



2011

Introducing In-Service Teachers to Virtual Schooling Through the Lens of the Three Teacher Roles

Michael K. Barbour
Sacred Heart University

Follow this and additional works at: http://digitalcommons.sacredheart.edu/ced_fac

Recommended Citation

Barbour, M. K. (2011). Introducing in-service teachers to virtual schooling through the lens of the three teacher roles. In M. Koehler & P. Mishra (Eds.), *Proceedings of the annual conference of the Society for Information Technology and Teacher Education* (pp. 3425-3432). Norfolk, VA: Association for the Advancement of Computing in Education.

This Conference Proceeding is brought to you for free and open access by the Isabelle Farrington College Of Education at DigitalCommons@SHU. It has been accepted for inclusion in Education Faculty Publications by an authorized administrator of DigitalCommons@SHU. For more information, please contact ferribyp@sacredheart.edu.

Introducing In-Service Teachers to Virtual Schooling through the Lens of the Three Teacher Roles

Michael Barbour
Wayne State University
USA
mkbarbour@gmail.com

Abstract – This study will examine the third and fourth rounds of data collection from an action research project designed to help in-service teachers become better virtual school facilitators (currently being analyzed). The data included blog entries and comments from five of the seven graduate students in an instructional technology course related to K-12 online learning. The specific discussion prompts relate to virtual school readings and the Teacher Education Goes into Virtual Schooling (TEGIVS) curriculum. Based upon initial analysis, the TEGIVS curriculum was effective for providing these graduate students some experience with how K-12 online learning opportunities were delivered, along with some of the possibilities and challenges associated with K-12 online learning. The analysis of this data is continuing, and there are plans to continue this line of inquiry with additional students in future offerings as we continue to improve upon the course design.

Clark (2001) estimated there were approximately 40,000 to 50,000 students engaged in virtual schooling in the United States. Eight years later Picciano and Seaman (2009) indicated that there were over 1,000,000 K-12 students enrolled in online courses. Watson, Gemin, and Ryan (2008) reported significant K-12 online learning activity in 44 states. Several states, including Michigan, require students to have an online learning experience in order to graduate from high school. This growth of online learning at the K-12 level has caused dramatic changes in the design and delivery of education, at least for the student population served by these opportunities.

However, the vast majority of pre-service and in-service teacher education programs simply do not provide any curricular opportunities in this area. Rice and Dawley (2007) found that less than 40% of all online K-12 teachers in the United States reported receiving professional development before they began teaching online. This indicates a need for teacher education programs to address pre-service and in-service teachers' ability to teach in environments that are completely mediated by technology.

This study examined one university's continuing efforts to address this growing need in teacher education. Wayne State University is a large, publicly funded, research-extensive university in Michigan (i.e., the first jurisdiction to have an online learning graduation requirement). Over the past two years, the Instructional Technology program has developed and adopted curriculum to support teachers with understanding of K-12 online learning in their own schools. This proceedings examines the results of the second round of data collection.

Literature Review

In their issues brief for the International Council for K-12 Online Learning's research committee, Davis and Rose (2007) stated that teacher education programs needed to develop courses and programs that focused upon teaching and learning in K-12 online learning environments. According to Davis (2007) this meant providing support for three new types of teachers that had emerged:

Virtual School Site Facilitator: Mentoring & Advocating
Local mentor and advocate for students(s)
Proctors & records grades, etc.

Virtual School Teacher: Pedagogy & Class Management
Presents activities, manages pacing, rigor, etc.
Interacts with students and their facilitators
Undertakes assessment, grading, etc.

Virtual School Designer: Course Development

Design instructional materials

Works in team with teachers and a virtual school to construct the online course, etc. (emphasis added)

While few teacher education programs have focused on any of these three roles, a growing body of literature has developed around the second two (i.e., virtual school teacher and virtual school designer).

