ADVANCING A CURRICULUM TOWARD IMPROVED ONLINE NURTURING OF K-12 STUDENTS

By

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Date Received: Date Revised: Date Accepted:

ABSTRACT

Despite the massive growth in K-12 online learning, there are no opportunities for teachers to learn and develop skills to succeed as online instructors. This study is the third iteration of an action research project, which focused on improving a graduate instructional technology course and developing teachers with these skills. Previous results of the first two iterations are summarized, and qualitative data from the third round, consisting of blogs and course assignments were analyzed for emerging themes. These themes emphasize instructional design to solve problems associated with student performance, improve communication channels, and ensures that student age as a non-factor in online course success. Recommendations for future course iterations are presented as well.

Keywords: Virtual Schooling, Action Research, Teacher Efficacy, Teacher Professional Development, Web 2.0, Social Networking, Blogging.

INTRODUCTION

The use of distance education by post-secondary and K-12 institutions is growing at a phenomenal rate. However, the training of online teachers has not matched with this growth. For example, the National Center for Educational Statistics first reported that more than three million online courses were enrolled in two-year and four-year degree programs in the United States in the 2000-01 academic year (Waits & Lewis, 2003). Later, the Sloan Consortium found a growth in online enrollment in higher education student population of 19.8% in 2003, 24.8% in 2004, and 35% in 2005 (Allen & Seaman, 2004; 2006). Recent data indicates that the proportion of higher education students enrolled in one or more online courses is approximately one third of all students (Ginder et al., 2019). As universities continue to increase the number of online courses they offer, the impacts are also felt in K-12 educational settings. Early reports indicated that there was approximately 50,000 students in the US were enrolled in one or more online courses (Clark, 2001). Years later, Picciano and Seaman (2009) indicated that more than 1,000,000 K-12 students were enrolled in online courses, while Watson et al. (2009) reported that significant K-12 online learning activity in 45 of the 50 states. The best estimates since 2009 are that enrollment in K-12 online learning programs has increased at a rate of 6% annually (Digital Learning Collaborative, 2019).

However, to date K-12 online learning or online teaching has remains little in the way of teacher education's learning pedagogy (Archambault & Kennedy, 2018). For example, Kennedy and Archambault (2012) reported that only 1.3% of the teacher education programs they surveyed were offered a field experience opportunities in K-12 online learning programs. Four years later, Archambault et al. (2016) replicated the study and found that only 4.1% of responding teacher education programs offered online field experience opportunities. Additionally, Rice and Dawley (2007) found that less than 40% of all online K-12 teachers in the US received professional development before they began teaching online. This indicates the need for teacher education programs to address the ability of pre-service and in-

service teachers' to teach in environments completely mediated by technology.

The purpose of this project is to examine an action research initiative designed to address some of the gaps that existed in one teacher education program related to K-12 online learning with the re-design of IT6230 - Internet in the Classroom. In this article, we examined the results of the third round of this action research project. Specifically, we described the content and research rationale for IT6230, including an explanation of why this course was developed in this manner. Next, we discussed how IT6230 has evolved over the past two years as a part of an action research project to improve upon the course. Finally, we explored the thematic results of the third round of data collection, as well as specific data-driven revisions made following the third offering of this course.

1. Research Rationale for IT6230 – Internet in the Classroom

IT6230 – Internet in the Classroom is a graduate course at Wayne State University (WSU) located in Detroit, Michigan. The course is part of the K-12 technology integration concentration area in the Master's of Education (M.Ed.) degree offered by the Instructional Technology program. The general purpose of this concentration area is to prepare in-service teachers to be able to integrate the technology into their classrooms and schools. The program is relevant for classroom teachers, media specialists, technology coordinators, school administrators, and other specialized school personnel. The K-12 technology integration is aligned with Michigan's educational technology standards for teachers. Michigan require students to have an online learning experience in order to graduate from high school (Michigan Department of Education, 2006); In 2008, the state added three new educational technology standards to address the design and delivery of online learning for K-12 students to meet new requirements (Michigan State Board of Education, 2008).

The content of the course was established in 2008 and was divided into three units. They are today's student, read-write web or Web 2.0, and virtual schooling. The following sub-sections describe each of those three units.

1.1 Today's Student

The class began by examining the literature around today's students by expelling the myths surrounding digital natives (Prensky, 2001) and millennials (Howe & Strauss, 2000). One of the key aspects of this short unit is that although these two concepts are widely accepted and repeated in the popular media and within the educational jargon, students must understand that they are not based on any research (McKenzie, 2007) or unreliable research (Reeves, 2008). Students were then exposed to the extensive research conducted by Twenge (2006; 2009), which had reliably found that the main difference between today's students and their predecessors is the high level of narcissism that the current generation of students possess. This unit was typically two weeks long during the winter semesters, while it was one week long during the summer semesters.

