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Online Support for Collaborative Authentic Activities

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INTRODUCTION

Collaborative learning has long been part of university study; for example, through group discussion, laboratory work in pairs and group projects (Jacques, 1991). In the past, these kinds of collaborative activities have been available only to full-time, on-campus students because of the difficulties in finding time and space for students to work together (Kimball, 2001). However, Internet-based communication technologies have made possible more flexible approaches to learning that offer new opportunities for students to collaborate (Bonk, Malinkowski, Angeli, & Suplee, 1998; Collis, 1996; McLoughlin, 2002; Oliver & Omari, 1999; Palloff & Pratt, 1999). Support for learning “anytime, anywhere” has changed patterns of on-campus attendance at many institutions, meaning that students come to class irregularly, infrequently or not at all.

Another recent trend in higher education has been the use of authentic activities to help students understand how the knowledge and skills they learn relate to practice (McLoughlin, 2002; Reeves, Herrington, & Oliver, 2002). Such “authentic” activities aim to set learning within a real-world context (Bennett, Harper, & Hedberg, 2001; Herrington & Oliver, 2000). The rationale for authentic activities comes from the assumption that “people transfer learning with difficulty, needing both context and content learning” and, therefore, “skills and knowledge are best acquired within realistic contexts” (Grabinger, 1996, p. 667). An authentic task reflects the characteristics and complexity of the real-world setting (Barab & Duffy, 2000). Thus, when collaboration is a feature of the real-world environment, it also reflects the ways in which practitioners work together, the range of perspectives on a problem or issue, and the way knowledge is shared within communities of practice (Brown, Collins, & Duguid, 1989; Duffy & Cunningham, 1996; Lave & Wenger, 1991).

Case-, problem- and project-based learning have been advocated as specific instructional strategies to

support authentic activities (e.g., Duffy & Cunningham, 1996; Jonassen, Mayes, & McAleese, 1993; Savery & Duffy, 1995). These approaches are thought to offer a wide range of benefits to students by distributing knowledge and workload among group members, providing motivational support and bringing learners into contact with alternative interpretations and views. In particular, such approaches encourage collaboration through:

- collective problem solving (Barrows, 1994; Jonassen et al., 1993; Herrington & Oliver, 1997)
- group project work (Blumenfeld, Soloway, Marx, Krajcik, Guzdial, & Palincsar, 1991; Cognition and Technology Group at Vanderbilt, 1997)
- discussion of rich descriptions of realistic cases (Ertmer & Russell, 1995; Stepich, Ertmer & Lane, 2001).

This article summarises the findings from a recent study of the role of online technologies to support collaborative project teams.

BACKGROUND

A recent study of learners engaged in technology-supported authentic activities that relied on collaboration amongst team members provided insights into how online technology can support collaboration (Bennett, 2004). Students undertook a project activity that required them to work in small teams on a design and development task for a real client. The task reflected key characteristics of a real-life instructional design problem and provided learners with the opportunity to experience a team-based approach typical of real-life multimedia production. Most students were enrolled part-time and lived away from campus, so online support tools were used. Technology played three main roles in supporting the students’ work on the authentic task.

It facilitated the seamless presentation of resources through the Web, thus providing access to a rich set of materials in a variety of formats. Learners used software tools also used by practitioners to represent project ideas through text and graphics, and to organise their project resources. Conversation and collaboration tools allowed the learners to share their ideas and interpretations, and supported group negotiation and organisation.

A qualitative case study approach was used to investigate learners' experiences of this environment, and data in the form of interviews and discussion list transcripts were collected from six teams over two years. Comments from the students about their successes and failures indicate that online technologies played a critical role in supporting the collaborative process amongst team members. Six common themes emerged from the analysis of the data.

KEY FINDINGS

Open Communication was Critical to Team Success

Students observed that open communication had to be established and maintained for the team to succeed. For most teams, this meant managing communication among members working in different locations and at different times.

A Range of Tools and Strategies were Needed to Support Teamwork

The teams used a range of tools and strategies to support group work. This included the use of face-to-face meetings and computer-based communication tools for discussion, and sharing of files through e-mail and a file server. Teams chose options from a range of supports available within the learning environment, finding the right combination of tools and strategies to suit their particular needs.

Particular Challenges to Good Online Communication Existed

Despite the advantages of using online tools, online communication could be difficult to initiate and main-

tain. Online communication lacked the immediacy of face-to-face conversation and so could be ignored or neglected, or misunderstood more easily than discussion in person or by phone. Some students also experienced technical difficulties that caused communication to break down. To address these issues, teams explored a number of alternatives to find the right tools.

Teams Needed to Adapt Their Communication Patterns Throughout the Project

The teams found that their patterns of communication changed throughout the project. In the early stages, most groups met at least once per week as they got to know each other and exchanged ideas about the project requirements. As the projects progressed, team members took on more specialised tasks and met less frequently. Towards the end, some teams found that they needed to meet and work on the project together. These changes required the adaptation of tools and strategies for communication.

