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Establishing an Internet-based special education community in Bulgaria: A summary of preliminary findings and future steps

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Research behind the establishment of an Internet-based community of practice, called Special Ed Bulgaria, www.specialedbulgaria.org, is discussed. Preliminary results show that special education researchers and practitioners in Bulgaria are familiar enough with using the Internet to benefit from an online community. Results also indicate that there is sufficient access to the Internet. Usability results directed modifications to the prototype online community and led to the incorporation of a popular course management system called Moodle.

Introduction

"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" (p. 275), says Buysse, Sparkman, & Wesley in their 2003 article in *Exceptional Children*. In their article, they examined the community of practice (CoP) model as a framework for integrating education research and practice. The authors conclude with a call to action for researchers to incorporate a CoP perspective into current research. Moreover, they list special education as an example of an area that could connect researchers with practitioners.

Putting their findings to the test, let us consider an online community of practice (OCoP) for special education in Bulgaria. The purpose of such a community would be to provide a centralized, easily accessible, and inexpensive means to connect researchers, practitioners, and parents from around the country to appropriate resources and opportunities for collaboration. The community, situated in the confines of a website, would also provide a central repository for documents and information. Other benefits include the potential for the involvement of practitioners in educational research and the ability to host live chat sessions and online courses and workshops.

An initial month-long investigation conducted late last year reveals that the establishment of such a community is possible and that there is a great amount of interest in it. Further, results suggest that such an OCoP could significantly benefit special education in Bulgaria. The OCoP is called Special Ed Bulgaria (SEB), www.specialedbulgaria.org.

Research Methods

Research is being conducted in the following two phases with a possible third phase if upgraded to PhD: needs assessment, formative evaluation, and effectiveness evaluation. Depending on OCoP success, maintenance and impact evaluations may be proposed for future research (Reeves & Hedberg, 2003). At the time this paper was written, a Masters of Education research project had been underway for one year, the needs assessment was near completion, funding for an upgrade to PhD secured, and prototype and alpha websites posted to the Internet, see Figure 1, Figure 2, Figure 3, and Figure 4.

The needs assessment is in the final stages of data analysis. The purpose of the assessment is 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 source of data for the needs assessment was personal interviews and usability testing with Bulgarian special education experts, special education practitioners, and representatives from non-profit education organizations. The researcher was

in Bulgaria for one month, mid September to mid October 2005, and interviewed 12 subjects. Interview questions were written to cover all of main themes from a recent, introductory special-education textbook from the United States (Gargiulo, 2006) and differentiated in terms of Patton's experience, opinion, task-based, and knowledge question categories (2002). Usability tasks were written and results coded in line with Barnum's usability testing methods (2002).

The formative evaluation will begin early 2006 and include expert reviews, website statistics analysis (page hits), usability testing, and a user survey. The purpose of the formative evaluation is to provide information about "creating, debugging, and enhancing" the OCoP (Reeves & Hedberg, 2003, pp. 60-61). Through methods of "progressive refinement" (Collins, 1999, p. 2), the OCoP will be revised continually throughout the formative evaluation until the bugs are worked out.

Experts in special education and web design will be asked to review the alpha version of the OCoP and complete questionnaires. Web design experts will be asked complete a heuristic evaluation—an inspection guided by a set of usability principles—as described by Barnum (2002). Webpage hit statistics will be tracked to help determine which areas of the OCoP are useful and which should be reworked. Such statistics are available through open-source software provided by the web-hosting service. The usability test will be conducted with a group of students from Sofia University in May 2006 during a second trip to Bulgaria. The test will be more formal than the one conducted during the needs assessment. Users will be videotaped as they work through a series of tasks such as sending a discussion forum message. They will be asked to think aloud as they work. Five participants will be selected on an availability basis. According to Barnum (2002), five participants is enough to receive productive feedback. The beta website will be posted to the Internet at the end of the formative evaluation.

Toward the end of the formative evaluation, an anonymous web-based survey will be created and linked to the website. The survey will be made quantifiable using Likert-scale questions such as, "This website seems logical to me?" and "Using the website for the first time is easy?" (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree).