1.2 Read-Write Web or Web 2.0

The next unit uses blogs and RSS feeds to facilitate the instruction on read-write web tools, also known as Web 2.0 tools. The term Web 2.0 was not popular among the masses until it was used by O'Reilly (2005) at the first Web 2.0 Conference in 2004. The term Web 1.0 is a retroactive designation for what some called the 'read web' (Rosen & Nelson, 2008).The average user cannot publish content on the web; they can only navigate to the website through a browser and read what had been posted. Web 2.0 or 'read-write' tools are different in which they allow users to interact with the web without having any computer programming knowledge or experience. Average users can participate by creating and sharing their thoughts and ideas directly to the web as well as collaborate with others.

The first Web 2.0 tool discussed was the blog. Blogs were one of the first Web 2.0 tools. It was important to provide instruction on blogs to K-12 teachers because they served as an entry point for using Web 2.0 tools (Hindley & Clughen, 2018). Blogs were easy to design and almost all blog sites were free to use. IT6230 explored various blogging sites including Blogger, Edublogs, and

WorldPress and also provided best practices for using blogs. Students explored these various blogs and were then required to select one of the sites and create their own blog and blog profile. The students' blogs served as the place where they post, using text, images, links, course assignments and reflective entries.

Following the blog creation assignment, the students were required to establish an RSS (i.e., Really Simple Syndication) feed. An RSS feed allowed a user to be notified directly when a specific blog is updated (Richardson, 2005). The update was sent to the user's news reader or aggregator. The students of this course were exposed to two RSS readers, Google Reader and Bloglines (both of which are no longer exist). They subscribed to all the classmate and instructor blogs. Understanding RSS feeds was another imperative skill for teachers to learn since they will eventually instruct their own students on how to use RSS feeds. In authentic practice, teachers can use RSS feeds to have the student's homework or projects delivered directly to their aggregator (Baird & Fisher, 2005), saving their time on assessments and providing more timely feedback to student postings.

Wikis were another Web 2.0 tool for students used in IT6230. Wikis were introduced in 1995, and was named after the Hawaiian term 'wiki wiki' meaning 'quick' (Mims, 2009). Wikis were different from blogs because they were organized by content, where the blog post is organized chronologically. The tool provided a platform where multiple users can create and edit content collaboratively (Goodwin-Jones, 2003; Tonkin, 2005). Wiki exposure in the course has been presented in a variety of ways (e.g., working collaboratively in groups outlining six technologies in the Horizon Reportor working on creating chapters for the Learning Telecollaboratively wiki).

Finally, students in the course explored various social media platforms for microblogging and social networking. Microblogging is another form of written communication, but on a smaller scale (Adelstein & Barbour, 2015). The students in the course were exposed to Plurk, Twitter, and Edmodo. Similar to blogs, users on microblogs can post comments and communicate with others who share common interests (Gao et al., 2012). The two specific social networking sites addressed in the course are Facebook and Ning. Social networks provided a platform to connect with people who share the same interests (boyd & Ellison, 2007). Since K-12 educators often cringed when their students talk about using the tool, the course hoped able to demonstrate ways in which it can be used for classroom learning and sharing (boyd, 2007). This unit was typically six weeks long during the winter semesters and three weeks in the summer semesters.

1.3 K-12 Online Learning

The third unit of the course, usually started in the ninth week and continued for the rest of the course, focuses on K-12 online learning. Students were provided instruction on K-12 online learning through the use of two resources at Iowa State University (ISU) that also provided a model and materials. Teacher education programs could adopt to address online teaching tasks which are Good Practice to Inform Iowa Learning Online, and Teacher Education Goes Into Virtual Schooling (TEGIVS).

The Good Practice to Inform Iowa Learning Online were "ten case studies of good practice and supported the development of three exemplary courses by pioneers in Iowa who [would] lead good practice and mentor others" (Davis et al.,2005). As a follow-up to this project ISU created TEGIVS, the purpose of which was "to build on that work [i.e., the Good Practice to Inform Iowa Learning Online project] to incorporate virtual schooling into pre-service teacher education". The curriculum addressed the diffusion of the role of the teacher in the virtual school environment into three separate roles.They are virtual school designer (i.e., online course development), virtual school teacher (i.e., pedagogy and class management), and virtual school site facilitator (i.e., mentoring & advocating) (Davis, 2007). These roles were outlined by creating five web-based scenarios: one for early childhood/elementary, one for elementary/middle school, and remaining three for secondary school (Davis et al., 2007). Davis and her colleagues indicated that each of these scenarios was designed to reflect four aspects of virtual schooling, which are pedagogy, technology, assessment and management.