Online Tools for Managing and Organising the Project were Essential

Online tools were used to manage and organise work on the project. Asynchronous and synchronous communication tools were used to maintain contact and plan forthcoming meetings. The file server was used as a repository for project management documents, such as design specifications and meeting records. This allowed all team members to review documentation at any stage of the project, and ensured that all members of the team had access to the same versions.

Online Tools Supported Interaction with the Whole Class and the Instructor

In addition to supporting communication amongst the team members, asynchronous communication tools enabled students to interact as a class group and with the instructor. The whole class discussion forum provided a space for students to ask general questions about the subject, as well as to share observations. This meant that students could follow the progress of other teams and feel that they were part of a larger group. The lecturer could also make contributions to this forum, allowing

clarification of issues and continuation of discussion between the class meetings.

IMPLICATIONS FOR DESIGN AND IMPLEMENTATION

The study findings have implications for the design and implementation of this particular subject, but may also be applicable to other forms of group work in which there are limited opportunities for students to meet. The following suggestions have been drawn from the findings for consideration by designers and teachers.

Design Opportunities for Authentic Collaboration

To provide opportunities for authentic collaboration, consideration must be given to how working with others can reflect real-world practice in the discipline. The design of the learning experience must include an analysis of the requirements of the task to ensure the necessary supports are provided. A variety of activities relevant to the task should be included, including small-group and whole-class discussions, collaborative writing and team production where appropriate. Group activities can build on one another towards a larger goal, and should be integrated into the assessment and encourage appropriate use of technology. Such a design allows learners to practise with the tools, fosters skill development, builds confidence and helps learners to understand the nature of collaboration in the professional context.

Make an Array of Technology Tools Available and Provide Support

The needs of groups working together on authentic tasks will vary according to the nature of the challenge and the approach the group decides to take. It is difficult for designers and teachers to predict the exact nature of the tools teams will find most effective for their situation. Providing an array of online tools within the learning environment allows learners to make their own assessments, choose the tools they need and develop appropriate strategies for using them. Students may need assistance in setting up the tools and learning how

to use them. This should be considered as part of the design and implementation process. Learners should also be encouraged to monitor their use of the tools and be prepared to explore alternatives if an option fails. This goes beyond just making tools available and providing technical support. Instead, teachers must model and scaffold the use of the tools.

Help Students to Develop Effective Online Communication Skills

Effective online communications skills are vital to collaborating at a distance. Even when teams can meet face to face, online communication maintains momentum and contact, and allows the flexibility for team members to work independently when required. Students need to develop an awareness of the particular advantages and limitations of online communication. Teachers can prepare learners for communicating in the online environment through discussion about potential problems and strategies they might consider. Teams should also be encouraged to continuously evaluate the effectiveness of their communication, and helped to diagnose problems and develop solutions. Even when students are engaged in an authentic task, there is still a role for the teacher in facilitating group interaction by offering appropriate levels of support throughout the subject.

Encourage a Mix of Communication Strategies

Opportunities for both face-to-face and online communication can be provided within the design of the subject through scheduled meetings and discussions, and by encouraging students to think about when teams need to meet and how they will contribute to the project when they are apart. When there are limited opportunities to meet, teachers must be strategic about the use of face-to-face time and help the students do the same. Face-to-face time is best for brainstorming and debating ideas, and for whole class discussion. Online communication maintains interaction and supports collaboration. A balance between the two forms of communication enables continuous interaction while also giving learners time to work independently.

FUTURE TRENDS

The findings of this study highlight some of the challenges designers and teachers face in creating an environment that can support learners working together in different locations. In particular, the findings show that a suite of complementary strategies and tools is needed to help teams carry out the range of tasks necessary for collaboration on an authentic task. Popular learning management systems are designed around making tools available to teachers to present and format information in combination with a limited range of collaborative opportunities for learners. More work is needed to develop learning support and management systems that seamlessly integrate a range of tools in ways that aim to support learners' managing and organising collaboration.

CONCLUSION

With the advent of online technologies, opportunities have arisen to engage a wider group of learners in authentic, collaborative tasks. Such activities aim to engage learners in the kind of collaboration that occurs in professional practice by allowing team members to work in different locations at different times. The article has summarised the six key findings from a two-year research study of such a learning environment and discussed their implications for designers and teachers wishing to implement such an approach.

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KEY TERMS

Authentic Activities: Activities that reflect the ways in which knowledge and skills are used in real-world practice. These are usually simplified in a formal learning environment rather than being identical to the activities a practitioner might perform.

Collaborative Learning: Learning that required joint activity in which two or more learners negotiate meaning and process and contribute to the final outcome.

Online Communication Strategies: Strategies and protocols established by learners and teachers to make effective use of online communication tools.

Online Communication Tools: Tools that allow communication through Internet-based technologies. Communication may be synchronous, in which communication occurs in real time; or asynchronous, in which there is a gap in time between the sending and receipt of a message.

Online Learning: Learning that is solely or partly mediated through online technologies. This mode of learning allows learners and teachers to interact regardless of location and time.

Project Based Learning: Learning that centres on an individual or group project as the main activity. Projects are open-ended tasks that allow learners to make choices about focus and/or direction.

Technology-Supported Learning Environment: An environment in which appropriate technology is integrated to support learners and teachers.

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