Continuous Quality Improvement
Through Professional Development
For Online K-12 Instructors
Richard E. Ferdig, Ph.D.
Preface

Michigan Virtual University® (MVU®) is pleased to collaborate with Dr. Richard Ferdig on the development of this paper that provides a valuable overview of the expanding role that online professional development is playing in K-12 education. With an emphasis on continuous quality improvement, this paper provides a review of the research that has been conducted in this emerging area of study, explores the challenges of online professional development and concludes with a set of recommendations and implications for K-12 educators. This is a topic of high priority for MVU and since 2003 we have worked collaboratively with the Michigan Department of Education to develop and implement an online system of professional development for Michigan educators and school employees. Through the Michigan LearnPort® portal, MVU continues to expand the capacity of Michigan’s K-12 education community by providing high-quality, online professional development services on a statewide basis.

Preparing highly qualified, Michigan certified educators to teach courses in an online environment is essential to the success of the Michigan Virtual School® (MVS®). Reductions in state and local funding levels and the recognition that online learning can effectively support student achievement have accelerated the need for highly-qualified K-12 online instructors. This increased demand for online instructors, combined with an interest in blended instruction strategies (face-to-face and online), the availability of innovative new instructional software tools and resources and other factors prompted MVU to initiate a redesign of its traditional online instructor training program in 2009. This redesign effort has expanded the range of online training options for Michigan educators to develop new skills for teaching in the online and blended environments. Since its inception, MVU has trained over 600 certified Michigan educators to teach MVS online courses. Currently MVU offers its traditional Online Instructor Training (OIT) Program, an Online Teaching and Learning Mastery Program launched in January 2010, and an Integrating Blended Instruction into Your Classroom course offered through Michigan LearnPort that serves as an introduction to teaching through blended instruction.

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K-12 online education has provided new opportunities for students to learn and succeed. Although research is still in its infancy, studies in K-12 online learning suggest that the teacher plays a critical role in whether students succeed or fail. This paper provides an introduction to why professional development is so critical to online education. Research is presented that describes when professional development succeeds, and when it fails. Specific recommendations are included for the larger field of K-12 online education, virtual schools, and K-12 online instructors.

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When researchers ran the numbers in dozens of different studies, every factor under a school’s control produced just a tiny impact, except for one: which teacher the student had been assigned to. Some teachers could regularly lift their students’ test scores above the average for children of the same race, class and ability level. Others’ students left with below-average results year after year. (Green, 2010, ¶4)

Introduction

K-12 virtual schools provide supplemental instruction for students around the world. Students take classes for credit recovery, advanced placement, scheduling resolution, dropout prevention, and due to their inability or unwillingness to attend face-to-face courses. Like other educational reform movements, tremendous emphasis is being placed on student learning outcomes. Although there are other factors that may impact this end goal, this is another reform vision that relies heavily upon teachers.

Evidence suggests that teachers, at least in face-to-face settings, can have a direct impact on student achievement. One study found that a student with a weak teacher for three years would score 50 percentile points lower than a student with a strong teacher. A second study found that the top five percent of teachers could teach one and a half years worth of learning in one school year, compared to only half a year of content for weak teachers. In a third study, one standard deviation improvement in teacher quality related to a .26 average within-grade standard deviation in test scores for math and .19 for reading.

Research on teachers in online K-12 settings is still in its relative infancy. However, early indicators suggest variations in online teacher performance as well. In one study of a large virtual K-12 school in the United States, the more education a teacher had was directly related to their length of employment at the school. In other words, teachers who received continued professional development generally stayed teaching at a school longer; those teachers often had classes with better student outcomes than newer and less experienced teachers.