Putnam and Borko (2000) suggested that the use of cases and scenarios are an effective way for teachers to learn about topics in a specific context. However, as Davis and Rose (2007) cautioned, "simply viewing any online course cannot provide a rigorous experience. Quality teacher preparation requires careful selection of field experience and teaching in the students' content areas and grade levels". For example, in its original conception at ISU, the TEGIVS project was designed to incorporate the instructional materials (i.e., the scenarios) in technology integration and/or teaching methodology course, and to provide a teaching seminar course, a six hour field experience component, and eventually a teaching practicum. Unfortunately, considering the realities and constraints at XU, only the curricular materials from the Good Practice to Inform Iowa Learning Online case studies and the TEGIVS scenarios that were incorporated into IT6230.

Therefore, additional curriculum was required to create a more robust and rounded experience. One of the challenges that teacher education programs must overcome is the consistent lack of systematic research on K-12 online teaching. Therefore, along with the case studies and scenarios, students are assigned for seminal readings related to virtual schooling (e.g., Barbour & Reeves, 2009; Clark, 2000; DiPietro et al., 2008; Roblyer, 2005). In addition, there were assigned activities including reflective discussions, and an individual project and group project from the TEGIVS curriculum.

Reflective discussions were prompted by the instructor and posted weekly on the course blog. A sample instructor prompt used was, the TEGIVS scenarios are designed to provide information and advice to school-based teachers on how K-12 virtual schooling looks like, some of the issues students face, how it is done, and how mediating teachers can support it. Based on your use of the scenarios, along with the readings to date, our blogging discussions, the information and discussion in class, and your own experiences with K-12 virtual schools; what are some of the topics you think might be added to the scenarios if more were developed in the future? Describe these ideas and what should be included.

Students were required to post their reflective entry on their personal blog and comment on two peers' blogs throughout the week. This unit was typically seven weeks long during the winter semesters, while it was three weeks long during the summer semesters.

2. Using Action Research to Advance IT6230

Action research has a long history of using reflective data, often collected over multiple cycles of data collection, for the purpose of improving upon educational practice (Kemmis & McTaggart, 1988). For the purpose of IT6230, the course instructor and a graduate research assistant began the collection of data to initially examine the impact of the TEGIVS curriculum on the opinions of graduate students enrolled in this IT6230 concerning K-12 online learning. However, based on the nature of the data and the feedback received, the research study quickly began an exercise in collecting data during each course offering for the purpose of making continuous improvements to the course (Stringer, 2004).

This generalized purpose led to the following two research questions.

1. What are in-service teacher perceptions of K-12 online learning?

2. How do those perceptions impact future curricular design?

The first research question is a replication of Compton et al. (2007), which examines teachers' perceptions of the TEGIVS materials. The second question focused on the action research goals to improve the content of the course.

Round three of the data collection is the first summer semester that the course had been offered. This meant that the course was scheduled over a seven-week period, as opposed to a 15-week period of the winter semester (i.e., in rounds one and two). There were ten students enrolled in IT6230 during this first summer semester, but only five agreed to use their artifacts in the data collection. Craig (2009) suggested that data for action research projects should be "gleaned from naturally occurring events" within the environment. This data for this study includes students' reflective discussion entries and

comments posted on their blogs, artifacts from two virtual schooling projects, and the open-ended questions about Student Evaluation of Teaching (SET) forms. Mertler (2017) indicated that journals such as blogs, and other classroom artifacts are common forms of data for action research, while McNiff (2016) described how participation and interaction activities are regularly used in action research.

Data from blog posts and comments, as well as submissions for the assignments during the Virtual Schooling Unit, were analyzed using an open coding method and constant comparative analysis (Strauss & Corbin, 1994). After an initial analysis of the data, a series of codes were developed. These codes were refined over subsequent reviews of the data, from which categories emerged. In order to ensure trustworthiness of the data analysis and interpretation, multiple sources of data were reviewed (i.e., blog posts and comments, student submissions). In addition, data and themes were reviewed by multiple researchers.

2.1 Round One – Year One, Winter Semester

There were four dominant themes from the year one data. The first theme focused on the perceived benefits and drawbacks of K-12 online learning for teachers. The second theme focused on how K-12 online learning could affect today's students. The third theme was focused on the reasons why K-12 online learning was unsuccessful. Finally, the fourth theme that emerged focused on success factors for K-12 online learning.