Roblyer and McKenzie (2000) stated that many of the factors that made a successful online teacher, such as good communication and classroom organization skills, were similar to those for any successful teacher, Davis, Roblyer, Charania, Ferdig, Harms, Compton and Cho (2007) discovered “effective virtual teachers have qualities and skills that often set them apart from traditional teachers” (p. 28). Some of the skills necessary for teaching in an online environment are consistent with those provided by traditional teacher education programs, but there are other necessary skills that are largely absent (Davis & Roblyer, 2005). Teaching in an online environment also requires a paradigm shift in how teachers perceive time and space, manage instructional activities and assessments, and engage students (Easton, 2003). Further, Morris (2002) described that teachers who taught in technology-mediated environments, such as those provided by virtual schools, should have a high level of technology skills, be familiar with the curriculum, possess strong communication and organizational skills, and be excited about this new method of delivery. Lowes (2005) indicated that online teachers were required to use different strategies when determining “how to reach and evaluate, students when you cannot interact with them face-to-face on a daily basis” (p. 12).

Similarly, Barbour and Cooze (Barbour, 2005; 2007a; Barbour & Cooze, 2004; Cooze & Barbour, 2007) examined what constituted effective asynchronous course content design for K-12 learners. The results of their investigations were a list of seven principles that virtual school designers could use in their course development process. Further, Keeler and Anderson-Inman began the process of creating a validated instrument to describe online course design within the K-12 environment (Keeler, 2004; 2006; Keeler & Anderson-Inman, 2004a; 2004b). While their instrument was limited to description of the online course, it could serve as a useful guide for considering all of the possible factors a virtual school designer must consider when development online course content.

However, to date there has been very little research into the virtual school facilitator. The “Teacher Education Goes Into Virtual Schooling” (TEGIVS) initiative led by Iowa State University has been one of the few exceptions (see <http://ctl.iastate.edu/~tegivs/TEGIVS/homepage.html>). The TEGIVS initiative was designed to introduce and orient new and current teachers to all three roles in the virtual school environment. This was partially accomplished through the use of “instructional materials that [were] designed to illustrate and provide experiences with virtual schooling concepts and issues” (Davis et al., 2007, p. 29). The instructional materials included five web-based scenarios – one for early childhood/elementary, one for elementary/middle school, and three for secondary school – that focused on different virtual schooling issues and featured a variety of different tools (see <http://ctl.iastate.edu/~tegivs/TEGIVS/VSLab/all%20scenarios.html>). Each scenario reflected four aspects of virtual schooling: pedagogy, technology, assessment and management. The scenarios had different approaches to online learning (e.g., didactic inquiry, problem-based learning, and other teaching strategies). The scenarios also showcased asynchronous and synchronous software, along with individual tools (e.g., discussion boards, chat room, e-mail, the whiteboard, etc.) used in the virtual school environment. The scenarios also provided examples of assessment in virtual school environments (e.g., reflections, proctored exams, performance-based tests and quizzes, etc.). Finally, the scenarios outlined a variety of management issues (e.g., communication between teacher and students, motivational challenges, and teaching at a distance) (Davis, Demiraslan & Wortmann, 2007).

As states, such as Michigan, move to require students to have online learning experiences it is this third role – i.e., virtual school facilitator – that is critical to student success. For example, in their evaluation of the ACCESS Alabama online program, Roblyer, Freeman, Stabler and Schneidmiller (2007) found that “facilitators that are directly working with students day by day are key to the success of the program” (p. 11). Barbour and Mulcahy (2004, 2009) have begun to examine what the role of virtual school facilitator encompasses and the amount of time it takes to complete these activities, however, their studies have focused upon a single virtual school where teachers undertake this role in addition to their normal teaching load (i.e., in a volunteer capacity). Clearly more work is needed to better understand and prepare teachers for this vital role of virtual school facilitator.

