете да вземете участие във форум по ваше желание. Имате на разположение също библиотека, интернет източници и речник с термини от специалната педагогика. Можете свободно да прибавите документи или да направите коментар относно тези линкове или по отношение на мнения и съобщения на други участници.

За да вземате участие в дискусиите на дискусионните форуми, първо трябва да се регистрирате. Кликнете върху линка направи си профил. Повече информация за тази уеб-страница можете да намерите на посочения сайт, kликнете върху линка относно.

About (English / Bulgarian)

Why Special Education Bulgaria?

Special Education Bulgaria, the website, was developed by researchers from Sofia University and the University of Wollongong in Australia. The purpose of Special Education Bulgaria is to facilitate the development of a community of practice for special education professionals and the parents of students with special needs throughout Bulgaria.

It is hoped that such a community will help reduce the sense of isolation felt by young special education teachers and other special education stakeholders in rural areas of Bulgaria. The community is also intended to support special education stakeholders who are separated from their support network across busy cities or by the requirements of daily living.

Research Information and User Privacy

As the development of Special Education Bulgaria is part of an ongoing research project, the website will continue to undergo changes from 2005 through 2008. After the development period, the website will see fewer changes, but will continue to be available for your use.

The website is currently hosted by Sofia University and managed by researchers at the University of Wollongong in Australia. At the completion of the research project in 2008, the website will be fully owned and managed by the Bulgarian moderators and participants of Special Education Bulgaria. As long as Sofia University hosts the website, it will also have a vested interest. It is hoped that the website will be linked with the educational websites currently under development by the Bulgarian Ministry of Education and European Union.

It is important that you are aware that though some website communications and activity will be monitored with the aim of improving the website, your personal privacy will be maintained at all times. And though study results will be published in a bound thesis and in research articles, no names of people, specific places, or facilities will be mentioned in published documents. You will not be identifiable. Click here to view the User Policy Agreement.

Your feedback to the website administrator at any time during the research and development period will be extremely helpful. From time to time, an online survey will be hosted on the website to encourage feedback. If requested, a summary of research results will be provided to you. To request more information about this project, click on the Contact us link.

Participant types:
Lead moderator
Administrator
Moderator
Participant

What is a Community of Practice?

According to world-renowned community of practice expert, Etienne Wenger, "Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis." Some of the many benefits of using an online meeting place to facilitate a community of practice include:

* Establishing and maintaining professional contacts across the country
* Reducing the sense of isolation felt by professionals in rural areas
* Immediate assistance with problems and access to expert advice
* Inexpensive tool for professional development
* Information can easily be archived and retrieved for later use

Examples of some of the topics to be addressed by Специална Педагогика България include:

* Integrated education
* Individual education programs
* Students with multiple disabilities
* Minority groups in special education
* Parental roles in special education

Some examples of highly successful communities of practice that use the Internet include:

* The World Bank's knowledge and learning communities
* CompanyCommand.com for leaders of military groups
* Government Online International Network community of 20 countries
* Mathforum.org for math researchers, teachers, and learners
* United Nations ICT Task Force

It is important to note that Special Education Bulgaria is not meant to reduce face-to-face interaction. The most successful communities of practice, such as those at the World Bank, use a blend of online and face-to-face interaction.

More information about this website can be found here, click on the link features.

Защо Специална педагогика България?

Уебсайтът Специална педагогика България беше разработен от изследователи от Софийския университет и Уолонгонгския университет в Австралия. Целта на Специална педагогика България е да подпомогне създаването на практическо общество изградено от професионалисти в областта на специалната педагогика и родители на деца със специални нужди от цяла България.

Надяваме се, че подобно общество ще намали чувството за изолираност у учителите, занимаващи се с деца със специални нужди и останалите професионалисти в областта на специалната педагогика, работещи в различни градове и села в България. Друга цел на това общество също е да подпомага контактите между хората от сферата на специалната педагогика, които трудно успяват да намерят време и възможност да се срещат и говорят с колеги дори от същия град заради претрупаните си ежедневни програми.