Given the potential impact of teachers and the variation of student achievement outcomes, the continuing development and learning of teachers is a key ingredient in improving schools. In many cases, educational reform is even synonymous with teacher professional development. As such, teacher professional development has been addressed in national policy and budget directives. For instance, the No Child Left Behind (NCLB) Act of 2001 requires the availability of professional development for all teachers. The Teaching Commission proposed ongoing and targeted professional development to meet new learning standards. And, in 2004-2005, the U.S. Government spent over 1.5 billion on professional development for teachers. The basic
idea or hope is that good professional development changes teachers’ skills, beliefs, and attitudes; that change impacts their actions (their instruction), which ultimately impacts student achievement.\textsuperscript{15}

Unfortunately, simply providing professional development for teachers will not ensure teacher learning or student achievement gains. Many schools, districts, and agencies offer programs that are “fragmented, intellectually superficial, and do not take into account what (is known) about how teachers learn”\textsuperscript{16}. Virtual schools that want to improve student outcomes will need to create, deliver, and sustain quality professional development programs for their teachers.

In order to do that, virtual schools must ask three important questions:

- Why is professional development critical for virtual K-12 schools and teachers?
- When does professional development work?
- What are the resulting implications for online K-12 instructor PD?

### Understanding professional development for K-12 instructors

It is generally accepted that continued professional development is critical for all teachers. However, professional development is very important to virtual K-12 educators for at least five reasons.

### Existing myths about K-12 online instructors

In 2007, the International Association for K-12 Online Learning published a research committee issue brief on professional development for virtual schools teachers\textsuperscript{17}. The authors described a number of myths about K-12 online instructors. For instance, some educators and policy-makers assume that any classroom teacher is ready to teach online. Others argue that even if a teacher lacks the skills to teach online, purchasing a pre-packaged curriculum will support a teacher enough so that they can successfully teach online.

Both myths are unequivocally false. Teaching online requires a set of skills that many in-service teachers do not have and which they have not been taught. All teachers must know how to communicate, provide feedback, and to engage and motivate learners. However, online teachers must understand how to use innovative asynchronous and synchronous tools to accomplish these tasks. “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”\textsuperscript{18}. Professional development is critical for online K-12 teachers to help them understand how to adapt and transform their pedagogy in the face of an ever-changing technological environment.
Similar, overlapping, and different skill sets

In 2008, a study was completed that examined exemplary Michigan Virtual School (MVS) instructors\(^\text{19}\). Twelve general characteristics, two classroom management strategies, and 23 pedagogical strategies emerged from the data. The study found several instances of similarities between the skill sets of exemplary online and face-to-face K-12 instructors. For instance, exemplary MVS teachers had good organizational skills, went the extra mile to support student learning, and had extensive knowledge and appreciation for the content they taught. The study also presented several characteristics and strategies consistent between online K-12 and online postsecondary teachers. For instance, MVS teachers used online course data to evaluate their pedagogical strategies, established a presence in online classes to motivate students, and explored new technologies to inform their teaching.

What was unique about this study is that quality online K-12 instructors used an amalgam of strategies from face-to-face K-12 instruction and online postsecondary education to inform their teaching. Although the strategies were the same, online exemplary K-12 teachers used technology in innovative ways to accomplish the same goals. Teachers in each of the three settings, for instance, need to address “classroom management.” Much like the myth about online K-12 instructors, exemplary MVS instructors could not just port over what they had learned from face-to-face or online postsecondary settings. They needed to learn how to use the existing technology, curricular, and environmental structures to guide student management.

Perhaps more important was evidence that a third category existed — skills and strategies that were outside of the realm of face-to-face K-12 settings and online postsecondary environments. Exemplary MVS instructors used specific strategies and technologies to engage parents, mentors, and classroom teachers as extra support for the student. They also drew on opportunities within the virtual school to motivate their students. Finally, they matched student learning styles with the self-pacing aspects of their instruction to provide remedial and advanced support.

Professional development for K-12 instructors is critical because there are skills that they cannot learn from their past face-to-face instructional experiences or from their postsecondary education, even if some of those opportunities were delivered online. Online K-12 teachers need opportunities to see best practices about engaging their age level students in online environments.

Lack of pre-service instruction

“Many teacher educators have yet to develop an adequate understanding of online education”\(^\text{20}\). This is changing and will continue to evolve over time. For instance, the Teacher Education Goes Into Virtual Schooling (TEGIVS) project at Iowa State developed content and training materials for multiple levels of pre-service and in-service teacher education\(^\text{21}\). The Virtual School Clearinghouse project, funded by the BellSouth and AT&T Foundations provided virtual internships for pre-service teachers and also videos for use in pre-service and in-service professional development\(^\text{22}\).
However, the full adoption of pre-service programs with internships in virtual schools will take time. The delay is due, in part, to research and practice-based questions about whether teachers need face-to-face time before they teach online (a current requirement for some online schools). In the meantime, teachers in online programs need professional development on topics they are generally not getting in face-to-face pre-service programs.