Methodology

During the Winter 2008 semester, the Instructional Technology program at Wayne State University adopted portions of the TEGIVS curriculum into their Master's level IT6230 – Internet in the Classroom course. The overarching purpose of the course was to introduce students to the three virtual schooling roles: facilitator, teacher, and designer. However, as most middle and high school teachers in Michigan were more likely to play the role of the facilitator the majority of course activities focused on this position. The course began with a focus on Web 2.0 technologies for the first seven weeks of the course (e.g., blogging, RSS, wikis, microblogging, social networking, etc.). Then the students shifted their focus to an examination of K-12 online learning for the final seven weeks. This portion of the course utilized the five TEGIVS scenarios, readings related to K-12 online learning (e.g., Barbour, 2007b; Barbour & Reeves, 2009; Clark, 2000; DiPietro, Ferdig, Black & Preston, 2008; Roblyer, 2005; Watson et al., 2004, 2005, 2006, 2007, 2008), reflective discussions using blogs and RSS feeds based upon the instructor's prompt, and the individual project and group project from the TEGIVS curriculum.

The purpose of this study was to examine the impact of the TEGIVS curriculum on the opinions of graduate students enrolled in IT6230 about the role of the virtual school facilitator, as students in this course needed to have practice, experience and knowledge of the tools available in order to mentor and advocate for the students at the local school level. A secondary purpose was to examine the effectiveness of the chosen K-12 online learning curriculum, with the goal of making continual improvements to the course (Stringer, 2004). For example, based upon the data collected during the Winter 2008 semester (i.e., Barbour & Unger, 2009) the coverage provided to the K-12 online learning content was increased from five weeks to seven weeks, along with changes to the readings, the discussion prompts and the two assignments. The data we describe in this paper is from the Winter 2009 semester.

Seven graduate students were enrolled in the IT6230 course during the Winter 2009 semester. The data included the participants' entries and comments to their blogs based on six prompts provided by the instructor (see <http://it6230.blogspot.com/> for copies of these prompts – e.g., Weeks 9 through 15), along with the participants' responses to the Task portion of the TEGIVS scenarios (see Scenario #1, #2, and #3 at <http://ctl.iastate.edu/~tegivs/TEGIVS/VSLab/all%20scenarios.html> for these prompts) from the five students who agreed to participate. This data was analyzed by one of the researchers using an inductive analysis approach (LeCompte & Preissle, 1993), and constant comparative coding (Ezzy, 2002). The researcher used *Microsoft Word*® as a tool to complete this analysis following the procedure outlined by Ruona (2005). The researcher responsible for the analysis met with the second researcher on a weekly basis to discuss codes, categories and potential themes.

Data has also been collected from the Summer 2009 and Winter 2010 semesters that are currently being analyzed. While there were few changes to the course for Summer 2009, there was an addition of four Michigan-focused online teaching case studies for the Winter 2011 semester. This analysis is scheduled to be completed around the end of 2010 and will be available for presentation at the conference. In addition, the presentation will also be able to demonstrate three new Michigan-focused TEGIVS-styled scenarios that will be used in the Winter 2011 semester (that were developed based on the initial analysis of the Summer 2009 and Winter 2010 data).

Results and Discussion

As our analysis has only been completed on the first two rounds of data collection, this section describes the results from only the Winter 2008 and Winter 2009 data. There were four main themes in these first two rounds of data collection.

Nature of Students Served by K-12 Online Learning

The dominant theme identified in the Winter 2009 data focused on the types of students the participants felt could be served by this form of educational delivery. For example, Alison wrote, "I think that K-12 students who participate in online learning are largely in the upper end of the K-12 range. It is difficult for me to see where online learning has a place in K-5 education." Overall the participants felt that K-12 online learning could be beneficial for students who were at-risk, sick/depressed, shy, gifted, and responsible (in order of the number of times mentioned). The strongest beliefs about who benefited the most of virtual schooling were reserved for those students who received their education at home. Representative of these comments, Devon wrote, "Students drawn to this form of learning are those who find taking courses at home more desirable for a variety of reasons ranging from difficulty

attending a classroom, time considerations and even health considerations.” The group of students identified as potentially benefitting from virtual schooling was fairly consistent with the data collected during the 2008 Winter semester, with at-risk and students in the middle and high school grades also being identified (Barbour & Unger, 2009).