After the formative evaluation and when the OCoP has been online for at least six months, an effectiveness evaluation is proposed for PhD research. The purpose of the effectiveness evaluation will be to determine what knowledge practitioners gained by using the OCoP and how new knowledge was applied to their teaching. Further, it would seek to determine to what extent the OCoP accomplished the following research goals:

1. Provide professional development opportunities to Bulgarian special educators.
2. Incorporate theoretical requirements for successful CoPs.
3. Connect special education research with practice.

Personal interviews will be conducted with research partners and website moderators during a third trip to Bulgaria in 2007. User questionnaires will be e-mailed to all OCoP members. An ongoing review of discussion forum contents will also provide valuable information about the effectiveness of the website. Telephone interviews will be conducted with research partners and website moderators in Bulgaria as needed. Calling cards may be given to subjects to provide feedback at their leisure.

At the conclusion of the effectiveness evaluation, the final version of the website will be posted to the Internet, and plans will be made for future website development and maintenance. A discussion-forum moderator and webmaster from Bulgaria and subject matter experts to act as mentors on the website will be recruited. Finally, design principles will be proposed in keeping with the design-based research approach (Reeves, 2000).

Preliminary Results from Needs Assessment

Data collection for the needs assessment occurred as planned with a few minor adjustments. First, instead of visiting interview participants twice—once for general questions about special education and

once for a usability study—interviews were conducted in one session. It was found that after the first few interviews were completed, general questions about special education were no longer necessary and that the usability study was most valuable.

Second, an evaluation of special education knowledge did not take place with personal interview subjects, and there are no longer plans for a follow-up test of special education knowledge for use as an indicator of learning facilitated by the OCoP. This method was flawed in that the nature of the evaluation was too broad. Further, such an evaluation did not appear to be a useful indicator of OCoP success. Instead, an extensive effectiveness evaluation should be conducted.

Results from usability testing with the prototype website show that special education professors and practitioners as well as non-profit education organization representatives are skilled enough with the Internet to operate an OCoP. Preliminary results from personal interviews and Internet use questionnaires show that there is sufficient access to the Internet and that a number of parents, perhaps 20%, also have regular access.

Usability results also showed a need for modifications to prototype design. Such modifications included the location of links for posting a reply to discussion topics, reading posted messages, registering for discussion forums, and translating language from English to Bulgarian. Other modifications included a clearer Bulgarian translation of navigational headings and links, improved wording and simplified registration, simplified discussion forum organization, and integration of discussion forums with home page. A final modification noted was the need for users to post and organize documents without going through the webmaster.

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 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.

The most important result of the needs assessment is that the there appears to be great interest in the OCoP and that the study itself is possible and should provide useful outcomes. One reason for the level of interest in the study may be that it is pioneering in Bulgaria. Though the OCoP concept is well know among most Australian and American educational researchers, it seems to be an entirely new concept in Bulgarian special education. A second reason for interest may be the high cost of telephone conversations coupled with the need for frequent communication between special schools and researchers located across the country.

From Prototype to Alpha Website

The prototype website was developed with Macromedia Dreamweaver and hosted on the Internet through an inexpensive Linux-based hosting account from the United States. Much of the content on the prototype website and its organization was based on a recent, introductory special-education textbook from the United States (Gargiulo, 2006). The discussion forums are powered by phpBB, an open-source bulletin board package with complete Bulgarian language translation for links, buttons, and help documentation. The prototype website can be viewed at www.specialedbulgaria.org/backupoldseb.

The alpha website was developed with Moodle (Modular Object-Oriented Dynamic Learning Environment). Moodle is a free open-source software package designed to support online learning communities. It has more than 75,000 registered users on its home page, “speaking 70 languages in 138 countries” (Dougiamas, nd). It was chosen for the next iteration of the website after a recommendation from CoP consultant, John Smith (personal communication, November 9, 2005). He is know for, among other CoP developments, the www.cpsquare.org website and Communities of Practice Foundations workshop with the famous CoP theorist, Etienne Wenger. Moodle is a good choice for the OCoP because it is scalable from small 10-member communities to large 40,000-member communities and has proven to

be sustainable over time by its thousands of users. Moreover, it offers a number of features that can be added over time as participants become comfortable with using the OCoP interface.

