Research on the E-Teacher in the K-12 Distance Education Classroom

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INTRODUCTION

Compared to the post-secondary level, distance education at the elementary and secondary levels has received little attention from researchers (Kapitzke & Pendergast, 2005; Smith, Clark, & Blomeyer, 2005). This lack of attention is of concern given the rapid and broad growth of this form of education. In the United States, online education programs are experiencing rapid growth. For example, during the academic year 2005-2006, more than 90,000 middle and high school students were enrolled in state virtual schools in the Southern Regional Education Board, which represented a 100% increase in enrollments from the previous year (Southern Regional Education Board, 2006).

While we might assume that research from contexts of post-secondary may inform K-12 distance education, Cavanaugh, Gillan, Kromrey, Hess, and Blomeyer (2004) caution against this assumption as follows: "The temptation may be to attempt to apply or adapt findings from studies of K-12 classroom learning or of adult distance learning, but K-12 distance education is fundamentally unique" (p. 4). The authors further observed that, although research in this area "is maturing" (p. 17), it has only been studied since about 1999. The current "explosion in virtual schools" (p. 6) creates a compelling rationale for continued efforts to conduct research on K-12 distance education.

BACKGROUND

Typically, distance education research has evidenced a preoccupation with comparisons of the face-to-face versus the distance education classroom (Gunawardena & Mclsaac, 2004). This research reflects a tradition of media comparison studies which, argue McIsaac and Gunawardena (1996), have resulted in "very little useful guidance for distance education practice" (Research related to media in distance education section, ¶ 2). Lockee, Moore, and Burton (2001) remind us why we should be cautious about drawing conclusions based on media comparisons:

Comparing a face-to-face course to a Web-based course doesn't tell us anything about what the teacher or students did in a face-to-face class, or what strategies the Web-based event employed. Perhaps a Web-based event succeeded because students engaged in collaborative problem-solving compared to students in the face-to-face setting who simply received information through lectures. (Instructional Strategies section)

The lack of usefulness of this focus in research may be due to its underlying assumptions that the technology, and not the teaching, is the determinant of effectiveness. Sabelli (2004) observed that studies of distance education need to concentrate, not on whether distance education is effective, but on why. Likewise, Morrison (2001) argued that investigation of the effectiveness of distance education should not compare distance and face-to-face delivery, but should focus on quality instruction that results in student achievement equivalent to courses delivered by other means. According to Cavanaugh et al. (2004), in a context of virtual schooling, effectiveness can be assessed in terms of teacher quality.

In spite of the need to investigate teacher quality in this context, in fact, "there is little empirical research specifically focused on K-12 teachers and teaching in distance education courses" (Clark, 2003, p. 692). Cavanaugh et al. (2004) argued in relation to distance education that "teacher effectiveness is a strong determiner of differences in student learning" (p. 20). Likewise, Sherry (1996) explained that the most important factor for successful distance educa-

tion is a "caring, concerned teacher who is confident, experienced, at ease with the equipment, uses the media creatively, and maintains a high level of interactivity with the students" (Systems of distance education section, ¶ 4). If we want to learn about the effectiveness of this growing form of education, we need to focus more research efforts on understanding the practice of the e-teacher. Specifically, argue Cavanaugh et al., what is needed is "research that guides practitioners in refining practice so the most effective methods are used" (p. 6).

RESEARCH ON THE K-12 E-TEACHER

A limited number of studies have been conducted thus far on the practice of the e-teacher in the K-12 classroom. These have primarily resulted from either evaluations (e.g., Mills, 2002; Pendergast & Kapitzke, 2004; Zucker & Kozma, 2003) and masters' theses or doctoral dissertations (e.g., Litke, 1998b; Muirhead, 2000b; Smith, 2000). Some of the studies may not have been designed to focus specifically on the e-teacher but on virtual schooling in general. These studies provide some insight into the practice of the e-teacher in the K-12 distance education classroom.