No Winter 2009 participants were able to see a role for K-12 online learning at the elementary grades. I just don't understand how K-3 students can benefit from learning online. I think they need to be in an instructional setting so that they learn self-control, self-discipline and how to interact with their peers. Once these critical skills are taught, then can they move on up to learning that is done more independently.
(Aida)

This was a concern that emerged in the 2008 data as well, which also identified socialization and interaction as potential problems for students who did not communicate well in a technology-mediated environment – such as ESL students (Compton, Follett & Demiraslan, 2007). Finally, the focus on the nature of students and their ability to succeed in a virtual school environment may have emerged as the main theme in the 2009 data due to the changes in the instructor’s discussion prompts.

Benefits of Virtual Schooling

In the Winter 2008 data, the impact virtual schooling had on teachers was the main theme. Under that theme there were two trends: benefits and drawbacks for teachers. Of the benefits listed in the 2008 data, only one remained consistent in 2009; the freedom to access online learning anywhere/anytime. For example, Patty wrote, “I learned that I like the convenience of doing my homework for class or answering blog question at 2:00 a.m. or even getting up at 4:00 a.m. in the morning while still in my PJ’s.” These personal realizations were also translated into opinions that their students could also benefit from the same flexibility. Participants also felt that virtual schooling provided additional exposure to courses, and a world full of resources and content not available at the school. “It really makes the entire world the classroom for the students. It does not have to be confined to the 8am-3pm day of school, nor does it need to be in a particular building” (Mason).

Finally, participants felt virtual schooling removed social pressures, such as student acceptance and judgment by other students during adolescents. Aida indicated:

I also feel that online classes help students become more open and show their true personalities. Students are often embarrassed, reserved or simply afraid to make a mistake in a class setting. With online schooling, students do not feel the pressure of needing to impress students around them. They also might be more likely to speak out about certain topics of discussion with other class members more freely because of the lack or peer pressure and boost of confidence the Internet gives to individuals.

Virtual schooling also had the potential to reduce the opportunity for class disruptions and allow the teacher the time to better prepare and provide feedback. “I can only imagine how nice it would be to focus on teaching, without all of the many distractions that occur in the classroom” (Alison). Participants also indicated virtual schooling provided current learners exposure to tools that would be used in their future learning and careers. Again Alison wrote, “Having an online learning requirement for *all* students will help them be more prepared for their future schooling and even work lives” (emphasis in original).

Drawbacks of Virtual Schooling

There were only two drawbacks that emerged in the Winter 2009 data. The first was the perceived isolation that could develop for students who were engaged in virtual schooling outside of a brick-and-mortar setting. Devon wrote that it “might keep the painfully shy student from getting the socialization experiences needed.” There were also some minor references to concerns about cheating, although this was not a dominant theme. Interestingly, neither of these issues were found to be themes in the Winter 2008 data (Barbour & Unger, 2009). Participants from that semester were primarily concerned with the impact virtual schooling would have on teachers, specifically the potential to increase teacher workload and administrative tasks. Increase in potential workload was mainly seen through the lens of the amount of time it may take to stay current with the technology required for this method of educational delivery.

Many of the concerns expressed by the Winter 2009 participants were consistent with the findings reported by Compton et al., (2007), when they reported the results of their initial use of the TEGIVS materials with students at Iowa State University. The lack of concern for some of these issues may be due to changes made in the IT6230 course, but could also be related to a growing acceptance and understanding of virtual schooling.

Successful Virtual Schools Must Include

The participants felt there were some key issues that needed to be addressed to allow for the successful integration of virtual schooling into the K-12 system. The first of these was the necessary technical training for teachers and students. “I would look at... the instructors training. The knowledge to teach the course is not in question, rather the technological savvy to catch the students that may abuse the freedom” (Mason). Other issues the participants raised included having a high level of interaction between students and teachers, along with ensuring the appropriate technology was in place. Finally, participants felt there needed to be specific policies in place for students related to acceptable use. Mason summarized it best when he wrote, “The ‘honor code’ is often defined prior to the beginning of the class and signed by each student as to the acceptable use of the program and the technology. This helps to give the students some written boundaries and consequences should they choose to violate it.”