**Lack of consistent professional development opportunities**

In 2009, Rice & Dawley conducted a study to determine what contextual factors influenced online K-12 teacher professional development and what models were being used across the United States. They found that professional development opportunities for K-12 online instructors varied greatly. In many cases, the online instructors had taken summer workshops and graduate credits; in other situations, teachers had multiple opportunities for limited one-time sessions. More importantly, there were professional development practices not in line with research-based best practices. For instance, “twelve percent of teachers reported only face-to-face training ... Only 21% of teachers, and 50% of trainers reported customization of training ... . Only 14% of administrators reported following national guidelines in their PD programs ... (and) the majority of teachers reported receiving no training prior to teaching online.” Up-to-date and personalized professional development opportunities would ensure online K-12 instructors receive continuous and just-in-time instruction.

**Variations in K-12 student outcomes, within and between teachers**

There have been well documented differences in student outcomes that compare teachers in face-to-face settings. A similar analysis of Michigan Virtual School (MVS) teachers was conducted using data from 2008-2010. During that timeframe, there were 269 unique teachers; teachers taught as few as 1 course section and as many as 179 course sections (with an average of 18.5 course sections per teacher). A number of different analyses were run comparing teacher factors to student outcomes. Two interesting themes emerge from the data.

First, teachers vary in their ability to teach similar courses. Table 1 contains four example courses, and the teachers who were assigned to teach the same course. Note that in some courses, teachers all seemed to perform the same. However, in other courses, there were large variations in student outcomes. Though this theme may be a common understanding in face-to-face instruction, this data provided evidence that it also occurs online.
Second, teachers often vary in their own ability to deliver different types of courses. Table 2 contains examples of four different teachers and their varying performances in course delivery. Note that some teachers are consistent across their instruction and content while others vary between courses. Note also that some teachers do well with any size class, where some vary greatly when class sizes are either small or large. Finally, note that with Teacher D, the A & B refers to different course providers. Therefore, there seems to be differences with teachers’ abilities to deliver similar content but with different curricula.
Data analyses in K-12 online schools are complex processes. As such, these numbers need to be analyzed with strong limitations. The teachers represented here have different backgrounds and educational degrees/experiences. They teach different classes and content areas to students from around the world, who themselves enroll for varying reasons and with varying skills/abilities. More data needs to be collected and analyzed to understand the role of professional development and student outcomes, with an attempt to hold enrollment data and teacher background/experience constant.

Even with those limitations, it is obvious that some teachers do better in large group settings; others do better with small groups. Some prefer various content providers while it does not seem to matter for others. And, teachers seem to have experiences doing well in certain classes over others. Professional development is critical for online K-12 instructors for them to be able to learn with the variability that comes with K-12 online instruction, the technology available to them, the students that enroll, and the content developed or purchased.

Understanding teacher professional development

There are several reasons why teacher continuing education and professional development is important. For K-12 virtual schools, particularly due to the medium of delivery, the lack of current preparation and the differentiation in instructor ability/outcomes, professional development seems timely and relevant.

But, does professional development work?

There is evidence that professional development can lead to improvements in teacher performance and student learning, particularly for math and science\textsuperscript{25}. Some researchers, educators, and policy-makers, however, argue that the professional development system is broken. For instance, in one study, less than 25% of those surveyed suggested the PD did them any good. “Most teachers, in fact, reported that professional development reinforced their existing practices, and a minority reported no effect at all”\textsuperscript{26}.

The conflicting answer, in large part, comes from the fact that it has been very difficult to study K-12 teacher professional development. It is assumed that teachers who know more are better teachers; however, there are different conceptions of what they learn, how they learn and how that guides professional development\textsuperscript{27}. It is also difficult to define professional development. Little described it as “any activity that is intended partly or primarily to prepare paid staff members for improved performance in present or future roles in the school districts”\textsuperscript{28}. However, this learning can occur in many different contexts and formats. It may happen in courses or workshops, in their classrooms or school buildings, in professional communities or in brief hallway conversations\textsuperscript{29}. It can be formal or informal, collective or individual, and in a lab or embedded in the classroom\textsuperscript{30}.