One of the earliest examples is a case study of a virtual program in a junior secondary school in Alberta, Canada (Litke, 1998a, 1998b) which reported on the perceptions of e-teachers. Findings revealed that they faced many issues including dealing with an increased workload, being overwhelmed by change, coping with technical problems, and building positive working relationships with students and parents. Other issues related to programs having been designed for face-to-face instead of for online use as well as a shortage of appropriate learning resources. The teachers also identified a perceived lack of authority in the online environment evident in "the loss of teachable moments, the absence of relationships between both students and teachers and students, the loss of discussion and stories, and the adherence to deadlines" (1998a, Discussion: Teachers' Perceptions section, ¶ 2). The author concluded that the biggest barrier to becoming a successful online educator was beliefs and attitudes and that "the teachers struggled to learn to teach online" (Discussion: Teachers' Perceptions section, ¶ 5).

One year after Litke's study, Downs and Moller (1999) published their findings related to the experiences of students, administrators, and one teacher in a high-school distance education course in New York State. The authors found that the teacher's efforts and ability played an important role in dealing with challenges related to simultaneously teaching and managing technology and that the teacher's characteristics contribute to the success of distance education in general. One of the questions that arose out of the research was how a teacher's style might need to change in order to move from a traditional classroom environment to an online one.

In the context of her doctoral studies, Smith (2000) investigated virtual schools in Alberta, Canada. Part of her study focused on e-teacher satisfaction (N=18) in relation to workload and hiring practices. The findings (see Smith, 2000; Hunter & Smith, 2002) focused on concerns about demanding workloads resulting from e-mail communication, course development, the need to keep up with technology and pedagogy, a lack of tracking systems, and a lack of preparation time. Teacher satisfaction resulted from new approaches to delivery; the opportunity to work in innovative, creative environments; opportunities for collaboration and communication and for the development of technology integration; time and space flexibility; and camaraderie. Smith also described a changing role for the teacher whereby the student becomes both student and teacher.

Like Smith, Muirhead's (2000a, 2000b) doctoral research focused on distance education in a K-12 context. The author conducted interviews over a six-month period to investigate the perceptions of 14 e-teachers in Alberta, Canada. Muirhead identified challenges, one of which involved the addition of new tasks such as authoring online courses while being responsible for teaching. Another challenge noted for e-teachers was the unreliability of computer technology as well as a lack of integrated content-development tools. Other challenges identified included the altering of teachers' relationships with others, the need to make adjustments to cope with time pressures, unease with adapting to changing roles and responsibilities, coping with workload stress, feeling overwhelmed with a need to master new skills and knowledge, and the existence of strained feelings between e-teachers and traditional teachers.

A longer and more comprehensive study was completed by Barker and Wendel in 2001. The authors spent three years focused on virtual secondary schools in three Canadian provinces. As part of their findings,

they listed the following characteristics of ideal virtual school teachers: "an interest in innovation and in technology; creativity and enthusiasm; a desire and ability to work collaboratively; a commitment to put students first; a willingness to work with parents; technology skills; and the ability to adapt quickly to change" (p. 122). They also referred to benefits for teachers in this environment such as flexibility in scheduling and workspace, the opportunity to collaborate with other teachers, and the absence of conventional discipline problems. Issues related to staffing included workload, differentiated staffing, and the ongoing need for professional development in relation to learning technologies.

More recently, Mills (2002) reported on an evaluation of the Virtual Greenbush online learning program, which serves high school students in the United States and abroad. Students conceived of learning as a series of "teachable moments" which are "created by something a teacher says or does" and which "requires the immediate intervention of a teacher" (p. 37). The perceptions of students also pointed to the crucial role of the e-teacher in that students "relate learning to the presence of a teacher" and in some cases "may not proceed with online learning activities until an issue is resolved by a teacher" (p. 42).