Информация за изследването и запазване в тайна на личната информация на потребителя

Разработката на Специална педагогика България е част от един непрекъснато развиващ се изследователски проект, уебсайтът търпи промени от 2005 година и ще продължава така до 2008 година. След този период на усъвършенстване, уебсайтът ще бъде подлаган на много по-малко промени, но ще продължава да е на ваше разположение.

Уебсайтът понастоящем се поддържа от Софийския университет и се управлява с помощта на изследователи от Уолонгонгския университет в Австралия. След приключването на изследователския проект през 2008 година, уебстраницата ще бъде изцяло собственост и под ръководството на българските модератори и участници в Специална педагогика България. Надяваме се, че уебсайтът в бъдеще ще бъде свързан с други образователни и професионални уебсайтове, които в момента са разработват от Министерството на образованието в България и Европейския съюз.

Важно е да сте наясно, че независимо от това че комуникациите и дейностите в този уебсайт ще бъдат наблюдавани с цел подобряване на уебсайта, вашата лична информация ще бъде запазена в тайна. Въпреки че резултатите от проучването ще бъдат публикувани, няма да бъдат споменавани в тези документи имена на хора, конкретни места, училища и организации. Няма да бъдете разпознат по никакъв начин. Можете да кликнете на този линк, за да видите споразумението на потребителя: поразумение на потребителя

Вашите мнения и коментари, отнесени към администратора на уебсайта, по време на проучването и усъвършенстването на уебсайта, ще бъдат много полезни. От време на време, онлайн анкети ще бъдат провеждани, за да получим обратна информация от потребителите. При поискване, сме готови да ви осигурим информация накратко за резултатите от проучването. Ако имате нужда от повече информация за този проект, кликнете на линка за контакт с нас: свържете се с нас

Участник описани:
Водещ модератор
Администратор
Модератор
Участник

Какво е практическо общество (професионално общество)?

Според световно-известния експерт по практически общества Етиен Уенгър "практическите общества са групи от хора, споделящи общи интереси, тревоги или страст по дадена тема и които задълбочават знанията и възможностите си в тази област чрез непрекъснато общуване помежду си." Някои от многото положителни страни на използането на он-лайн контакти, за да работи едно практикуващо общество, са:

* Установяване и поддържане на професионални контакти из цялата страна;
* Редуциране на чувството за изолираност у професионалисти, живеещи в провинцията;
* Непосредствена и своевременна помощ при наличие на проблем и достъп до съвет от експерт;
* Достъпно средство за професионално развитие;
* Информацията лесно може да бъде архивирана, за да послужи за по-късна справка.

Примери за някои от темите, обект на интерес в Специална Педагогика България, са:

* Интегрираното обучение
* Индивидуални образователни програми
* Ученици с множествени увреждания
* Малцинства в специалната педагогика
* Ролята на родителите в специалното образование

Ето някои примери за изключително успешни практически общества, използващи интернет:

* Обществото за знание и обучение към Световната банка
* CompanyCommand.com за лидери на военни организации
* Общество на Управленческа Онлайн Международна Мрежа с участници от 20 страни
* Mathforum.org за учени, учители и обучаващи се в областта на математиката
* United Nations ICT Task Force.

Важно е да се отбележи, че целта на "Специална Педагогика България" не е да намали личните контакти. Едни от най-успешните практически общества, като напр. Световната банка, съчетават личната с он-лайн комуникация.

Повече информация за този уеб-страница можете да намерите на посочения сайт, кликнете върху линка елементи.

Roles (English / Bulgarian)

Participant descriptions

Lead Moderator
Has all of the rights of an administrator as well as those of a moderator. Allows the administrator to control website functionality, but can act on the administrator's behalf if necessary. Seeks a replacement when choosing to discontinue this role.

Administrator
Updates the functionality and look of the website as requested by the moderators or as needed. Can assign new administrators and moderators. Assigns permissions to participants. Seeks a replacement when choosing to discontinue this role.

Note: Early in the development stage of Special Education Bulgaria, the administrator will make changes as needed to improve the website. Later in the development stage and especially after research and development has concluded, changes to website functionality will only be made after an effort has been made to gather participant feedback.