Quality professional development can lead to improved teacher learning and student outcomes. However, simply offering professional development does not guarantee success. A better set of
questions for virtual schools, therefore, is when does it work and what does quality professional development look like?

**When does professional development succeed?**

Given the multitude of definitions of teacher quality, teacher learning, and professional development opportunities, it becomes difficult to predict when professional development will succeed. And, of course, these suggestions will vary based on the definition of success (e.g., teacher content knowledge growth vs. teacher classroom activity change). However, there are some general recommendations that can be separated into: a) what is taught and b) how it is taught.

**WHAT IS TAUGHT?** Shulman (1987) described the concept of *pedagogical content knowledge* (PCK)\(^{31}\). Put simply, knowing math as a content area and knowing how to teach (pedagogy) are both different than knowing how to teach math. Successful professional development programs are built on all three, starting with a content focus\(^{32} \ 33\). “Professional development programs that include an explicit focus on subject matter can help teachers develop these powerful understandings. Experiences that engage teachers as learners in activities such as solving mathematical problems and conducting scientific experiments are particularly effective”\(^{34} \ 35\).

Professional development programs also focus on pedagogy. Borko argues that “to guide student thinking, teachers must also understand how children’s ideas about a subject develop, and the connections between their ideas and important ideas in the discipline”\(^{36}\). Finally, quality professional development appreciates the context of these two items through the development of content-based and pedagogically-rich instructional practices\(^{37}\). Professional development programs succeed when they help teachers understand the content, the pedagogy, and the content-based pedagogical strategies that impact teaching and learning.

In a seminal piece on teacher learning, Cochran-Smith & Lytle describe a similar approach but label what is taught as: *knowledge for practice, knowledge in practice, and knowledge of practice*\(^{38}\). Knowledge for practice is generally thought of as formal knowledge domains. “These domains generally include content or subject matter knowledge as well as knowledge about the disciplinary foundations of education, human development and learners, classroom organization, pedagogy, assessment, the social and cultural contexts of teaching and schooling, and knowledge of teaching as a profession”\(^{39}\). Knowledge in practice would then be considered informal knowledge; it is generally constructed through practice and experience in the field.

Both knowledge for and knowledge in practice fit well within a PCK framework of learning about pedagogy, about content, and about teaching that content. The idea is that knowledge is gained from an outside expert or through personal experience. Knowledge of practice, the third category, shifts the focus to knowing as a process.
“... Teachers across the professional life span — from very new to very experienced — make problematic their own knowledge and practice as well as the knowledge and practice of others and thus stand in a different relationship to knowledge. The third conception of teacher learning is not to be taken as a synthesis of the first and second conceptions. Rather, it is based on fundamentally different ideas: that practice is more than practical, that inquiry is more than an artful rendering of teachers’ practical knowledge, and that understanding the knowledge needs of teaching means transcending the idea that the formal-practical distinction captures the universe of knowledge types.” (Cochran-Smith & Lytle, 1999, p. 273-274).

This added view highlights the teacher not just as a consumer or observer of teaching knowledge, but also as a creator of knowledge through inquiry. It necessitates teachers and others working together to analyze, critique, and understand practices and beliefs. It highlights professional development instructors as not simply purveyors of information, but leaders in processes and practices.

There is one final, important note about what is taught in professional development programs. Teachers at K-12 virtual schools offer instruction with and through technology. Many teachers require — and many schools offer — professional development about the uses of certain technology. To return to the PCK framework, knowing how to teach is different than knowing how to teach math, and perhaps both are different than knowing how to teach math with technology. The existing PD research does not yet fully discuss successful technology content programs in light of wide-spread professional development; this is an area for future research.

