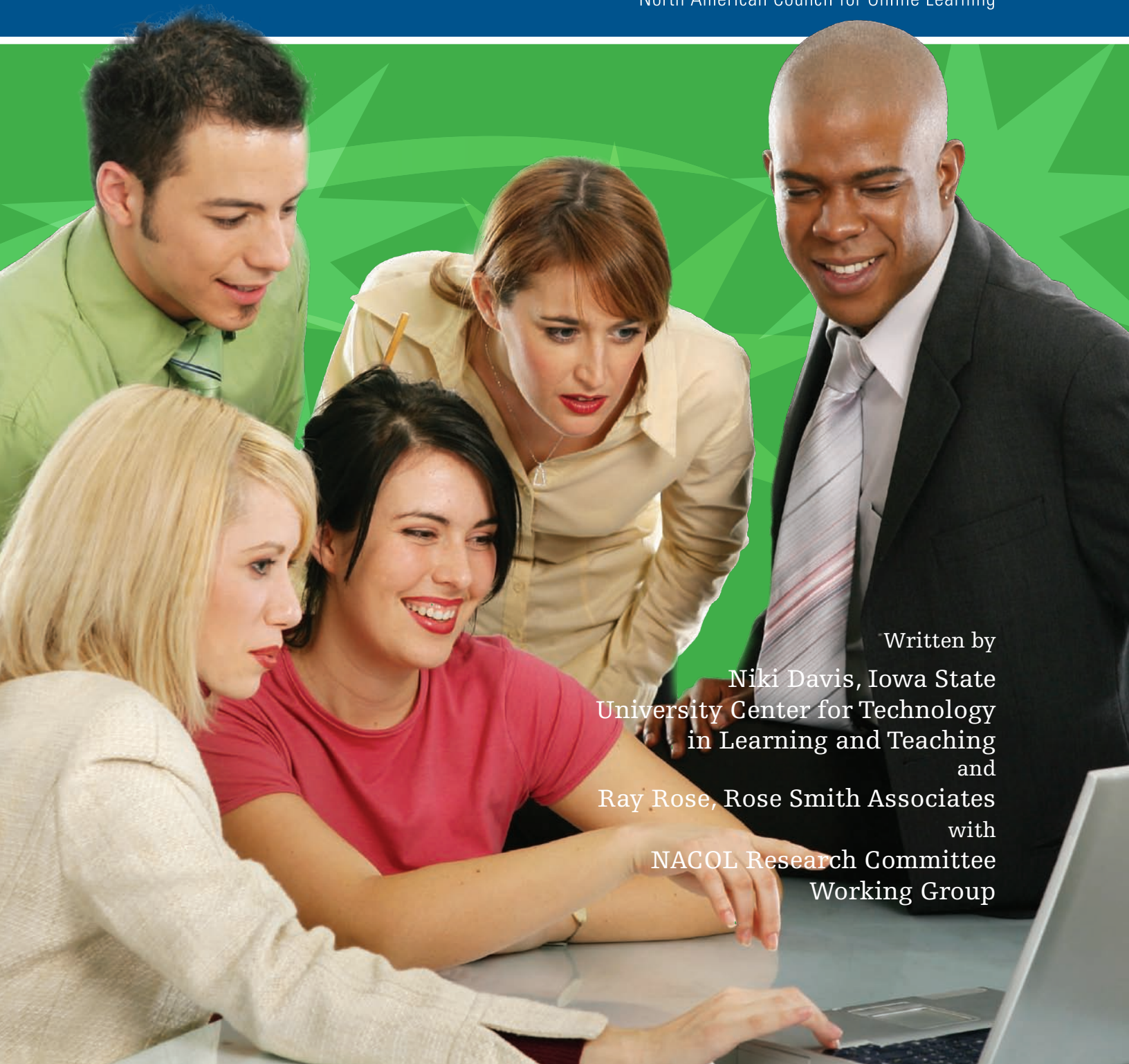
RESEARCH COMMITTEE ISSUES BRIEF:

Professional Development for Virtual Schooling and Online Learning

NACOL
North American Council for Online Learning



Written by
Niki Davis, Iowa State University Center for Technology in Learning and Teaching
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with
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Preface

by Susan Patrick

Online learning is an important trend in the systemic reform and improvement of our nation's schools. I fully support the recommendation in this report that all universities, colleges and pre-service professional development include virtual schooling and online learning into their programs. In countries, such as Singapore, every teacher is prepared to teach online. In order to meet the demands for qualified teachers to teach students in every subject, virtual schooling is an option that will help ease the inequity in distribution of teachers to students in all areas and bring innovation to all school models.

This report examines the types of professional development necessary to implement successful online learning initiatives. The potential for schools utilizing online learning is tremendous: schools can develop new distribution methods to enable equity and access for all students, they can provide high quality content for all students and they can begin to shift management structures to support performance-based approaches through data-driven decision-making.

Virtual schooling is providing a bridge between the traditional classroom and 21st century education by linking high quality teaching and high quality courses with the collaborative, networked, information-rich environments that are a hallmark of the information age. States, districts, universities and schools need to be providing professional development in the operations, budgeting, curricular and instructional leadership for leaders, future teachers and school administrators to understand and support virtual learning.

Virtual schools are connecting quality teachers to students in rigorous, interactive and information-rich courses across the K-12 spectrum. New professional opportunities are open to teachers to teach full-time and part-time—even telecommuting.

This report examines new models of professional development that will expand your mind to a new vision of the future of education. Online professional development for administrators, teachers and school leaders will help build new models of schools—both online and blended—and better serve today's students during an information revolution in a global society.

Professional Development for Virtual Schooling and Online Learning

"How do I become an online teacher?" asks an honors student of his high school principal. His principal does not have an answer and realizes that she needs more information. In addition, she needs professional development for virtual schooling to lead her school in the twenty-first century and, until she understands the opportunities and challenges, her students and their parents may ask why this school is behind the times.