Again, it must be noted the participants in Winter 2008 generated a theme of reasons why virtual schools were unsuccessful (Barbour & Unger, 2009). These participants focused on the role of the teacher and administrators as why virtual schools were often unsuccessful, including the lack of training – which was also found to a limited extent in the Winter 2009 data. However, absent from the 2009 data were concerns raised over teacher and administrative buy-in. Again, this could be due to changes made in the IT6230 course, although it is more likely due to the fact that the Michigan online learning graduation requirement was in its second year (thus teachers and administrators had no choice but to buy-in to reality of K-12 online learning).

Conclusions and Implications

It is interesting to remind readers that the State of Michigan implemented the online learning graduation requirement in 2007. This means that the class of 2011 will be the first high school graduates where all students will have completed an online learning experience. We mention this because the participants in this study, mainly middle and high school teachers, had freshmen and sophomores that would be held to this graduation requirement. Yet, three of the themes still focused on the “who” and “what” of virtual schooling, as opposed to the effective ways in virtual schooling could be supported in their role as virtual school facilitators. These themes were consistent with the Winter 2008 data (and fairly consistent with the original implementation finds of Compton et al. (2007) – based on data they collected in 2006).

Overall, participants responded they supported virtual schooling, and even indicated they would like to try teaching an online course at some point in the future. This was a change from the previous year, when some remained quite skeptical about the use of or potential for online learning at the K-12 level. It will be interesting to see if this trend continues with future rounds of data collection. Also of interest was the participants’ changing attitudes towards virtual schooling at the elementary level. While not raised in the Winter 2008 semester, the participants in Winter 2009 did not see a place for virtual schooling at the elementary level (even though one of the TEGIVS scenarios was focused solely on the elementary setting and a second on the elementary/middle school level).

From a course design standpoint, the continued analysis of this data allows for on-going improvement to the IT6230 course. This is particularly important given the field of virtual schooling is constantly changing. Based on the Winter 2009 data, it appeared that the two-week increase in coverage allowed for a greater depth of understanding. The lack of focus from participants on how to support K-12 online learners continues to be a concern, as does the fact that the participants’ contributions to their blogs remains the only real source of data (even if the number and source of the discussion prompts has changed).