Moderator
Monitors discussion forum communication within their area of expertise. At their discretion, posts topics for discussion and responds to participant comments. Helps resolve conflicts between participants. Forms subgroups or new discussion forums as needed. Forwards website improvements requests to the administrator. Seeks a replacement when choosing to discontinue this role.

Has the right to edit or remove any generally objectionable material in accordance with the User Policy Agreement. Has the right to ban repeated violators of the User Policy Agreement from posting to the website.

Participant
Has the right to fully participate in all aspects of the online community in accordance with the User Policy Agreement. Has the right to fully discontinue membership at any time. Sends comments about the website or the research and development behind Special Education Bulgaria to the administrator or lead moderator.

Участниk описани

Водещ модератор
Има всички права както на администратор, така и на модератор. Изисква от администратора да контролира функционирането на уебсайта, но може и да замества администратора, когато се налага.Намира си заместник, когато реши да се оттегли от това си задължение.

Администратор
Актуализира функционалността и дизайна на уебстраницата по искане на някой от модераторите, когато е необходимо. Може да посочва нови администратори и модератори. Разрешава участие на желаещите.Намира си заместник, когато реши да се оттегли от това си задължение.

Забележка: В началния етап на устройването на Специална педагогика България, администраторът ще прави промени, когато е необходимо да се подобри уебсайтът. По-късно, когато уебсайтът е установен и особено след като изследването и усъвършенстванто са приключили, промените във функционирането на уебсайта ще бъдат правени само след като е направено проучване за мнението на учестниците за необходимостта от подобна промяна.

Модератор
Наблюдава дискусиите в дискусионния форум в областта си на компетентност.По негово усмотрение, задава теми за дискусии и отговаря на коментарите на участниците. Помага при разрешаването на конфликт между участниците. Формира вътрешни подгрупи от нови дискусионни форуми, ако е необходимо. При получаване на предложения за усъвършенстването на уебсайта от страна на участниците, препраща тези предложения до администратора. Намира си заместник, когато реши да се оттегли от това си задължение.

Има право да редактира или да отхвърли материал с обидно съдържание в съотвестствие с регламентираните правила в Споразумението на потребителя - Споразумение на потребителя. Има право да забрани участието и публикуването на материли на всеки, който нарушава горепосочените правила.

Участниk
Има право да участва пълноценно по всички начини в това онлайн общество в съотвествие с правилата за участие, регламентирани в Споразумението на потребителя - Споразумение на потребителя. Има правото напълно да прекрати участието и членуването си в това общество по всяко време. Изпраща мнения и препоръки относно уебсайта, проучването и развитието на Специална педагогика България до администратора и водещия модератор.

Features (English / Bulgarian)

Features

Special Education Bulgaria is powered by a popular open-source software package called Moodle. Open-source means that it is free and that its users contribute to its development. The word Moodle is an acronym for Modular Object-Oriented Dynamic Learning Environment. Moodle has a large group of users with thousands of websites registered in more than 150 countries. It has been translated into more than 60 languages. For more information, in English, visit www.Moodle.org.

The basic features of this Moodle website include the following:

* Library: participants can upload journal articles and other documents
* Internet resources: participants can add links to useful special education websites
* Special education glossary: participants can add terms and make comments
* Discussion forums
* Chat (instant messaging)

Advanced features:

* Events can be scheduled (example: chat and with experts)
* Seminars and workshops can be held online
* Entire courses or portions of courses can be held online including assignments, lectures, readings, discussions, surveys, grading, student statistics, and group activities
* Payments can be accepted online

Special Education Bulgaria is best viewed with Microsoft Internet Explorer version 6.0 or Mozilla Firefox version 1.5. The latest versions of these two Internet browsers will also work.

For further information, please click on the link contact us.