Introduction

Virtual schools and other organizations that offer online courses to K-12 students are eagerly seeking to recruit new staff to match the demand for high quality virtual schooling in many U.S. states. School principals, their counselors, and superintendents have recognized that online courses are part of the solution to challenges faced by particular students, including access and equity. However, few principals of regular or virtual schools have a clear idea of the range of professional development needs of their staff. This is because online education has evolved to become widely accepted practice only within the last five years. In addition, only a few programs preparing teachers and leaders have recently begun to include virtual schooling. Yet it is widely recognized that quality is tightly linked with professional development and training. Therefore, this report created by the North American Council for Online Learning (NACOL) research committee aims to raise awareness of misconceptions and provide guidance on professional development for schools, regular and virtual, as well as providers of teacher education and professional development. It raises issues that are important to all educators and policy makers.

According to John Watson in *Keeping Pace with K-12 Online Learning* (2007), as of September 2007, 42 states have significant supplemental online learning programs (in which students enrolled in physical schools take one or two courses online), or significant full-time programs, or both." In the following year significant growth continued spreading schools and increasing enrollment, including over 50% growth in Florida Virtual

School and Idaho Digital Academy, according to the journal *Learning and Leading with Technology* in October 2007. Various surveys have reported that at least one third of high school students have had some form of online education experience, including students in every state and there have been a range of policy initiatives. For example, in the state of Michigan, beginning with the graduation class of 2010, an online learning experience is required as a prerequisite to high school graduation. Florida Virtual School is an educational district in its own right and has franchised quality courses to other virtual schools. There are a variety of virtual schools and also variations in standards and policies across the U.S. The resource section provides further reading on these topics.

Virtual schooling is so new to many educators that there are many misconceptions and so this issues paper aims to inform educators and to raise issues to stimulate action to address outstanding concerns and ongoing challenges. Due to the lack of standards and policies in virtual schooling, there are many different conceptions in relation to the education of teachers for this new environment. Five myths about virtual schools and professional development are considered before providing some action strategies and resources for regular schools, virtual schools, alternative schools, teacher education schools and all their leaders and supporters.

Myths

NACOL's *National Primer on K-12 Online Learning* introduces and addresses eight common misconceptions about online learning. These have arisen because online learning, otherwise known as virtual schooling, "is a relatively new phenomenon beyond the direct experience of many policy-makers and parents" (p 4). In the same way, this report exposes five myths related to professional development to support virtual schooling and directly addresses these myths. The five myths or common misperceptions are:

- Virtual schools and regular school counselors can handle the few participating students without leadership support.
- Any regular classroom teacher is already qualified to teach online.
- Any highly qualified face-to-face classroom teacher is ready to teach a quality online course that has previously been prepared or purchased. Some say those who teach a section that is already online don't really teach at all!
- Virtual schooling will fit with regular school routines and practices. The technology coordinator and counselor will provide any professional development necessary.
- Newly qualified teachers who learn about virtual schooling in their preservice programs will be ready to teach online when they graduate.

As we will see professional development for virtual schooling (VS) involves a continuum of professional development for at least three educational roles: the VS Teacher, the VS Site Facilitator, and the VS Instructional Designer. Each continuum of development is not the same because roles complement one another and educators work with others in the educational system in order to ensure high quality virtual schooling. All educators are impacted including future teachers and school administrators. We start at the top with a misconception held by some educational leaders, including principals and superintendents.

Myth: Virtual schools and regular school counselors can handle the few participating students without leadership support.

Research into K-12 education highlights the importance of the principal and other leaders, and this includes virtual schooling. The expansion of online education brings more opportunities for a greater diversity of learners. Both the number of students participating and the range of offerings are increasing each year. School counselors are likely to receive an increasing number of requests for online courses and will need to identify new solutions to common challenges, such as time table clashes and credit recovery. Increasing participation will lead to changes in the management of resources including technology, space and staffing both on and off the school premises. Online education also impacts record keeping, finance and reporting. Regular school counselors cannot handle this without support from school leaders and colleagues.

Research shows that a technology savvy administrator contributes substantially to the success of learning in the school. A knowledgeable and forward-looking administrator is critical to the success of virtual schooling.

Effective online education offers a wide range of opportunities and personal choice in schooling. A wider range of courses can be offered and individual students can have more opportunity to advance at a pace suited to their individual needs. With this increased range of possibilities come administrative situations in the public schools that require a greater range of skills. Effective virtual schooling requires administrators and policy makers that can make wise decisions about resource allocation and to gather and analyze data that cross traditional categories and sectors.

Considering the increased demand for technology in virtual schooling, the well-grounded administrator will understand the need to plan for technology in a variety of ways. The school, its district and state must pay attention to the technology infrastructure in school including safe and robust access to services beyond the school. In addition, online education is not limited to the school premises or the school day, so it may also be important to negotiate access in the community and other locations. It is necessary to become as equitable as possible for both students and teachers. In addition, schools need to adapt reports on student enrollment to include in virtual schooling so as to ensure that the school does not unintentionally deny access to any particular group of students. Online education program enrollment should reflect the total population of students served, including those with special needs. A NACOL report on access and equity explains these issues, suggests actions and provides information on resources (see resource section).

Effective school administration must develop and adapt procedures to support registration and grading that is accessible to the regular and virtual staff involved, plus reporting for students, their parents or guardians, and VS site facilitators. Procedures need to be adapted to cover discipline issues and technical support 24/7, as well as course evaluation and staff appraisal. Leaders need to recognize that staff cannot be expected to undertake this without professional development, and this includes the school's leaders, too. Finally, an important aspect to add to the development of school routines to include virtual schooling is professional development for administrators so they may assess virtual schooling in the performance of school staff, and provide advice on related professional development and support issues.