HOW IS IT TAUGHT? The PCK model clearly describes the content that has been a part of relevant and successful programs. However, the research also describes the importance of how that content is taught. PD programs had success when they:

- Used an active learning approach; instead of solely focusing on lecture-based formats for instruction, PD leaders founds ways to get teachers engaged in the work.
- Differentiated instruction for teachers; meaningful learning is a slow process that requires the same individualization given to students.
- Provided opportunities to engage in professional learning communities; although difficult and time-consuming, they helped.
foster learning and instructional improvement. 47 48

- Provided access to records of classroom practice; such case studies, audio recordings, and videos could act as powerful tools for classroom change49
- Recognized the importance of the facilitator; facilitators must understand the goals of the program, the resource materials, the community in which the PD is being implemented, and know how to use curriculum flexibly50
- Created sustained opportunities for professional development; one-shot professional development offerings were not as successful as those that were sustained over time51
- Developed opportunities that were integrated and coherent; pd experiences that were coordinated with existing institutional practices, beliefs, or other professional development experiences were most likely to become a part of the existing culture52
- Provided multiple opportunities for professional development; in Singapore, a country known for its teaching and learning excellence, teachers are entitled to 100 hours of professional development a year53

There is one other critical feature in “how” professional development was offered — that is the format or medium of delivery. Recent research has focused on the use of the online medium to teach both pre-service and in-service teachers. The idea is that online professional development might provide a number of distinct advantages over face-to-face instruction54. For instance, teachers in an online PD experience can decide when and how they participate, an important affordance for teachers in remote areas who might not have time, resources, or the expertise available to engage in learning. And, in an online experience, teachers can connect with colleagues and content-area specialists across the school system, district, or state.

Given these opportunities, educators and policy-makers have wondered whether online professional development for teachers is as effective and efficient as face-to-face instruction. One recent study comparing online and face-to-face versions of the same professional development experience found that both versions had a “comparable positive effects on teachers’ pedagogical beliefs, instructional practices, and knowledge of teaching algebra (the focus of the course)”55. Researchers did note that the teachers who were in the face-to-face group expressed a strong desire to maintain that format for professional development; those taking the online version seemed more interested in pursuing that mode in the future.

In a second study, researchers also compared face-to-face and online delivery versions of professional development and found that the online format also promoted critical thinking and in-depth content reflection56. This was due, in large part, to the freedom of time constraints and the in-depth record keeping — both affordances of the online delivery format.

Both studies reminded readers that many research projects help determine what teachers think about professional development, but not necessarily how that professional development impacts their actions or their students’ learning. More relevant to this writing, both studies also did not differentiate the audience. In
other words, “online” was the focus of the delivery mechanism, not the teaching format of their audience. Neither study commented directly on whether the differences in contexts and delivery formats mattered for those teaching online.

**When does professional development fail?**

There are a number of reasons why professional development programs fail. Not all of these failures are relegated to the institution providing the experience. For instance, there are some teachers who do not want to be in the teaching profession or do not consider themselves lacking knowledge that could improve instruction and student outcomes. Some data suggest that many teachers do the minimum amount of professional development by law.

However, when institutions or organizations do fail, those failures are often due to key misconceptions. Hirsh & Killion offer seven such reasons.

1. PD leaders often fail to recognize that they are generally more committed to the innovation than those who will implement it. Little attention is paid to motivating the recipients.
2. PD leaders often fail to engage stakeholders, helping both parties understand differences in belief structures.
3. PD leaders often fail to understand the context of the PD implementation, offering a one-size-fits-all approach to improvement.
4. Institutions offering PD do not adopt the same belief structures. This is the old adage of “do what I say, not what I do.”
5. Institutions offering PD do not provide adequate resources (including skills, knowledge, and practices) to implement the change.
6. PD leaders and institutions do not help tie theories and knowledge to practice and actions.
7. PD leaders and institutions do not recognize that not all PD material is created equal.

It is important to note that sometimes professional development programs fail, even when they succeed. For instance, in one study, participants significantly grew in their understanding of content and instructional practices. However, the gaps between teacher knowledge in the pre-test were not closed in the post-tests. In other words, although teachers grew, there was still a significant difference in teacher quality after the experience. Part of this failure could be addressed by more differentiated and individualized approaches to professional development.

It also points to the critical need for clear metrics on teacher quality, teacher learning, and student achievement.

