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## **Who's Researching Virtual Schools: A Case for Instructional Technologists**

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**Abstract** – Over the past eleven years, virtual schooling has gone from isolated experiments to a reliable alternative to a brick and mortar education. However, during this time little research has been conducted into how these learning opportunities are and should be provided to their adolescent audiences. Even more troubling is of the wide variety of backgrounds that very few of these researchers are from the field of instructional technologist. In this article, I discuss those who have been involved the early research and then make a case for the value that instructional technologists can bring to this emerging field.

Over the past decade there has been a tremendous growth in the research conducted into web-based learning at the K-12 level. In recent years, the topic of virtual high schools has been focus of much of this research. At present, there are a number of different individuals who are researching in the area of virtual schooling. However, classifying these individuals into different groups is not an easy task. There are practicing teachers, university faculty, and private researchers. They have been educated in a variety of programs from teacher education, instructional technology, educational administration, to adult education. They have come from a variety of background, the classroom, administration, the academy, private business, and research foundations.

The easiest approach to describing the kinds of people who are researching in the area of virtual high schools today is to describe some of these individuals and the work that they have been involved with, along with a discussion of the background of these individuals. While this discussion will endeavour to address as many individuals that are known to the author, including some of the thesis and dissertation completed over the past five or six years, there are probably individual researchers that will be missed by the author. Finally, the author will attempt to make

a case that instructional technologists are well positioned to have an impact on this emerging field.

### Virtual School Researchers

At present, probably the best known virtual schooling researcher is Tom Clark of TA Consulting, a small research and evaluation firm in Illinois. Clark is best known for his *Virtual Schools: Status and Trends* and *Virtual High Schools: State of the States* publications in 2001 and 2000 respectively, along with his 2002 chapter on “Virtual and distance education in American schools” in the *Handbook of Distance Education*. Clark is primarily involved in evaluations and policy analyses with organizations such as the Illinois Virtual High School, WestEd Regional Technology in Education Consortium, and the North American Council on Online Learning. Clark’s recent book, *Virtual Schools: Planning for Success*, is a good example of the policy slant of his work.

Two other long-standing researchers of virtual schooling are Andrew Zucker and Robert Kozma of SRI International. These two individuals led the team of researchers who conducted the external evaluations of the Virtual High School (VHS) project. Beginning in 1997-98 school year, Zucker, Kozma, and their team began investigating all aspects of the federally funded VHS Project, including evaluating the implementation of the project to assessing the quality of the online courses to describing how teaching and learning occurred. In annual reports during the first three years, a report at the end of five years, and a separate report on the quality of VHS courses, these researchers produced over 300 pages of publicly available data, interpretation, conclusions, and instruments dealing with one of the largest virtual school initiatives in North

America. Their overall conclusions were summarized in a book published in 2003, entitled *The Virtual High School: Teaching Generation V*.

Another researcher from a non-profit research foundation is Robert Blomeyer of the North Central Regional Educational Laboratory (NCREL). Blomeyer began his work on technology in K-12 environments in the early 1980s with his work as a designer/developer on the PLATO system, this interest continued as a faculty member at a number of post-secondary institutions. His first work on virtual schools was in 2001, when he published the policy brief “Virtual Schools and E-Learning in K-12 Environments: Emerging Policy and Practice” for NCREL. This work on virtual schooling has continued, primarily with a focus upon policy issues. Bill Thomas is another researcher based at a non-profit research foundation that has done considerable work on virtual schooling. With a focus upon policy, management and instructional issues, Thomas has produced numerous policy briefs for the Southern Regional Education Board.

Shifting the focus from non-profit research foundations to post-secondary institutions, a growing number of faculty are researching virtual schooling. One of the more prolific is Cathy Cavanaugh at the University of North Florida. Cavanaugh has conducted a series of meta-analysis into the effectiveness of virtual schooling and distance education at the K-12 level, along with research using a “Resources-Processes-Results” model to determine factors affecting success in K-12 distance education. She is the editor of recent book, *Development and Management of Virtual Schools: Issues and Trends*, which examines the emergence of virtual schools, along with the benefits and challenges of administering, teaching, and learning in that environment.

Margaret Roblyer, at the University of Maryland University College, is another individual from a post-secondary environment conducting research into virtual schooling.