Myth: Any regular classroom teacher is already qualified to teach online.

Research into teaching has consistently shown that teachers teach the way they were taught. That is especially significant for teachers who were educated in a traditional face-to-face classroom environment and then plan to move into virtual environments. Synchronous and asynchronous online courses require different pedagogy, communication, and pacing to be successful. Synchronous technologies, including videoconferencing, change the nature of communication between the teacher and students more than if they were physically in the same classroom. Anyone who is working with virtual schooling needs to understand and experience these differences.

Educators involved with synchronous and asynchronous courses must understand and appreciate the differences between online and face-to-face modes of instruction. The bottom line is they need to get professional development in the medium of their online instruction, synchronous or asynchronous. Modes of learning are also often blended to good effect. For example, the apparent similarity of communication using videoconferencing with traditional face-to-face communications is deceptive. Teachers may think they can use exactly the same pedagogy in the videoconference environment that they have successfully used in the face-to-face classroom. This same assumption applies to other technological tools that teachers are required to adopt or choose to use in order to reach students at a distance. Additional time and patience are necessary to communicate, even when there is a high bandwidth two-way videoconference with good preparation of the technology and coordination between those meeting. Different techniques and strategies are necessary to engage students and participation often becomes embarrassing where it is not designed to fit an immediate, well-prepared purpose.

There isn't a single synchronous or asynchronous approach. This complicates the situation. A synchronous course delivered in a videoconference environment will have different instructional issues than one that uses only audio and schools will sometimes blend the use of several technologies. For example, an asynchronous cohort-structured course should have different instructional and activity elements than a course that is designed for open-entry/open-exit.[1] Online assessment is a key aspect and virtual schooling provides many more opportunities to actively and creatively engage learners, as well as to monitor both learners and teachers. Certain types of online courses, particularly asynchronous courses, offer new modes of assessment because communication is recorded and this ongoing recording can also address the need to monitor the identity of the individual undergoing the assessment. The resources section has details of a few books, including one that provides an in-depth perspective on assessing learners online that could be part of a professional development program.

Teachers teach the way they were taught. Therefore it is important for all online course designers and instructors to have professional development that uses the online media they will be teach through. Virtual schools have created their own programs to prepare teachers for that school's approach. Some virtual schools require teachers to have classroom teaching experience, others recognize that teaching online requires unique skills and have no classroom experience

[1] The resource section contains links to course demonstrations and other resources that reveal the wide variety of practice.

requirements. There are also programs available from reputable universities that provide a more general foundation.

Myth: Any highly qualified face-to-face classroom teacher is ready to teach a quality online course that has previously been prepared or purchased. Some say those who teach a section that is already online don't really teach at all!

Online courses are available for lease or purchase in much the same way that a textbook, software and other resources can be purchased to enhance classroom instruction. Because the content can be loaded into a course management system[2], such as Blackboard, eCollege or Moodle, there is the misconception that this is the course, little teaching is required, and students can learn without supervision. However, this is similar to saying that a course is the same as directing students to read the textbook. Asynchronous online teachers report they have never worked harder in their lives. The majority of online teachers are certified public school teachers, with experience teaching in public schools. They are subject to the same rights and restrictions as any other public school teacher, usually regulated by the state in which they are employed. In fact, four states now have specific endorsements for online teachers.[3]

The roles and responsibilities of an online teacher vary depending on the grade level they teach and the model of elearning they follow. In the earlier grades, online teachers are likely to work more closely in partnership with parents, facilitating learning coaches and students. At times online educators may take on the role of advisor, coach, consultant, mentor, model, motivator, or even researcher. However, the ability to fulfill their primary responsibility lies in their expertise and experience in teaching. Just as regular teachers do, online teachers facilitate learning through the use of a variety of instructional strategies based on traditional or current models and theories of education.

It is generally accepted that the performance of traditional teachers must be periodically evaluated in order to maintain and support effective teaching practice. It follows that online teaching performance should also be objectively evaluated. Preliminary research indicates five key behaviors as being related to effective online teaching performance:

- Provide timely and meaningful feedback
- Create learning activities that engage students
- Keep students interested and motivated
- Get students to interact with each other
- Encourage students to be critical and reflective

(From: Kearsley & Blomeyer,2003.)

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[2] A course or learning management system (CMS or LMS) is software that provides structure for course content, and related tools such as discussion groups, calendar syllabus and the grade book. A virtual school may purchase a licensee to a course management system to load on its own hardware. Alternatively, the school may outsource the course management system from a service provider with full technical support.

[3] E.g. Georgia Online teaching endorsement became effective on Dec 15 2006

Evaluating online teachers' effectiveness requires these behaviors be rigorously and objectively assessed. Norms for crucial performance attributes should be studied to develop locally based norms for both minimal acceptable and exemplary online teaching performance.

A teacher adopting specific course content and institutional practices will need time to personalize it to his or her own pedagogic beliefs and knowledge, possibly including minor revision of the content or technology. Many virtual schools provide detailed guidance on the pedagogy and content to be covered. The use of specific types of technology changes pedagogy and occasionally how the content is covered, while carefully maintaining standards and required curriculum. Because some virtual schools cover a large geographic area, the online teacher may find a wider variety of student knowledge of the content and a greater diversity of content misconceptions. The attraction of virtual schooling for both accelerated and remedial students also varies widely. The teacher will also need time to plan for and prepare to work with the students' local staff and VS site facilitators.

Creating a community in the virtual environment is a goal shared with regular classrooms, and it is an art that takes understanding of the online environment and practice. Once the mode of communication is prepared, the moderation of a discussion topic is a skill that may be improved with professional development including strategies suited to the content, culture and age of students. Therefore professional development is most effective when it includes clinical field experience and ongoing mentoring. The online context brings both challenges and opportunities for additional forms of communication with cooperating teachers and mentors.