The alpha website includes the same features of the prototype but reorganized to meet needs assessment findings, see Figure 5. Website colors were changed to better match the Sofia University Department of Special Education home page, www.fnpp.uni-sofia.bg. There is a documents library, Internet resources guide, glossary of special education terms, and discussion forum. With the alpha website, however, users can post documents, glossary entries, and Internet resources without going through the webmaster. Discussion forum operation, e.g., posting and reading messages, has been greatly simplified.

The quick reference guide and link to a Bulgarian-English online dictionary were removed as they did not appear to be important features at this stage according to needs assessment findings. A chat feature was added to the alpha website as the needs assessment showed many subjects had chat accounts and used them frequently. Moodle is designed for use with ICQ, MSN, AIM, Yahoo, and other mainstream chat programs. In addition, the alpha site is only available in Bulgarian. The prototype home page opened in English and could be translated into Bulgarian. This was a problem that was identified during usability testing. The prototype should have opened in Bulgarian first.

In the future, such additional features may be added as a calendar, events schedule, featured links, glossary word of the day, participant journals, website overview and how to, frequently asked questions list translated into Bulgarian, online courses and workshops, and online surveys with real-time results, see Figure 4. Discussion topics of the week will be sent via e-mail to OCoP participants as well as news about upcoming events such as scheduled chat sessions with special education experts. Featured discussion ideas are being developed based on personal interview transcriptions and needs assessment data analysis. The alpha website was launched along with the new year. At present, a letter is being drafted to be sent from the Bulgarian Ministry of Education to special educators and throughout the country.

Note: For information about this study's literature review, review of existing websites, theoretical framework, and design-based research framework, refer to the two papers presented at the E-Learn conference in Vancouver, Canada late last year: (Peterson, 2005) and (Peterson & Herrington, 2005). These papers are available at www.aace.org. Navigate to the digital library and then proceedings. Select the appropriate conference and conference year. Papers are listed by page number. Alternatively, conduct a keyword search from the digital library using the paper's title.

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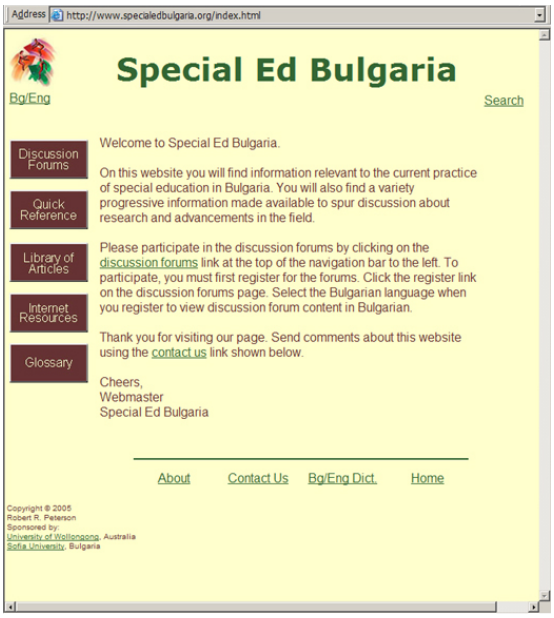

Figure 1: Prototype Special Ed Bulgaria Home Page in English www.specialedbulgaria.org/backupoldseb

Figure 2: Special Ed Bulgaria Home Page in Bulgarian http://specialedbulgaria.org/backupoldseb/bg/index_bg.html

Figure 3: Alpha Special Ed Bulgaria Home Page in Bulgarian www.specialedbulgaria.org