**Recommendations for K-12 Online Teacher Professional Development**

Based on these past models of success/failure, a number of researchers and practitioners have stated recommendations for teacher professional development. For instance, some leaders follow the successful model of PCK and offer professional development in
content, pedagogy and teacher best practices within the content areas. Others situate that training with communities of practice, following the Cochran-Smith & Lytle’s research. Recommendations for future research listed here build on these ideas; they are presented according to the audience that is impacted by these suggested next steps.

**Implications for the broader field and for policymakers**

- Develop, refine, and produce research backing for standards for K-12 online teacher professional development.

There are a number of organizations that have created documents and standards for quality online teaching. For instance, the Southern Regional Education Board originally created *Standards for Quality Online Teaching*\(^{61}\). They then produced guidelines for professional development based on these standards\(^{62}\). Each of the original standards is included along with recommendations for what teachers should know and how virtual schools can support them.

In 2009, researchers published an analysis of many of these types of standards\(^ {63}\). In total, 13 documents were reviewed. The researchers found that, in most cases, many of the standards were similar across documents. However, many of the standards proposed were either taken directly from face-to-face standards or from online post-secondary research. Although the authors were able to tie in research claims for many of the standards, more work needs to be done to support these claims.

Perhaps more importantly, researchers found that the standards were often categorized together. However, the recommendations could actually be more aptly divided by roles. For instance, some standards were directly related to classroom instruction, content knowledge acquisition, and technology use. Others dealt with instructional design, database support, and student enrollment. Overall, roles in the standards documents included the teacher, the instructional designer, the course facilitator, the local key contact, the administrator, the mentor, the technology coordinator/support, and the guidance counselor.

Different teachers in different settings will have unique responsibilities and roles. To assume that every teacher is going to be responsible for content creation, delivery, tech support, and daily management of the school seems to deny the variability of online entities and course environments. A deeper understanding of professional development standards and delineation of instructor roles will help teachers understand what they know, what they do not know, and what they still need to learn.

- Collect media of exemplary practice and find a way to share that globally.

Almost all of the research on successful professional development highlights the need to demonstrate existing best practices. Recorded best practices provide an additional way of mentoring pre-service and in-service teachers.\(^ {64}\) As they find themselves in unique situations, they can turn to online videos, audio recordings, screen captures, and notes of successful interventions.

As classes are taught online, it would seem easy for schools to collect and share best practices. Ironically, capturing
best practices online is not the same as showing up in a classroom and recording video for a few hours. Researchers and educators will have to determine how to best capture and then demonstrate case studies and exemplary practices within K-12 virtual classes. Because classes are taught and taken throughout the nation and the world, the funding of such a portal of best practices would have impact beyond local settings.

- Policymakers, government agencies and foundations should fund more research on K-12 virtual schooling and professional development within online K-12 classes

Some predict that in less than 10 years, 50% of all high school courses will be delivered online\(^6\). Although researchers have made important discoveries and claims even within the last five years, more research is needed to understand best practices in K-12 online teaching and learning, particularly as it relates to teaching our teachers how to succeed online.

- Policymakers, government agencies and foundations should fund more opportunities for continued professional development.

Top education countries around the world fund as high as 100 hours per year of professional development for teachers. In the United States, many teachers do not have the funding to continue their learning; or they only take the requisite amount of professional development to maintain their certification. Funding could take the form of tuition costs for continued education or additional rewards/benefits for those who continue their learning.

- Universities and virtual schools need to partner for research and practice.

Although there are a few good examples of Online K-12 School/University partnerships, they seem to be more of the exception than the rule. This could be due, in part, to the fact that many virtual K-12 schools still require at least three to five years of face-to-face teaching experience prior to being able to teach online. Others have realized that spending that amount of time in a face-to-face setting does not prepare teachers any better for online K-12 instruction\(^6\).

There are at least three examples of possible collaborations. First, students in pre-service classrooms and/or returning graduate students could enroll in virtual internships in K-12 schools. Second, universities could help virtual K-12 schools research their existing practices, finding ways to improve teaching and learning. Finally, both could partner to provide high quality and situated professional development for existing in-service teachers.