Although all teachers should possess good communication skills, this is particularly critical in online environments where much of the communication occurs without the visual cues associated with face-to-face communications. Since many of the avenues for communication in an online environment are text-based (i.e. discussion forums, email) possessing good written communication skills is critical. In other cases, communication that occurs through audio tools, such as telephone and web-conferencing, requires good listening and verbal communication skills. Being able to help students to develop those skills during an online course is also important. Miscommunication within a community causes tension, so it is useful to critique those miscommunications to develop the community as a whole. This also applies to educators undertaking professional development.

Quality online teaching requires creativity in developing and delivering activities that are collaborative and highly interactive among the community. However, in addition to these traditional pedagogical considerations, online teachers must also develop an understanding of how and when to provide student support, how and when to provide opportunities for interaction, the appropriate selection and use of resources, and the development of resources to serve specific instructional purposes.

Knowledge about subject matter and traditional instructional approaches are as necessary for online teachers as they are for those teaching in traditional environments, but online teachers require additional knowledge in order to be able to successfully motivate and engage learners. Best practices in virtual schooling include well-published case studies where student engagement and success is increased. Study of these award-winning courses and coaching of best practices accompanied by mentoring are valuable approaches for all roles in online learning.

Finally and most frequently recognized, quality online teaching requires that teachers are technologically capable and have a robust technology infrastructure. The same applies to those who

facilitate virtual schooling. Online educators and facilitators will need to develop skills and to adapt with the changing technology, because the online environment is one of constant changes.

For a complete list of criteria for quality online teaching, please see the Southern Regional Education Board's (SREB) widely-accepted *Standards of Quality for Online Teaching* (link and reference in resources section).

Virtual schooling is often recognized as a system in which there is a team that creates a course. Instructional design and technological support are some of the expertise added to the teacher's skills and knowledge along with adaptation of curriculum materials (see appendix). Therefore, where the teacher is creating or making major modifications to a course, this should be informed by an appreciation of instructional design.

Myth: Virtual schooling is just another school service so the technology coordinator and school counselor will provide all the necessary guidance and support for students and staff.

A focus on the benefit of additional course opportunities often misses the fact that virtual schooling is a system of education that involves changes in traditional roles and responsibilities. In many virtual schools the teacher who leads the course and its assessment is a member of a team of staff. Colleagues support many aspects including course design and development, the technology infrastructure, marketing, quality assurance, and leadership. In addition, the brick-and-mortar school has three major roles in this system at each student's site: facilitating student learning and assessment, technical support and administrative support. For example, although the VS teacher sets and grades students, the VS site facilitator may be requested to proctor a test, and the technology coordinator and library media specialist will facilitate access to the virtual classroom and additional resources. When alternative or home schooling is involved, the licensed teachers, responsible mentors and their supporters take on these roles.

An understanding of this new system within education is important professional development for all educators including school counselors, who may be unable to explain all the opportunities and challenges of virtual schooling without professional development. The appendix provides schematic illustrations of these roles with two different models of virtual schooling developed by the Teacher Education Goes into Virtual Schooling project. Successful virtual schools provide professional development resources for their collaborating schools and educators.

Research has confirmed the need to recruit and develop the skills of VS Site Facilitators to coach and advocate for students studying online, not least as a means to reduce dropouts. There has also been recognition of the need to provide training for school counselors about the nature of online education and their responsibilities. However, there has been less recognition of the need to develop the skills of other educators including technology coordinators, library media specialists and administrators.

Myth: Newly qualified teachers who learn about virtual schooling in their preservice programs are ready to teach

Preservice teacher education can prime future teachers for this new mode of education and a number of programs across the U.S. have already started to incorporate virtual schooling into courses such as introduction to instructional technology, methods courses, and field experience. However this is challenging and must involve collaborating schools, including virtual schools. Simply viewing any online course cannot provide a rigorous experience. Quality teacher preparation requires careful selection of field experience and student teaching in the students' content areas and grade levels. In addition, professional development for the supervising faculty and cooperating teachers is essential. Many teacher educators have yet to develop an adequate understanding of online education and this may include some re-education because education faculty experience in distance education is likely to have been different and inappropriate for the K-12 environment.

The National Education Association's *Guide to Teaching Online Courses* provides a three part recommendation for preservice programs: 1) skills to use the Internet in teaching 2) taking an online course that models good practice, and 3) undertaking preservice online student teaching. It will remain challenging to include parts 2 and 3 for some time. The innovative FIPSE-funded project Teacher Education Goes Into Virtual Schooling has pioneered best practices and developed resources for programs across the U.S. (see resources section). Its goal is to prepare future teachers to facilitate students who are taking online courses, and to lay the foundation for some who wish to become VS teachers or VS course designers after they gain some experience in regular schools.

Perhaps one of the most important realizations is that preservice and continuing professional development programs are on a continuum, and both need to develop partnerships with virtual schools as well as with their partner brick-and-mortar counterparts. Experience in the online environment is necessary to understand how to effectively teach in virtual schools. There is a complementary need for professional development within university teacher education and leadership studies programs to raise awareness of the rise of online K-12 education and its potential for educational renewal.

Actions

These five myths have uncovered the complexity, importance and value of professional development and changes in preservice education to respond to the growth and needs in virtual schooling. The rapid expansion of online courses and their importance to school reform in the twenty-first century makes action urgent.[4] What action should brick-and-mortar and virtual schools take? What needs to be changed in teacher education for future teachers and educational leaders to support virtual education? What action should be considered by policy makers, federal, statewide and locally? The following section provides some guidance and the resource section provides both further reading and access to resources

4 Laboratories of reform: Virtual high schools and innovations in public education, by Bill Tucker (2007). Education Sector Reports [online]

While these action strategies may be identified with the differing audiences for this issues brief, it is hoped that all readers will reflect on them and adapt the action to their organization or individual situation. It should also be noted that our understanding of professional development in this very new field of online education is rapidly developing, so more research and development is urgently required to inform these actions.