Figure 4: Future Special Ed Bulgaria Home Page with Additional Features

Special Education Bulgaria Website Blueprint Rev 2.0

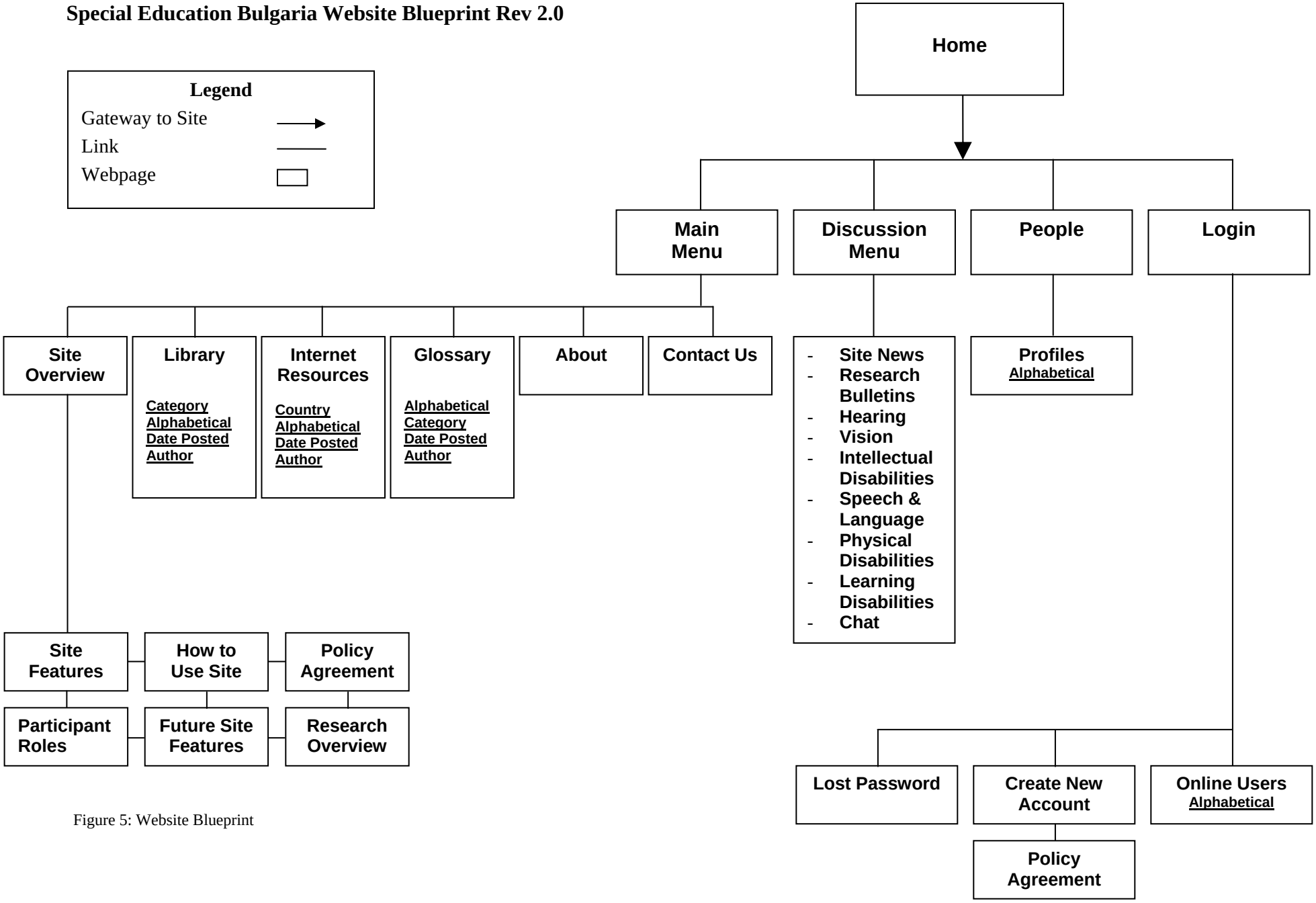

Figure 5: Website Blueprint

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