Roblyer began her work, like many others, focusing upon describing virtual schooling and comparing it to classroom-based schooling. However, her recent work has been based upon the use of an educational success prediction instrument which is designed to predicting success of virtual high school distance learners. Glenn Russell of Monash University in Australia has written a great deal about the implications of virtual schooling. Dennis Mulcahy of Memorial University of Newfoundland has written in along a similar theme, only with his lens focused on rural education. His colleague at Memorial, Elizabeth Murphy has recently written a number of pieces looking at the technology and pedagogy involved in synchronous instruction in a virtual school environment.

A third group of individuals who have been conducting research into virtual schools comes from within the K-12 system itself. Recent graduates such as Craig Butz, Del Litke, Rosina Smith, Christy Keeler, Sarah Haavind, Morris Cooze, and Eric Nippard have all completed thesis or dissertations over the last five or six years that have been based upon a variety of aspects dealing with virtual schooling. Butz, who is Executive Director of the Odyssey Charter Schools, completed his dissertation on parent and student satisfaction with online education at the elementary and secondary levels. Litke, who completed his dissertation on perceptions of the strengths, weaknesses, and factors influencing students' success in the virtual school environment at the middle school level, is currently the Deputy Superintendent of Wolf Creek School Division. Smith completed her dissertation on the identification and assessment of factors accounting for the success and failure in the implementation of virtual schools and is now the Director of the Alberta Online Consortium. With a background as a classroom teacher, Keeler developed an instrument designed to provide a descriptive summary of web-based courses in virtual schools. Haavind, along-time collaborator with the Virtual High School,

examined how the design features and instructor's actions prompted higher collaboration among learners in content-based discussions. Finally, Cooze and Nippard, both virtual school teachers themselves completed thesis on the affects of student learning styles in virtual school and the manifestation of social presence in synchronous virtual school instruction respectively.

There have been others who have published research into various aspects of virtual schooling for limited periods of time. Bill Muirhead of the University of Ontario, Institute of Technology completed research for his dissertation on virtual schooling, but has since shifted his focus to learning object repositories. Both Zane Berge and Mauri Collins, post-secondary faculty, have published on web-based K-12 distance education in the past, as has Ken Stevens of Memorial University of Newfoundland. There are others, many of whom have authored chapters in Clark and Berge's *Virtual Schools: Status and Trends* and *Virtual High Schools: State of the States* or Cavanaugh's *Development and Management of Virtual Schools: Issues and Trends* that have not been mentioned, including a series of authors from a series of qualitative studies funded by NCREL (see <http://www.ncrel.org/tech/synthesis/index.html>).

### Classifying Virtual School Researchers

An easy way to describe the kinds of people who are doing the most interesting work in the area of virtual high schools today is by the field of their current employment, as was done in the previous section. This method of classification reveals one professional evaluator, a series of researchers at non-profit foundations and faculty at post-secondary institutions, and a scattering of individuals employed in the K-12 environment. However, this kind of classification is not that useful for those seeking guidance about the background that virtual schooling researchers possess.

One way to classify these individuals is to look at where they have spent the majority of their careers. Individuals such as Kozma, Cavanaugh, Roblyer, Murphy, Berge, Collins, and Stevens have spent the majority of their professional careers within post-secondary institutions, whereas Clark, Blomeyer, Thomas, Russell, Mulcahy, Butz, Litke, Smith, Keeler, Cooze, Nippard, and Muirhead has spent significant time in a K-12 environment (with some as classroom teachers and others as school and district administrators). Another way to classify these individuals is by their degree program area. Blomeyer, Kozma, Cavanaugh, Roblyer, Russell, Smith, Berge, Cooze, and Nippard all completed their education in some form of instructional or educational technology. Litke, Keeler, and Haavind completed their studies in educational administration or educational policy. Thomas, Mulcahy, Murphy, Butz, and Stevens all completed their studies in a curriculum area within teacher education (such as curriculum and instruction, social studies or English education, or special education, to name a few), while Clark and Collins completed their studies in adult education.

This variety of professional and academic backgrounds has led to a diversity of perspectives being introduced into the research on virtual schooling. Those individuals with backgrounds in adult education, for example, are able to bring in ideas related to self-directed learning (which most of the literature on traditional distance education is based upon). Those from a policy or administrative background, on the other hand, are able to consider how virtual schooling affects the education system, while those from teacher education programs may be more interested in what virtual schooling looks like in practice. Based upon these realities, there appears to be no one best professional or academic background to approach research in virtual schooling.

## A Case for Instructional Technologist as Virtual School Researchers

While there are individuals with a variety of backgrounds contributing to research on virtual schooling, I wish to make a case that instructional technologists should be conducting more research into and the development of virtual schools. This is not to say that instructional technologists are the only profession or the best profession to be engaged in this inquiry. However, those involved in the field of instructional technology have a great deal to offer to this area of research that has been noticeably absent to date.