Action: Plan for Professional Development

All educational organizations are recommended to take action to plan for and implement professional development.

The six roles in K-12 education that change most with the adoption of online learning or virtual schooling are: VS teacher, VS Course Designer, VS Site Facilitator, Administrators in virtual and brick-and-mortar schools, Guidance Counselor, Library Media Specialist, and Technology Coordinator. Professional development is a continuum that stretches across the career of an educator. The Appendix provides a tentative brief description of this continuum for each role as expertise develops from preservice education through induction to a fully fledged professional educator. There is also a need to encourage and support the development of leaders who provide professional development for others. The flexibility that comes with online education extends to professional development.

There are several strands of common professional development that cross roles, and these include technical skills, online learning pedagogy, state and national standards including content standards, serving students, curriculum, professionalism and leadership. It is also important to note that the field experiences should be in K-12 contexts. The design of professional development for virtual education is challenging because the practice is new and the technology varies. However, design of professional development to take advantage of the strengths of online learning is particularly appropriate because it also gives these professionals a chance to become learners in these new modes of education and to reflect on practice as a learner and as an educator. Research indicates that teachers who have become effective online teachers bring techniques learned for online teaching into their brick-and-mortar classrooms.

The roles of VS teacher and VS site facilitator have evolved as key elements for successful online education and have required development of specific professional development programs. The Appendix provides a brief description of a selection of these courses and programs, many of which are provided by specific virtual schools to develop their staff. Care should be taken in generalizing from these illustrations because they do not cover the wide range of models, technologies or curricula in operation today and practice is evolving rapidly.

The SREB Standards for Quality Online Teaching, examines what qualifications are needed to be a quality online teacher and outlines specific standards for academic preparation, content knowledge, online skills and delivery, and more. The goal this reflects is that every student is taught by qualified teachers.

The National Educational Association's *Guide to Teaching Online Courses* noted that online teachers do need administrative support to provide quality instruction and cannot work in isolation. The three support structures are identified in that guide were: technology infrastructure, technology and

administrative support, and educational support. Related professional development currently takes place through in-service sessions in school divisions, continuing education formats and workshops at professional meetings. K-12 preparation for school administrators to support virtual schooling may be usefully structured into the national educational technology standards for administrators that have been developed by the International Society for Technology in Education (ISTE NETS A, see http://cnets.iste.org/administrators/a_esscond.html). It is recommended that ISTE NETS A be expanded include virtual schooling including those highlighted in the SREB and NEA guidance as necessary preconditions for online educational success:

- A shared vision among school personnel, parents and the community
- Available technical assistance for maintaining and using technology
- Shared knowledge of content standards and curriculum resources
- A commitment to student-centered teaching
- A system for continual assessment and accountability for technology and learning
- Community support for online education
- Adequate support policies, including financial plans and incentive structures to support the use of technology in learning and in the operations of the district (p 7-8)

Administrators could benefit from training similar to that required by the teachers and VS site facilitator. This may take an abbreviated form because, while the details of virtual schooling will not be as important for the administrator, a comprehensive understanding and overview is critical. It is recommended that the depth of professional development be greater for administrators of virtual schools. The creation of effective professional development for administrators is urgent and should include attention to a continuum of professional development starting at preservice and ending with leaders able to support the professional development of other administrators. It is also recommended that norms for crucial performance attributes described earlier be established with accompanying research. In addition, the issues as identified in this brief are rarely covered in higher education programs and this requires action.

It is recommended that these actions be accompanied by research.

Action: Recruit and Develop Faculty to Provide VS-related Professional Development

All virtual schools and teacher preparation programs need to increase their capacity to become involved in professional development for virtual schooling in the twenty-first century, particularly given the need for partnership between regular K-12 schools, virtual schools and universities involved in teacher preparation and leadership development.

There is a need for *all* educators to become aware of virtual schooling because it is part of twenty-first century education. Many educators will also need to be able to deal with aspects of virtual schooling because all students need counseling and guidance. This is both an educational and equity issue. It is important to include equity considerations because cultural experience and cultural representation is part of teaching and learning, so diversity in both instruction and course design

benefits everyone. In addition, an increasing number of educators will have important roles to play to ensure high quality education. Many will become a VS site facilitator for students in their school and additional responsibilities for other roles including administrators, technology coordinators and library media specialists were clarified earlier.

In addition, every organization requires a leader who is able to interpret organizational needs for professional development, including every virtual school, brick and mortar building, alternative school, and teacher education school. Virtual schools are especially advised to take responsibility for enhancing professional development and to encourage their collaborating organizations, too. It is recommended that virtual schooling be included in hiring procedures and annual reviews, starting with awareness. Over time with the maturation of this mode of education, it is recommended that awareness of virtual schooling programs be escalated to competence necessary for relevant role(s) in online education. Many virtual schools are already adopting the practice of mentoring teachers new to online education and have adapted their online environment to support this process.

Collaboration between programs that prepare educators and virtual schools is essential. The VS professional preparation and development spectrum and continuum in the Appendix starts with a preservice column and ends with a final stage of maturity during which the educator is able to mentor others. All teacher education includes the development of reflective practice with some field experience and clinical practice. This is particularly challenging in the new modes of VS. Presently most VS staff are prepared for their roles after they join a virtual school. It is recommended that professional development is further developed and researched, including both preservice preparation and professional development for senior administrators and policy makers.