Zucker and Kozma (2003) reported on a five-year evaluation of the Hudson Public Schools-Concord Consortium Virtual High School (VHS). The e-teachers in these schools reported increased satisfaction over time with their courses and the VHS project, and were in some respects more satisfied than with their face-to-face courses. Teachers cited the advantages of working online, such as the acquisition of technological skills, new teaching or assessment skills transferable to the face-to-face environment, the opportunity to prepare and teach a course they had never taught before, increased subject-matter knowledge, and increased interactions with teachers in other schools. Teachers found promoting activities for student-to-student interaction less effective than comparable activities face-to-face. They also found teaching and managing a virtual course more time-consuming, and were dissatisfied with registration procedures and software for enrolling and dropping students.

In Australia, Pendergast and Kapitzke (2004) relied on Activity Theory to review the performance of an Australian virtual schooling service. Among the findings was the unreliability of the technology which affected pedagogical effectiveness by interrupting lessons, limiting "the range and complexity of strategies" and requiring of teachers that they have in place "contingency pedagogical approaches" (p. 205). The teachers' ability to make use of the technology played an important role in affecting success although students preferred a 'better teacher' (p. 206) over one who was skilled technically. In this regard, findings also revealed a lack of satisfaction with opportunities for professional development in order to adapt pedagogical approaches for the virtual school context. Pedagogical practices were described as "typical of teacher-centered, textbook-based approaches of industrial-era schools" (p. 208) and resulted in a tension in the activity system between an industrial and information age model.

FUTURE TRENDS

As Freedman, Darrow, and Watson (2002) argued, "those who form virtual high schools or teach virtually should begin to critically evaluate what is effective pedagogy and what is not.…Developing more evidence on a daily basis should be a part of the use of online education" (p. 12). Thus far, however, there has not been an abundance of evidence because research on K-12 distance education has been limited. In fact, the role of teachers in distance education is still being "unbundled and reconfigured" (Natriello, 2005, p. 1898). Not surprisingly, "much of the experience that defines competencies required for effective virtual teachers is anecdotal" (Davis & Roblyer, 2005, p. 400).

In their synthesis of research into K-12 online learning, Smith et al. (2005) identified a need for research in two areas of teacher practice. One of them relates to challenges of online learning. Issues identified within this area include the demands of online and face-to-face teaching, how to assist teachers in keeping up with technology, and how teachers can have curricular flexibility when delivering developed courses. The second area relates to e-teachers' professional development. Research in this area might explore the characteristics of successful K-12 e-teachers; effective systems of training, mentoring, and support; and the effectiveness of online professional development in training and credentializing K-12 teachers.

CONCLUSION

As distance education at the K-12 level continues to grow, we may witness a concomitant growth in research on this form of teaching and learning. The number of studies thus far has been small compared to the attention that has been given to post-secondary contexts of distance education. Additionally, these have been typically limited to small case studies, masters' and doctoral dissertations, or to evaluations. Studies conducted thus far represent a focus on virtual learning programs that are what Kapitzke and Pendergast (2005) refer to as "first generation." As the technology changes and becomes more complex, and as virtual schooling or K-12 distance education becomes more mainstream, new studies will be needed to focus on the new generation of e-teachers.

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KEY TERMS

Distance Education: The provision of instruction where the teacher and the learner are spatially separated.

E-Teacher: A teacher who provides instruction by electronic means, such as by the computer and telecommunications.

Elementary or Primary Education: In the United States, formal education for children beginning with Kindergarten or 1st grade and ending in 5th grade.

Secondary Education: In the United States, formal education beginning in 6th or 7th grade and finishing at the age of 16 or 18. It is divided into middle school and high school.

K-12 Education: Header used in the United States and Canada to refer to primary and secondary education, from Kindergarten to 12th grade.

Virtual Schooling: A system of education in which a student attends courses face-to-face in a physical school while at the same time supplementing course offerings with virtual classes.

Virtual Schools: Educational organisations offering programs to online students through web-based classrooms. In this mode of education, students take courses exclusively through an online organization.