References

- Barbour, M. K. (2005). The design of web-based courses for secondary students. *Journal of Distance Learning*, 9(1), 27–36.
- Barbour, M. K. (2007a). Principles of effective web-based content for secondary school students: Teacher and developer perceptions. *Journal of Distance Education*, 21(3), 93–114. Retrieved from <http://www.jofde.ca/index.php/jde/article/view/30>
- Barbour, M. K. (2007b). Portrait of rural virtual schooling. *Canadian Journal of Educational Administration and Policy*, (59). Retrieved from <http://www.umanitoba.ca/publications/cjeap/articles/barbour.html>
- Barbour, M. K., & Cooze, M. (2004). All for one and one for all: Designing web-based courses for students based upon individual learning styles. *Staff and Educational Development International*, 8(2/3), 95–108.
- Barbour, M. K., & Mulcahy, D. (2004). The role of mediating teachers in Newfoundland's new model of distance education. *The Morning Watch*, 32(1). Retrieved from <http://www.mun.ca/educ/faculty/mwatch/fall4/barbourmulcahy.htm>
- Barbour, M. K., & Mulcahy, D. (2009). Beyond volunteerism and good will: Examining the commitment of school-based teachers to distance education. *Proceedings of the Annual Conference of the Society for Information Technology and Teacher Education* (779-784). Norfolk, VA: AACE.
- Barbour, M. K., & Reeves, T. C. (2009). The reality of virtual schools: A review of the literature. *Computers and Education*, 52(2), 402–416.
- Barbour, M. K., & Unger, K. (2009). Challenging teachers' preconceptions, misconceptions, and concerns of virtual schooling. *Proceedings of the Annual Conference of the Society for Information Technology and Teacher Education* (785-790). Norfolk, VA: AACE.
- Clark, T. (2000). *Virtual high schools: State of the states - A study of virtual high school planning and preparation in the United States*. Center for the Application of Information Technologies, Western Illinois University. Retrieved from <http://www.imsa.edu/programs/ivhs/pdfs/stateofstates.pdf>
- Clark, T. (2001). *Virtual schools: Trends and issues - A study of virtual schools in the United States*. San Francisco, CA: Western Regional Educational Laboratories. Retrieved from http://www.wested.org/online_pubs/virtualschools.pdf
- Compton, L., Follett, J., & Demiraslan, Y. (2007). Challenging Preservice Teachers' Preconceptions, Misconceptions, and Concerns of Virtual Schooling: A Preliminary Analysis. In R. Carlsen, K. McFerrin, J. Price, R. Weber, & D. A. Willis, (Eds.). *Proceedings of the Society for Information Technology and Teacher Education International Conference Annual 2007* (pp. 2971-2976). Chesapeake, VA: AACE.
- Cooze, M., & Barbour, M. K. (2007). Learning styles: A focus upon e-learning practices and pedagogy and their implications for successful instructional design. *Journal of Applied Educational Technology*, 4(1). Retrieved from http://www.eduquery.com/jaet/JAET4-1_Cooze.pdf
- Davis, N. E. (2007, November). *Teacher education for virtual schools*. A presentation at annual Virtual School Symposium, Louisville, KY. Retrieved from <http://ctl.iastate.edu/~tegivs/TEGIVS/publications/VS%20Symposium2007.pdf>
- Davis, N., Demiraslan, Y., & Wortmann, K. (2007, October). *Preparing to support online learning in K-12*. A presentation at the Iowa Educational Technology conference, Des Moines, IA. Retrieved from <http://ctl.iastate.edu/~tegivs/TEGIVS/publications/ITEC2007-presentations.pdf>
- Davis, N.E. & Roblyer, M.D. (2005). Preparing teachers for the "schools that technology built": Evaluation of a program to train teachers for virtual schooling. *Journal of Research on Technology in Education*, 37(4),

399-409.

- Davis, N., & Rose, R. (2007). *Research committee issues brief: Professional development for virtual schooling and online learning*. Vienna, VA: North American Council for Online Learning. Retrieved from http://www.nacol.org/docs/NACOL_PDforVSandOlnLrng.pdf
- Davis, N.E., Roblyer, M. D., Charania, A., Ferdig R., Harms, C., Compton, L.K.L. & Cho, M.O. (2007). Illustrating the “Virtual” in Virtual Schooling: Challenges and Strategies for Creating Real Tools to Prepare Virtual Teachers. *The Internet and Higher Education*, 10(1), 27-39.
- DiPietro, M., Ferdig, R. E., Black, E. W. & Preston, M. (2008). Best practices in teaching K-12 online: Lessons learned from Michigan Virtual School teachers. *Journal of Interactive Online Learning*, 7(1). Retrieved from <http://www.ncolr.org/jiol/issues/getfile.cfm?volid=7&IssueID=22&ArticleID=113>
- Easton, S. (2003). Clarifying the instructor’s role in online distance learning. *Communications Education*, 52(2), 87-105.
- Ezzy, D. (2002). *Qualitative analysis: Practice and innovation*. London: Routledge.
- Keeler, C. (2004). *Assessment in online environment: A cross-school description of secondary courses*. A paper presented at the annual meeting of the American Educational Research Association. San Diego, CA. Retrieved from http://coe.nevada.edu/ckeeler/teachingportfolio/researchinterests.html#Assessment_in_Online_Environments:_A
- Keeler, C. (2006). *Designing online Courses to meet diverse learning style preferences*. A paper presented at the annual meeting of the American Educational Research Association. San Francisco, CA. Retrieved from http://coe.nevada.edu/ckeeler/teachingportfolio/researchinterests.html#Learning_Styles
- Keeler, C. & Anderson-Inman, L. (2004a). *Instructional design elements of high school online courses: An instrument*. A paper presented at the annual meeting of the American Educational Research Association. San Diego, CA. Retrieved from http://coe.nevada.edu/ckeeler/teachingportfolio/researchinterests.html#Instructional_Design_Elements_of_High
- Keeler, C. & Anderson-Inman, L. (2004b). *A cross-school description of instructional design and delivery elements of high school level online courses*. A paper presented at the annual meeting of the American Educational Research Association Annual Meeting. San Diego, CA. Retrieved from http://coe.nevada.edu/ckeeler/teachingportfolio/researchinterests.html#A_Cross-School_Description_of
- LeCompte, M. D., & Preissle, J. (1993). *Ethnography and qualitative design in educational research* (2nd ed. ed.). San Diego: Academic Press.
- Lowes, S. (2005, June). *Online teaching and classroom change: The impact of virtual high school on its teachers and their school*. A paper presented at the meeting of the North Central Regional Educational Laboratory, Chicago, IL. Retrieved from http://www.ilt.columbia.edu/publications/lowes_final.pdf
- Morris, S. (2002). *Teaching and learning online: A step-by-step guide for designing an online K-12 school program*. Lanham, MD: Scarecrow Press Inc.
- Picciano, A. G., & Seaman, J. (2009). K-12 online learning: A 2008 follow-up of the survey of U.S. school district administrators. Needham, MA: Alfred P. Sloan Foundation. Retrieved from http://www.sloanconsortium.org/publications/survey/pdf/k-12_online_learning_2008.pdf
- Rice, K., & Dawley, L. (2007). *Going virtual! The status of professional development for K-12 online teachers*. Boise, ID: Boise State University. Retrieved from <http://edtech.boisestate.edu/goingvirtual/goingvirtual1.pdf>