Action: Integrate virtual schooling in preservice and professional development programs for teachers, their leaders and education service providers

It is recommended that all regular universities and colleges integrate this new mode of schooling into their educational programs. The adoption of virtual schooling will take time to spread across and into programs.

For preservice teacher preparation the TEGIVS project has provided a leading example and its resources can be adopted and adapted to support innovative practice. Where existing preservice programs have a course that introduces students to instructional technology, it is recommended that instructors adapt the TEGIV-developed lab session that is designed to introduce the range of virtual schooling and the roles that educators play. In addition, TEGIVS has created resources and strategies to integrate online education in a methods course and pre-teaching field experience. It also provides a description of the challenges and opportunities for field experience with teachers who have classes online.

It is also suggested that programs prepare all educators for virtual schooling, including principals, superintendents, school counselors, technology coordinators, and library media specialists. This will require both organizational and curriculum development and it is a good idea that these efforts be accompanied by research.

Standards and licensure for the professional development of relevant educators and program accreditation are also implicated. It is recommended that these be reviewed to incorporate VS.

Action: Differentiate professional development according to need, role, culture and context

It is recommended that professional development be differentiated according to need, culture and context and that these innovations to be accompanied by research.

Professional development for online teachers varies with provider and collaborating schools. Although each of the institutions providing programs professional development listed in the resource section has their own structure, six common aspects may be identified within commonly accepted standards for online teachers, such as those described by SREB.[5] These common aspects are: technology orientation and skills, instructional design for an online environment, teaching content knowledge in an online environment, creating quality assessments, designing online content courses, and clinical experience supported by mentor or master teachers. Most programs added electives to enhance coverage of the range of online learning environments and other aspects such as administration. Research to identify and develop effective professional development for all VS roles across the professional development continuum is urgently needed.

Learner-centered professional development suggests individualized instruction that develops an appropriate knowledge base. Practicing online teachers will continue to benefit from a professional development community with the latest research, studies, and technologies that may affect their field. Because of the online environments in which these educators work, they also need to continue their training and honing skills with new technologies.

There is also a need to enhance professional development with a wider than normal range of cultures and awareness of equity and access issues. A separate NACOL Issue Brief: *Equity and Access in Virtual Education* describes these issues and recommends actions. Here it simply noted that those actions also provide additional dimensions to professional development already described. For example, an unusually sensitive approach was taken in New Mexico in which Hispanic students undertook community-related projects to support their VS courses which in turn resulted in higher than expected achievement[6]. This is an area where additional research is needed.

Action: Research professional development for virtual schooling

Research and development to support effective professional development is highly recommended.

This issues paper has raised a number of topics that will benefit from further research. There is an enormous and highly variable body of research on distance education, professional development and corporate training that may be used—but with caution—to inform professional development for virtual schooling. Research has underpinned the rapid evolution of virtual schooling, so this section briefly lists examples of existing research related to professional development specifically for virtual schooling.

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[5] Southern Regional Education Board (2003). *Essential principles of high-quality online teaching: Guidelines for evaluating K-12 online teachers.* SREB

[6] *Learning and Leading with Technology,* September 2007

The original Virtual High School project led by the Concord Consortium, originally funded by a U.S. Department of Education Technology Innovation Challenge Grant, included identification of relevant professional development, with a course called 'Teaching Learning Community' (TLC) that first established online professional development embedded in a community that supported teachers to develop appropriate reflective practice while they also created their first course. A later and shorter version of TLC eliminated the need to create an online course before becoming a VS teacher. A book *The Virtual High School: Teaching Generation V*, by Zucker and Kozma with others (2003), provides a detail description of the project and the handy text *Essential Elements. Prepare, Design, and Teach Your Online Course* describes the original pedagogy in some detail. It is worth noting that Virtual High School continues to evolve and is a provider of professional development nationally and internationally.

Practical activities have been particularly challenging for teachers to develop in VS, so case studies of good practice and related guidance for science laboratories and other practical activities were developed by Iowa State University Center for Technology in Learning and Teaching with support from the Roy J. Carver Charitable Trust to inform Iowa Learning Online and provide professional development for VS teachers generally. The case studies and related guidance are at http://projects.educ.iastate.edu/~vhs/

Teacher Education Goes into Virtual Schooling is a project that has developed and researched curriculum and related resources for programs that prepare elementary and secondary teachers, with support from the U.S. Department of Education (FIPSE). As described earlier, the professional development model and resources may adapted for courses in preservice programs, including the course that introduces instructional technology, a methods course or a field experience. In addition, an optional course in flexible and distance learning and one in instructional design have been piloted with a focus on VS. (see http://www.public.iastate.edu/~vschool) These may also be useful in other VS professional development.

Projects researching professional development will be improved by recognition that organizations mature in their approach to online education and provision of professional development, and being sensitive to the many ecologies within which they are nested is advisable in order to respond to equity and access issues for the faculty, staff and students.[7] The list of topics identified in this issues brief follows:

- Identify and develop effective professional development for all VS roles across the professional development continuum
- Enhance professional development with a wider than normal range of cultures and awareness of equity and access issues.
- Identify the effective strategies and related technologies that are commonly adopted from online education to improve education in brick-and-mortar contexts
- Identify and develop effective professional development in virtual schooling for others less directly involved, including policy makers, parents and communities

[7] Davis, N.E. (2008, in press). How may teacher learning be promoted for educational renewal with IT? Models and theories of IT diffusion. In Joke Voogt & Gerald Knezek (Eds.) *International handbook of information technology in education.* Amsterdam: Springer.

Resources

The number of resources available to support professional development and preservice teacher education in this field is growing. Although the list of resources below has been arranged under topics, many of these resources have multiple purposes and audiences, or may be adapted for wider use. The list starts with professional development programs that have already been developed for teachers and VS site facilitators.