Known by a variety of names (e.g., instructional technology, instructional systems, instructional systems design, instructional design and technology, etc.), instructional technology has also had many definitions. The most recently published definition by the Association for Educational Communications and Technology (AECT) states that “instructional technology is the theory and practice of design, development, utilization, management and evaluation of processes and resources for learning” (Seels and Richey, 1994, p. 1). Breaking down this definition into its component parts, Seels and Richey include “the theory and practice; of design, development, utilization, management and evaluation; of processes and resources; and for learning” (p. 9). The component parts of the definition provide a framework to discuss how instructional technologists can fill the gaps in the current research and development of virtual schooling.

According to Seels and Richey (1994), instructional technology possesses a “body of knowledge based on both research and experience” (pp. 9 & 11). While this may be true today, there is still a great deal of influence from other disciplines on the field of instructional technology, other disciplines such as “educational psychology, cognitive science, and computer science” (Oswald, 2002, p. 61). In a listing of professional organizations of interest to

instructional technology professionals, Baumbach, Guynn and Anglin (1995) include organizations such as the American Association for Adult and Continuing Education and the American Psychological Association. This diversity of influence on the field allows instructional technologists to employ theories, models, and concepts from other disciplines in their own research. For example, an instructional technologist could make use of theories such as the theory of transactional distance, which is based upon self-directed learning from adult education, in their research on virtual schooling. An instructional technologist could also utilize various theories of cognitive development from the field of educational psychology when investigating teaching and learning in a virtual school environment. A third option may be for an instructional technologist to utilize the theory of social presence from the field of communications. All three of these have examples have largely been missing from the current literature to date, but are all commonly used in the instructional technology literature.

The “design, development, utilization, management and evaluation:” component covers “both areas of the knowledge base and the functions performed by professionals in the field” (Seels and Richey, 1994, p. 11). It is in this area where instructional technologist can have the greatest impact on the development of virtual schools. At present the design, development, and evaluation of many of the learning experiences in virtual schooling is being developed by teachers who possess a high level of subject matter expertise, but little experience with or fundamental understanding of instructional design and development. The field of instructional technology has a long and rich history with the creation, implementation, and refinement of numerous models of instructional design and development (see Gustafson and Branch, 2002 for a survey of various models). This kind of theoretical and practical expertise is likely to be useful for many “would-be” virtual school course developments that lack these skills.

Seels and Richey (1994), when discussing the process portion of the “process and resources” component, state that “there are both design and delivery processes” (p. 12). In terms of the development of virtual school experiences, the knowledge of the design process possessed by instructional technologists would be quite useful in the development of everything from individual learning objects to entire courses. When considering research into virtual schooling, the interest in various teaching strategies and their relationship to particular types of media utilized by the virtual school and types of learning that the students might engage in are within the realm of the field of instructional technology.

The final component of the definition was a focus upon learning. Seels and Richey (1994) state that this was done “to emphasize learning outcomes and clarify that learning is the goal and that instruction is a means to learning (p. 12). With the exception of instructional technology researchers like Roblyer and Cavanaugh, a focus upon learning is also largely absent from the literature on virtual schooling (although this is starting to change with the recently funded NCREL studies). This focus upon learning in virtual school research is consistent with what instructional technologist Thomas Reeves describes as socially responsible research – or “research that would ‘make a difference’” (Reeves, 1995). The focus on learning that instructional technologists can bring to research on virtual schooling may serve to make the difference in the educational opportunities that virtual schooling is supposed to provide to students.

## Conclusions

At present, there are a variety of individuals from a number of professional and academic backgrounds conducting research on virtual schooling. While some of these individuals are

instructional technologists, there is a need for a greater level of participation by those in the field to take full advantage of everything that instructional technology has to offer to the research and development of virtual schooling. Some of the elements that can be shaped by the theory and practice of instructional technology, such as “the type of instructional content, the nature of the learner, the organization in which instruction occurs, the capabilities of available tools, and the expertise of the teacher” (Seels and Richey, 1994, p. 96), which reads like a list of research that is needed in virtual schooling. This past Fall, AECT released a new definition of the field that states “educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources” (Rob Branch, personal communication, June 17, 2004), the term educational technology being utilized to be consistent with the term used in the organization’s own name (i.e., Association for *Educational* Communications and Technology). Even within this newer framework, instructional technologists are still well positioned to be leaders in the research and development of virtual schooling.

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