Характеристики

Специална педагогика България е базирана на популярния отворен-код софтуерен пакет, наречен Moodle. Отворен-код означава, че е безплатен и че потребителите му допринасят за неговото развитие. Думата Moodle е абревиатура на Modular Object-Oriented Dynamic Learning Environment, което означава модулна обектно ориентирана динамично обучаваща се среда. Moodle има голям брой потребители с хиляди уебсайтове от над 150 страни. Той се превежда на повече от 60 езика. За повече информация, на английски, посетете www.Moodle.org.

Основните характеристики на тази Moodle уебстраница са следните:

* Библиотека: участниците могат да свалят статии от списания и други материали
* Интернет източници: участниците могат да добавят линкове към полезни уеб-страници по специална педагогика
* Речник по специална педагогика : у частниците могат да добавят термини и да правят коментари
* Дискусионен форум
* Чат (инстант месидж)

Допълнителни елементи:

* Могат да се организират с ъбития (пример: чат с експерти)
* Могат да се провеждат семинари и уоркшопове он-лайн
* Цели учебни дисциплини или части от учебни предмети могат да се провеждат он-лайн, включително възлагане на задания, лекции, изследвания, оценяване, статистика на студентите и групови дейности
* Он-лайн може да се извършва и разплащане

Специална педагогика България най-добре се обслужва от Microsoft Internet Explorer версия 6.0 или Mozilla Firefox версия 1.5. По-нова версия на тези два интернет браузери също би работила.

За допълнителна информация можете кликнете върху линка свържете се с нас.

E. LETTER TO/FROM THE MINISTRY OF EDUCATION ABOUT SEB

The following letter was translated and sent to the Bulgarian Minister for Special Education. The translated letter was then modified by the Ministry and sent to the regional heads of special education in Bulgaria in September 2006.

Subject: Special Education Bulgaria (www.specialedbulgaria.org)

Dear _____,

I am a PhD (Education) student at the University of Wollongong in Australia. My project involves the establishment of an Internet-facilitated community of practice for special education teachers, researchers, policymakers, and parents in Bulgaria. I visited Bulgaria for a month last September to conduct a needs assessment with special educators in Sofia. The trip was supported by the Department of Special Education at Sofia University.

While there, I tested a prototype version of the website (www.SpecialEdBulgaria.org) and have now launched an improved version. I return to Bulgaria for a month this May to present at a conference at Sofia University. I will test the new website version and conduct interviews with special educators in several cities throughout Bulgaria.

What is Special Education Bulgaria?

Special Education Bulgaria is a website. The website provides tools such as discussion forums and an online library. These tools are designed to support existing communities of special education stakeholders that are geographically dispersed throughout Bulgaria.

It is important to note that Special Education Bulgaria is not meant to reduce face-to-face interaction. The most successful communities of practice, such as those at the World Bank, use a blend of online and face-to-face interaction.

What is a Community of Practice?

According to world-renowned community of practice expert, Etienne Wenger, "Communities of practice are groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis." Some of the many benefits of using an online meeting place to facilitate a community of practice include:

- Establishing and maintaining professional contacts across the country
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- Immediate assistance with problems and access to expert advice
- Inexpensive tool for professional development
- Information can easily be archived and retrieved for later use

Examples of some of the topics to be addressed by Special Education Bulgaria include:

- Integrated education
- Individual education programs
- Students with multiple disabilities
- Minority groups in special education
- Parental roles in special education

Some examples of highly successful communities of practice that use the Internet include:

- The World Bank's knowledge and learning communities
- CompanyCommand.com for leaders of military groups
- Government Online International Network community of 20 countries
- Mathforum.org for math researchers, teachers, and learners
- United Nations ICT Task Force

There are many other examples of communities of practice for educators, other professionals, advocacy groups, non-profit organizations, and corporations.

Upcoming Events

- 9 May, Tuesday, 2006 from 14.00 to 15.00 about the website Special Education Bulgaria
- 16 May, Tuesday, 2006 from 14.00 to 15.00 about visual impairments
- 23 May, Tuesday, 2006 from 14.00 to 15.00 about hearing impairments
- 30 May, Tuesday, 2006 from 14.00 to 15.00 about intellectual disabilities
- 6 June, Tuesday, 2006 from 14.00 to 15.00 about physical disabilities
- 13 June, Tuesday, 2006 from 14.00 to 15.00 about multiple disabilities
- 20 June, Tuesday, 2006 from 14.00 to 15.00 about speech, language, and learning disabilities

Note: Live chat events will be led by the respective forum moderator listed below.