Programs of in-service professional development for virtual schooling

The following are examples of professional development created to support virtual schooling. Some professional development is specifically related to the virtual school offering the course to VS site facilitators, counselors and/or teachers:

- **Boise State University** has a range of professional development for staff in collaborating virtual schools.

  http://edtech.boisestate.edu/courses.htm

- **Florida Virtual School** has training materials for school counselors and VS site facilitators working with FVS. It also has a training program for its teachers. Some of these resources have also proved to be useful within preservice programs.

  http://www.flvs.net/products_services/p_s_course_demos.php

- **Iowa Learning Online** has developed a course for its VS site facilitators who are called ILO coaches. They have also developed courses to induct teachers new to teaching online.

  http://www.iowalearningonline.org/

- **Plymouth State University** in collaboration with VHS has a range of professional development for VHS staff and also for others.

  http://www.govhs.org/Pages/ProfDev-Home

Curriculum resources for use in professional development

The range of resources developed for virtual schooling includes handbooks and multimedia materials several of which are disseminated through NACOL and its partners:

- *NACOL National Primer on K-12 Online Learning*, by John Watson (May 2007). The NACOL National Primer report provides answers to the many basic questions about online learning and is a helpful guide for administrators, teachers and parents.
- The SREB Educational Technology Cooperative and SREB Online Learning Web site provides up-to-date information and resources about K-20 initiatives, projects and publications that are related to online learning and state virtual schools.

  http://www.sreb.org/programs/EdTech/OnlineLearning/index.asp

- The National Education Association *Guide to Online Teaching* is a useful introduction. It includes an overview of online education with some detail about preparing and supporting online teachers, including future teachers, plus recommendations for 19 skills of online teachers.

  http://www.nea.org/technology/images/onlineteachguide.pdf

- Southern Regional Education Board (2003). Essential principles of high-quality online teaching: Guidelines for evaluation of K-12 online teachers underpins the NEA guide.

  http://www.sreb.org/programs/EdTech/pubs/PDF/Essential_Principles.pdf

- Kearsley, G., & Blomeyer, R. (2003). Preparing K-12 teachers to teach online.

  http://home.sprynet.com/~gkearsley/TeachingOnline.htm

Resources developed for preservice teacher education

- Resources from the TEGIVS project supported by FIPSE include a linked and categorized list of demo courses, labs for secondary and elementary preservice teacher education, multimedia resources and reading for methods courses and pre-student teaching field experience. Particularly useful for preservice teacher education

  http://www.public.iastate.edu/~vschool/

- Case studies and guidance for practical and lab activities in online education that originally guided to establishment of Iowa Learning Online.

  http://ctlt.iastate.edu:16080/~tegivs/vhs/

Publications on online education

- *Essential Elements*. Prepare, Design, and Teach Your Online Course by B. Erlbaum, C. McIntyre and A. Smith (2002). Atwood Publishing. This is an easy to use guide for web-based teaching that comes from the developers of the first Virtual High School.
- *The Virtual High School: Teaching Generation V*, by A. Zucker and R. Kozma with others (2003). Teachers College Press. It tells the story of the development of the first Virtual High School in the U.S.
- *Assessing learners online* by A. Oosterhof, R-M Conrad and D.P. Ely (2007). Pearson. This recently published book provides excellent guidance for rigorous online assessment that takes advantage of the media and modes of teaching online, but it does not specifically focus on K-12 education.
- *Online Professional Development for Teachers: Emerging Models and Methods*, Dede, C. (Ed.) (2006). Harvard Education Press. This is a product from Harvard's Usable Knowledge Invitational Conference and is one of the only resources that looks closely at exemplary online professional development programs, compares them carefully with one another and draws helpful conclusions about them. Although, the focus is not online professional development for virtual education, the observations about online professional development are useful for all online professional development programs.
- *Facilitating Online Learning Effective Strategies for Moderators*, G. Collison, et al, (2000). Atwood Publishing. This handbook describes strategies and skills for moderating online discussions.
- *Learning and Leading with Technology*, ISTE's journal, has published a range of articles on virtual schooling and online learning, particularly in 2007.

Other relevant items for virtual schooling, including K-12 online learning

- *Cathy Cavanaugh's Online Learning Research References* Dr. Cavanaugh, NACOL Research Committee Chair, has an excellent and comprehensive website listing books, articles and journals for online learning.

  http://drscavanaugh.org/distlearn/research_references.htm

- *NACOL Issues Brief: Equity and Access in Virtual Education* (2007) by Ray Rose and Bob Blomeyer identifies the issues that also impact professional development.

- Southern Regional Education Board (SREB). (2006d). *Online teaching evaluation tool.*

  http://www.sreb.org/programs/EdTech/pubs/2006Pubs/OnlineTeachingEvaluationSVS.asp

- Sloan Foundation: *K-12 Online Learning: A Survey of U.S. District Administrators*
- *NACOL National Standards for Online Courses*: NACOL conducted a comprehensive review of course standards available. Based on this review, the Southern Regional Education Board (SREB) Standards for Quality Online Courses, used by the 16 states in the southern United States was adopted as the source for the NACOL National Standards for Quality for Online Courses. NACOL added a standard to include 21st Century Skills.

  http://www.nacol.org/nationalstandards/

- *Laboratories of reform: Virtual High Schools and innovation in public education* by Bill Tucker (2007). Education Sector Reports.

  http://www.educationsector.org/usr_doc/Virtual_Schools.pdf

- Virtual School Clearing House is a web site documenting collaborative research in this area sponsored in the nine state AT&T regions.

  http://vs.education.ufl.edu/virtualschool/

- *Virtual Schools and 21st Century Skills* paper by NACOL and the Partnership for 21st Century Skills (2006). NACOL reports.

  http://www.nacol.org/docs/VSand21stCenturySkillsFINALPaper.pdf

Curriculum resources for use in higher education faculty development

There is a wide range of resources developed for higher education flexible and distance learning. Caution is required when adapting their use to K-12 distance education, including online learning.