**Implications for K-12 virtual schools**

There are a number of implications that cut across multiple audiences. Reviewing and adopting standards to the local context, collecting media-based exemplary evidence, providing additional professional development offerings, and partnering with universities all impact K-12 virtual schools as much as they do the broader field. In addition:

- Virtual K-12 schools should differentiate professional development, particularly based on the roles of each teacher within the local context.
Educators seem to accept the fact that students enter classrooms with differing backgrounds, learning styles, and remedial or advanced needs. However, in engaging teachers, schools often return to a one-size fits-all model of professional development. Schools should work with teachers to help them understand their talents and deficiencies in content area knowledge, innovative pedagogy, content-based pedagogical best practices, and technology use. Once both parties recognize the deficiencies and opportunities, differentiated instruction can take place. These offerings would also need to be changed based on the role of the teacher within the virtual school setting (teacher as teacher only vs. teacher as instructor and creator of content).

Virtual K-12 schools should offer continuous professional development opportunities, both face-to-face and online, in pedagogy, content, and technology areas.

Professional development at many virtual K-12 schools happens once a year. All of the attendees receive the same type of training on the same content. Differentiation will help this problem; however, schools need to find ways of offering a catalog of resources that teachers can use in a just-in-time context. An excellent example of this is the Michigan Virtual University’s Michigan LearnPort®. Teachers can enroll and take courses in content, pedagogy, and in technology. Because these courses are online, they receive instruction in the same medium that their students do — online. Virtual schools should also work to find ways to reward teachers for their continued learning efforts so that continuous learning is something teachers are motivated to do.

Virtual K-12 schools should recognize the importance of data-driven decision-making.

Virtual K-12 schools should make data collection a high priority. This is actually a three step process; many schools either fail to begin or stop at step 1—data collection. Data needs to be collected about a virtual school, its students, courses, teachers, the schools that utilize its resources, and the others involved (e.g., mentors, parents, etc.). An example of a data collection template, as well as a free online tool for analyzing that data, can be found online at the Virtual School Clearinghouse (http://www.vsclearinghouse.com).

However, after the data collection, frequent reports need to be provided to team leaders so that they can make important decisions about content and the needs of instructors. Some schools that collect data and do reports often do it the following year as they look back. Schools should focus on using that data to understand how to help teachers teach and students learn in the present, not the past.

Finally, the third step in the data process is reporting to the teachers. Teachers are occasionally taught how to collect data in their own classroom, generally through the learning and content management systems. They are expected to use this data to change their instruction and to provide additional support for students. However, teachers very rarely understand the bigger picture of their completion rates based by course or semester and compared to other teachers both within and outside of their content areas. Such data would be a critical starting point in creating personalized professional development plans for teachers.
Virtual K-12 schools should provide teachers with access to dialogue and participation within communities of practice

Historically, many face-to-face K-12 teachers may talk to the people in their content area or in the room next to them. Much of the existing professional development work has been aimed at helping teachers realize they are a community of practice. They are shown that they are a community of workers addressing the same needs and goals.

Online virtual schools have the opportunity to isolate teachers within their existing courses or they can draw on the resources of online education to create and sustain communities of practice. Simply being online does not ensure that teachers will talk to each other, grow from the lessons learned by others, or draw on resources outside of their class or virtual school. However, virtual schools that support these efforts will encourage and sustain professional growth outside of one-time professional development workshops.

Implications for K-12 online instructors

There are a number of implications for schools and the broader field that also impact K-12 teachers. Being willing to engage in broader communities of practice, using data to understand one’s strengths and weaknesses, and seeking out differentiated professional development opportunities are all responsibilities that also fall on the shoulders of K-12 online instructors.

Additionally:

- Virtual K-12 teachers should appreciate the ownership that is involved with professional development.

This recommendation is not a motivational speech about taking more classes or getting another graduate degree. To return to the Cochran-Smith and Lytle discussion, teachers too often view professional development as only getting knowledge from an outside expert or from the “school of hard knocks” (their day-to-day experiences). Research has provided evidence that teachers grow when they make a focused effort to examine their own practices within existing communities of practice. Being able to explore and discover within one’s classroom, and then share that with others for further reflection, is both a right and a responsibility of teachers.