Roblyer, M. D. (2005). Who plays well in the virtual sandbox? Characteristics of successful online students and teachers. *SIGTel Bulletin*(2). Retrieved from http://www.iste.org/Content/NavigationMenu/Membership/SIGs/SIGTel_Telelearning_/SIGTel_Bulletin2/Archive/2005_20067/2005_July_-_Roblyer.htm

Roblyer, M. D., Freeman, J., Stabler, M., & Schneidmiller, J. (2007). *External evaluation of the Alabama ACCESS initiative: Phase 3 report*. Eugene, OR: International Society for Technology in Education. Retrieved from <http://accessdl.state.al.us/2006Evaluation.pdf>

Roblyer, M. D., & McKenzie, B. (2000). Distant but not out-of-touch: What makes an effective distance learning instructor? *Learning and Leading With Technology*, 27(6), 50-53.

Ruona, W. E. A. (2005). Analyzing qualitative data. In R. A. Swanson & E. F. Holdton III (Eds.), *Research in organizations: Foundations and methods of inquiry* (pp. 233-263). San Francisco, CA: Berrett-Koehler Publishers, Inc.

Stringer, E. (2004). *Action research in education*. Upper Saddle River, NJ, Pearson Education Inc.

Watson, J. F., Gemin, B., & Ryan, J. (2008). *Keeping pace with k-12 online learning: A review of state-level policy and practice*. Vienna, VA: North American Council for Online Learning. Retrieved from http://www.kpk12.com/downloads/KeepingPace_2008.pdf

Watson, J. F. & Kalmon, S. (2005). *Keeping pace with K-12 online learning: A review of state-level policy and practice*. Naperville, IL, Learning Point Associates.

Watson, J., & Ryan, J. (2006). *Keeping pace with K-12 online learning: A review of state-level policy and practice*. Vienna, VA: North American Council for Online Learning. Retrieved from <http://www.nacol.org/docs/KeepingPace07-color.pdf>

Watson, J. & Ryan, J. (2007). *Keeping pace with k-12 online learning: A review of state-level policy and practice*. AT&T Foundation.

Watson, J. F., Winograd, K., & Kalmon, S. (2004). *Keeping pace with K-12 online learning: A snapshot of state-level policy and practice*. Naperville, IL: Learning Point Associates.