- *Faculty Development Process.* A four-stage faculty development process, created by State University of New York Learning Network, leads to high faculty satisfaction with teaching online.

  http://www.sloan-c.org/effective/details4.asp?FS_ID=15

- *Guiding Principles for Faculty in Distance learning* from Indiana Partnership for Statewide Education creates guidelines that institutions can use to help faculty members teach courses online

  http://www.ihets.org/archive/progserv_arc/education_arc/distance_arc/guiding_principles_arc/index.html

- *Training for Online Teaching*, University of Nebraska

  http://www.sloan-c.org/effective/details4.asp?FS_ID=52

- Learning to Teach Online Program

  http://www.sloan-c.org/effective/details4.asp?FS_ID=42

- Supporting Online Adjunct Faculty: An Online Mentoring Program

  http://www.sloan-c.org/effective/details4.asp?FS_ID=48

- Online Faculty Development Workshops, University of Maryland

  http://www.sloan-c.org/effective/details4.asp?FS_ID=55

- Comprehensive Online Training Course for Online Teaching, University of Maryland

  http://www.sloan-c.org/effective/details4.asp?FS_ID=56

Appendix: VS professional preparation and development spectrum and continua

The seven roles in K-12 education that change most with the adoption of online learning or virtual schooling are listed in the left hand column: VS teacher, VS designer, VS Site Facilitator, Administrator, Guidance Counselor, Technology Coordinator, and Library Media Specialist. The first three are roles that have emerged with the rise of online education. Professional development is a continuum that stretches across the career of an educator. This document starts with preservice preparation.

There are several strands of common professional development that cross roles, which include technical skills, online learning, state and national standards, serving students, curriculum, professionalism and leadership. It is also important to note that the field experiences listed should be in K-12 contexts and that all standards need to be updated to include virtual schooling.

An early version of this spectrum is included here to stimulate consideration for the evolution of professional development and related research:

Role/Continuum	Preservice learning	Induction experiences	Early career development for online education	Master/leader development
VS Teacher	Technical skills according to professional standards Experience as online learner Shadowing online teacher Viewing online courses, standards and curricula Tutoring an online student	Co-teaching online Adapting online materials Participation in professional development Maintain currency in their field through professional publications and organizations	Teaching online courses Creating online materials Assisting in planning and delivery of professional development Contributing to professional publications or organizations	Mentoring online teachers Designing online courses and revising and/or designing curricula Delivering professional development Leading in professional publications or organizations
VS Designer	Technical skills according to professional standards Experience as online learner Viewing online courses, standards and curricula Apprenticeship with online course/resource designer Developing course materials	Contributing to the work of a course design team Participation in professional development Maintain currency in their field through professional publications and organizations	Developing online courses Assisting in planning and delivery of professional development Contributing to professional publications or organizations	Leading course design teams Delivering professional development Leading in professional publications or organizations
VS Site Facilitator	Technical skills according to professional standards Experience as online learner Viewing online courses, standards and curricula Apprenticeship with online facilitators Tutoring students	Facilitating in courses under the direction of a mentor Participation in professional development	Facilitating in online courses Assisting in planning and delivery of professional development	Mentoring facilitators Delivering professional development

Administrator (e.g. K-12 school principal or superintendent; also principal of virtual schools)	Technical skills according to professional standards Experience as online learner Observing online teachers and viewing online courses, standards and curricula Tutoring an online student Interning with an online administrator and or master site facilitator	Administering a group of online teachers with mentoring from a master administrator Participation in professional development Maintain currency in their field through professional publications and organizations Coordination of the administration of an online program with a master site facilitator	Administering an online program, including revision of monitoring and evaluation procedures Assisting in planning and delivery of professional development Contributing to professional publications or organizations Advocacy for online learning at the local/ regional level Planning for modification and updating of an online program within the online program personnel.	Mentoring online administrators Delivering professional development Leading in professional publications or organizations Advocacy for online learning at a board and state level
Guidance counselor (e.g. K-12 school counselors in regular and virtual schools)	Technical skills according to professional standards Experience as online learner Viewing online courses, standards and curricula Observing online teachers Tutoring an online student Interning with an online counselor	Serving a group of online students Participation in professional development Maintain currency in their field through professional publications and organizations	Serving an online program, including participation in review of curriculum Assisting in planning and delivery of professional development Contributing to professional publications or organizations	Mentoring online counselors Participation in design of online curriculum Delivering professional development Leading in professional publications or organizations
Technology coordinator (e.g. K-12 school technology coordinators in regular and virtual schools)	Technical skills according to professional standards Experience as online learner Observing online teachers Viewing online courses, standards and curricula Working with an online student Interning with a technology coordinator who is experienced in supporting online education	Serving a group of online students and teachers Participation in professional development Maintain currency in their field through professional publications and organizations	Serving an online program, including participation in review of guidance Assisting in planning and delivery of professional development Contributing to professional publications or organizations	Mentoring a technology coordinator who is new to support of online education Participation in design of online curriculum Delivering professional development Leading in professional publications or organizations
Library media specialists (LMS) (e.g. K-12 school LMS in regular and virtual schools)	Technical skills according to professional standards Experience as online learner Observing online teachers Viewing online courses, standards and curricula Working with an online student Interning with an online LMS	Serving a group of online students and teachers Participation in professional development Maintain currency in their field through professional publications and organizations	Serving an online program, including participation in review of curriculum Assisting in planning and delivery of professional development Contributing to professional publications or organizations	Mentoring online LMS Participation in design of online curriculum Delivering professional development Leading in professional publications or organizations

NACOL
North American Council for Online Learning

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