Leadership Roles

Lead moderator:
name not listed

Moderator of the forum on visual impairment:
name not listed

Moderator of the forum on hearing impairment:
name not listed

Moderator of the forum on intellectual disabilities:
name not listed

Moderator of the forum on physical disabilities:
name not listed

Moderator of the forum on multiple disabilities:
name not listed

Moderator of the forum on speech, language, and learning disabilities:
name not listed

Though, at the moment, expertise is centered at Sofia University, involvement from experts across Bulgaria is desired. It is anticipated that leadership will transition to other participants over time.

What Can the Ministry do to Help?

It is my hope that the Bulgarian Ministry of Education and Science will support this initiative by helping to notify special education stakeholders across Bulgaria. For example, a short letter of introduction about the online community could be sent by postal mail.

To conclude, I want to make clear that this initiative is not for profit. All research and development has been funded through personal funds, University of Wollongong, or Sofia University. More information about this project can be found at www.specialedbulgaria.org. Click the link labeled "About."

Please feel free to contact me, in English, or the lead moderator, A/P Dr Mira Tzvetkova-Arsova, for further information.

Sincerely,
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До
Министерство на образованието и науката
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бул.: "Княз Дондуков" 2А

Уважаема Г-жо _____,

Бих искал да Ви запозная с проекта, върху който работя, и който е осъществен в сътрудничество с катедрата по Специална педагогика на ФНПП при СУ "Св. Климент Охридски" и в резултат от работата ми с доц. Мира Цветкова-Арсова.

Тема: Специална Педагогика България (www.specialedbulgaria.org)

Моето име е Роб Питърсън. Аз съм аспирант в Уолонгонгския университет в Австралия, работещ върху доктората си в сферата на образованието. Част от проекта, върху който работя, е учредяване на интернет-общество от учители и изследователи в областта на специалната педагогика, управленчески кадри в сферата на образованието, родители и всички заинтересовани. Аз бях в България в продължение на един месец през септември 2005 година, за да проуча нуждата от реализирането на подобен проект посредством срещи със специални педагози в София. Работата ми беше подпомогната от Софийския университет, катедра Специална педагогика.

Докато бях в Българория експериментирах прототипна версия на уеб-страницата (www.SpecialEdBulgaria.org), а по-късно я подобрих с по-усъвършенствана версия. Аз ще бъда отново в България през май 2006 година, за да участвувам в конференция, организирана от Софийския университет, ФНПП. Там ще тествам функционирането на новия уеб-сайт и ще проведа интервюта със специални педагози в различни градове на България.

Какво е "Специална Педагогика България"?

"Специална Педагогика България" е уеб-страница, която предоставя достъп до дискусионни форуми и библиотека. Тези възможности на уеб-страницата са създадени, за да осигурят връзка между съществуващи организации в областта на специалната педагогика, които са пръснати по територията на цяла България.

Важно е да се отбележи, че целта на "Специална Педагогика България" не е да намали личните контакти. Едни от най-успешните практически общества, като напр. Световната банка, съчетават личната с он-лайн комуникация.

Какво е практическо общество?

Според световно-известния експерт по практически общества Етиен Уенгър "практическите общества са групи от хора, споделящи общи интереси, тревоги или страст по дадена тема и които задълбочават знанията и възможностите си в тази област чрез непрекъснато общуване помежду си." Някои от многото положителни страни на използането на он-лайн контакти, за да работи едно практикуващо общество, са:

- Установяване и поддържане на професионални контакти из цялата страна;
- Редуциране на чувството за изолираност у професионалисти, живеещи в провинцията;
- Непосредствена и своевременна помощ при наличие на проблем и достъп до съвет от експерт;
- Достъпно средство за професионално развитие;
- Информацията лесно може да бъде архивирана, за да послужи за по-късна справка.