- Virtual K-12 teachers should explore innovative means to personal and professional growth.

Professional development is often seen as taking a class or workshop through the virtual school or through a university. A broader definition of professional development will enable more opportunities for learning. These are occasionally offered by the virtual school. For instance, before teaching as a lead instructor, virtual schools will require the teacher to sit-in a class as a co-teacher or guest. At other times, the virtual school will require a teacher to revise a part of a course as a part of their contract so that they have some ownership in the instruction.
These are excellent examples of innovative ways to grow professionally. However, virtual K-12 teachers can also find innovative ways to grow beyond the workshop or beyond the required contract responsibilities. For instance, many teachers are now acting as peer coaches and/or mentors. They share content (e.g., syllabi) with each other and ask for feedback on instructional goals, practices, or outcomes. This can be done with permission of the virtual school leaders but with the safety of knowing that the feedback is from peers and is not “on the record.”

- Virtual K-12 teachers should explore innovative tools for teaching and learning.

Research is continuing to emerge from the broader field that may impact what gets taught — or how it gets taught — at K-12 virtual schools. For instance, research on gaming has demonstrated that students can learn both from the use of games and the creation of games. This has led some schools to create online games\(^68\), while other schools use software in their classes to let students create games and simulations\(^69\). As such, the innovation is passed from research/industry to schools to content developers to teachers. Virtual K-12 teachers can be proactive in this approach, however, by recognizing and initiating conversations about innovative tools that have the potential to impact teaching and learning. Such tools or innovations include the use of open source software, social software (e.g., blogs, wikis, shared links, etc.), games and simulations, 3D, and cell phone/mobile devices.
Endnotes


3 Ibid, p. 3.


5 Green, E., op. cit.


10 Davis, N.E. op. cit.


12 http://www2.ed.gov/nclb/

13 http://www.policypointers.org/Page/View/58

14 Desimone, L.M., op. cit.

15 Ibid.

16 Borko, H., op. cit., p. 3.


20 Davis, N.E., op. cit., p. 11.

21 http://ctlt.iastate.edu/~tegivs

22 http://www.vsclearinghouse.com/


24 Ibid, p. 541.

25 Borko, H., op. cit.


Borko, H., op. cit.

Desimone, L.M., op. cit.


Borko, H., op. cit., p. 5.


Borko, H., op. cit., p. 6.

Borko, H., op. cit.


Borko, H., op. cit.

Garet, M.S. op. cit.

Desimone, L.M. op. cit.

Desimone, L.M. op. cit.

Garet, M.S. op. cit.

Borko, H., op. cit.

Borko, H., op. cit., p. 7 writes: “Research on these two projects also reveals that the development of teacher communities is difficult and time-consuming work (Grossman et al., 2001; Stein et al., 1999). Norms that promote supportive yet challenging conversations about teaching are one of some most important features of successful learning communities. Teachers generally welcome the opportunity to discuss ideas and materials related to their work, and conversations in professional development settings are easily fostered. Yet, discussions that support critical examination of teaching are relatively rare (Ball, 1994; Putnam & Borko, 1997; McLaughlin & Talbert, 2001; Wilson & Berne, 1999). Such conversations must occur, however, if teachers are to collectively explore ways of improving their teaching and support one another as they work to transform their practice. To foster such discussions, professional development leaders must help teachers to establish trust, develop communication norms that enable critical dialogue, and maintain a balance between respecting individual community members and critically analyzing issues in their teaching (Frykholm, 1998; Seago, 2004).”

Desimone, L.M. op. cit.

Borko, H., op. cit.

Borko, H., op. cit.

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Desimone, L.M. op. cit.


Ibid, p. 72.


Hill, H.C. op. cit.


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http://www.learnport.org/

http://www.flvs.net/areas/flvscourses/ConspiracyCode/Pages/CourseOverview.aspx

http://scratch.mit.edu/

Vision

*To provide leadership by expanding, improving and innovating learning opportunities for K-12 students and educators.*

Mission

*To serve as a catalyst for change by providing quality Internet-based programs that strengthen teaching and learning for K-12 education.*

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