Примери за някои от темите, обект на интерес в Специална Педагогика България, са:

- Интегрираното обучение
- Индивидуални образователни програми
- Ученици с множествени увреждания
- Малцинства в специалната педагогика
- Ролята на родителите в специалното образование

Ето някои примери за изключително успешни практически общества, използващи интернет:

- Обществото за знание и обучение към Световната банка
- CompanyCommand.com за лидери на военни организации
- Общество на Управленческа Онлайн Международна Мрежа с участници от 20 страни

- Mathforum.org за учени, учители и обучаващи се в областта на математиката
- United Nations ICT Task Force.

Предстоящи събития:
- 9 Май 2006 (вторник) от 14.00 до 15.00 часа среща относно уеб-страницата "Специална Педагогика България"
- 16 Май, 2006 (вторник) от 14.00 до 15.00 часа среща относно зрителни увреждания
- 23 Май, 2006 (вторник) от 14.00 до 15.00 часа среща относно слухови увреждания
- 30 Май, 2006 (вторник) от 14.00 до 15.00 часа среща относно интелектуална недостатъчност
- 6 Юни, 2006 (вторник) от 14.00 до 15.00 часа среща относно физически увреждания
- 13 Юни, 2006 (вторник) от 14.00 до 15.00 часа среща относно множество увреждания
- 20 Юни, 2006 (вторник) от 14.00 до 15.00 часа среща относно говорни и езикови нарушения, и обучителни трудности

Бележка: Чат-сесиите ще се водят от координаторите на съответните форуми, изброени по-долу:

Главен координатор/модератор:
name not listed

Координатор/модератор на Форума за зрителни увреждания:
name not listed

Координатор/модератор на Форума за слухови увреждания:
name not listed

Координатор/модератор на Форума за интелектуална недостатъчност:
name not listed

Координатор/модератор на Форума за физически увреждания:
name not listed

Координатор/модератор на Форума за множество увреждания:
name not listed

Координатор/модератор на Форума за говорни и езикови аарушения, и обучителни трудности:
name not listed

Въпреки че засега основните участници са предимно преподаватели и специалисти от Софийския университет, желателно е в бъдеще да се включат експерти от цялата страна. Предполага се, че сегашното ядро ще привлече и нови участници с течение на времето.

С какво Министерството на образованието може да помогне?

Аз се надявам българсското Министерство на образованието и науката да подпомогне тази инициатива чрез информиране на всички свои кадри, занимаващи се със специална падегогика в България. Моля за изпращане на кратки писма, разясняващи дейността на нашето интернет общество, до всички, които биха могли да се заинтересуват.

В заключение, искам да подчертая, че тази инициатива не е ориентирана към формиране на печалба. Разработката и развитието на проекта са субсидирани от лични средства, Уолонгонгския университет и Софийския университет. Повече информация за този проект можете да намерите на посочения сайт, като кликнете на линка "относно": www.specialedbulgaria.org

За допълнителна информация можете да се обърнете към мен на английски, или към основния координатор/модератор доц. д-р Мира Цветкова-Арсова на служебен тел. 9706 229 или 9706 265.

С уважение,
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F. PEER REVIEW OF RESEARCH

The following publications and presentations enabled aspects of the thesis to be open to public scrutiny and comment during preparation:

Type of presentation	Aspect of thesis
Refereed journal articles	
1. Peterson, R., Herrington, J., Konza, D., Tzvetkova-Arsova, M., & Stefanov, K. (in press). Targeting social inclusion in Bulgaria with web-based competency development. *International Journal of Training and Development*.	• Integration and inclusion • Competence and lifelong learning • Online communities • Communities of practice • Innovative knowledge communities
2. Peterson, R., Herrington, J., Konza, D., Tzvetkova-Arsova, M., & Stefanov, K. (2008). Assisting Bulgarian special educators with competency development online. *Campus Wide Information Systems: The International Journal of Information and Learning Technology*, *25*(4), 197-208.	• Integration and inclusion • Competence and lifelong learning • Online communities • Communities of practice
Refereed conference proceedings	
1. Peterson, R., Herrington, J., Konza, D., Tzvetkova-Arsova, M., & Stefanov, K. (2007). Investigating the role of ePortfolios and online courses in a community of practice: Assisting Bulgarian special educators with lifelong competency development. In *Proceedings of the 5th international ePortfolio conference: Employability and lifelong learning in the knowledge society*, Maastricht, The Netherlands. Retrieved February 2, 2008, from http://www.eife-l.org/publications/eportfolio/proceedings/ep2007/papers/eportfolio	• Integration and inclusion • Competence and lifelong learning • Online communities • Communities of practice
2. Peterson, R. (2006b). Establishing an Internet-based special education community in Bulgaria: A summary of preliminary findings and future steps. In N. Popov, C. Wolhuter, C. Heller & M. Kysilka (Eds.), *Comparative Education and Teacher Training* (Vol. 4, pp. 190-198). Sofia, Bulgaria: Bureau for Educational Services and Bulgarian Comparative Education Society.	• Literature review • Online communities • Communities of practice

3. Peterson, R. (2005a). Developing an Internet-based community for special education in Bulgaria. In G. Richards (Ed.), *Proceedings of the World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 2296-2301). Norfolk, VA: AACE.	• Literature review • Online communities • Communities of practice
4. Peterson, R., & Herrington, J. (2005). The state of the art of design-based research. In G. Richards (Ed.), *Proceedings of the World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 2302-2307). Norfolk, VA: AACE.	• Literature review • Design-based research

Conference presentations and posters

1. Peterson, R., & Konza, D. (2006, May). *A comparative overview of the integration of students with special needs into mainstream classrooms in Australia and Bulgaria*. Paper presented at the 4th International Conference on Comparative Education and Teacher Training, Sofia, Bulgaria.	• Literature review • Integration and inclusion • Special education in Bulgaria
2. Peterson, R. (2006a, June). *Connecting special education communities in Bulgaria*. Poster session presented at the 6th International Conference of the International Consortium for Educational Development, Sheffield, UK.	• Literature review • Online communities • Communities of practice • Special education in Bulgaria
3. Peterson, R. (2006d, September). *Using the Internet to connect extant special education communities in Bulgaria*. Poster session presented at the University of Wollongong Higher Degree Research Student Conference, Wollongong, Australia.	• Literature review • Online communities • Communities of practice • Special education in Bulgaria

Public presentations & workshops

1. Peterson, R. (2008, March). *Mixed methods data analysis for design-based research on an Internet-facilitated community of practice for special education in Bulgaria*. Presentation for Faculty of Education Research Seminar Series, University of Wollongong, Australia.	• Qualitative data collection and analysis • Quantitative data collection and analysis • Online communities • Communities of practice • Special education in Bulgaria

2. Peterson, R. (2007c, September). *The TENCompetence personal competence manager software and Special Education Bulgaria*. Presentation at TENCompetence workgroup 4 cycle-1 pilot planning and evaluation workshop, Centre of Information Society Technologies, Sofia University, Sofia, Bulgaria.	• Competence and lifelong learning • Online communities
3. Peterson, R. (2007b, September). *TENCompetence and Special Education Bulgaria*. Presentation to Department of Special Education, Sofia University, Sofia, Bulgaria.	• Competence and lifelong learning • Online communities • Communities of practice • Special education in Bulgaria

Non-refereed articles

1. Peterson, R. (2007a). Progressive special education in the Balkans: Facing change with technology. *Rhizome Magazine, 2*(2), 6-7.	• Online communities • Integration and inclusion • Special education in Bulgaria
2. Peterson, R. (2006, February 14). A travelling scholar. *Illawarra Mercury*, p. 25.	• Bulgaria

Websites

1. Peterson, R. (2006c). *Special education Bulgaria*. Retrieved August 26, 2008, from http://www.specialeducationbulgaria.com 2. Peterson, R. (2005b). *Special ed Bulgaria*. Retrieved May 10, 2006, from http://www.specialedbulgaria.org	• Competence and lifelong learning • Online communities • Communities of practice • Special education in Bulgaria