Based on the data collected from year one, the main course modification was the change in coverage for the K-12 online learning content from five to seven weeks with additional two weeks from the Web 2.0 coverage (for the purposes of a summer semester, this meant four out of seven weeks). In the open-ended portion of the SETs, learners reported that focusing on Web 2.0 technologies provided them with knowledge to use those tools; yet, they wanted more content on how to use them to design and deliver K-12 online learning. These comments indicated that learners do not feel as though the roles of the virtual school designer or virtual school teacher are adequately addressed.

2.2 Round Two – Year Two, Winter Semester

The analysis of the round two data also identified four main themes. The dominant theme identified in this data focuses on the types of students, the learners felt could be served by this form of educational delivery. Second, none of the round two learners were able to see a role for K-12 online learning at the elementary grades. In round one, In round one, the main theme was the impact that K-12 online learning had on learners, which was the third theme from round two focusing on benefits and drawbacks. Finally, the fourth theme focused on some key issues that should be addressed to allow for the successful integration of virtual schooling into the K-12 system.

Analysis of the data collected from round two found that the students were mainly busy with the individual project, and the instructor was not satisfied with the results. Thus the major changes for the next semester will focus on the individual project. During the first summer semester, two parts were added to the individual project based on curriculum materials developed by the ISU team. The first part had students explore a demonstration course that won a National Design Award, then explore one of the ten Good Practice to Inform Iowa Learning Online case studies, and respond to written prompts related to both items. The second part had the students respond to prompts focused on the Converge readings that were used in one of the individual blog prompts during round one.

2.3 Round Three – Year Two, Summer Semester: Thematic Results

Due to the fact, this was the first time that the course was delivered during the summer semester, and several changes had to be made to accommodate the shortened time frame (i.e., despite the understanding of an increased pace, it was impossible to fit every task in a 15-week course into a seven-week course). Examples of changes include eliminating the several blogging prompts used in previous iterations. Further, some blogging prompts were altered based on instructor choice, such as the instructor including prompts on student anxiety with respect to online learning, as well as

student age as a factor in online learning.

Similar to the previous two iterations, there was little useful data from the student evaluation of teaching. Only seven of the 10 students completed the evaluation, and none of those seven students provided any qualitative comments to any of the open-ended questions. However, the students highly rated the course content features. For example, students rated the courses organization as 4.3 out of 5, as well as the readings 4.3 out of 5 and assignments 4.7 out of 5 atleast in terms of contributing to their understanding of the course content. Due to the lack of substantive feedback from student evaluations of teaching, the themes were generated primarily from the blogging prompts, with some support from the Virtual School Individual Project and the Virtual School Group Project.

The first theme was that student responses heavily focused on the instructional design process for online courses as a key factor in determining student success. That is, many issues in online learning can be remedied by the improved design of courses. One student provided this succinct summary,

I have come to the conclusion that the success of virtual online education remains directly related to the same variables of any good lesson. The Instructional Systems Design model of instructional design becomes much more important and time consuming. Virtual design requires more analysis due to having more [sic] choices required for the virtual design of instruction. This would account for the witnesses from virtual teachers admitting that the time and work is increased. (Kurt)

Another student, in her response to a blog prompt on student anxiety, responded.

By instructional system design, a formal introduction about the virtual learning environment in the form of a tutorial or demo, an introduction from the online teacher by phone or multimedia presentation and access to a course syllabus would have prevented or at least eased Susan's anxiety about the course which are responsibilities of the online teacher and course designer. (Kelly)

In these two examples, there is a distinct emphasis on the importance of design as it relates to student success. However, both entries acknowledge that good design takes time.

One of the students, Joseph, demonstrates how design changes can improve course delivery in responding to one of the scenarios in the virtual schooling assignment.

Along with a dedicated LMS, if some group projects are part of a virtual course, some form of Web 2.0 tool should be used for collaboration. From Danielle's experience, it seems that there was little online collaboration other than some email discussions. The presentation completely focused on the non-virtual students for their presentation. Using collaborative tools, such as SlideShare and VoiceThread, they could have worked on their Power Point asynchronously, virtually, and commented and corrected other's work. The presentation could have been recorded and edited, and the link to the presentation could have been shared so that the real and virtual students could see it clearly.

Another point of interest that is important for students to be competitive for a job is communication. Virtual classes force students to communicate. Well developed virtual classes force students to reach out to one another by applying required group assignments. Well designed assignments require the students to work closely with other students in a collaboration for required work. While students with confidence socially would do well in any setting, students without social confidence will find success easier in virtual worlds and hopefully build their confidence. (Kurt)

One of the key take aways from the students was the notion of the importance of design in virtual courses. Looking at the above examples, many of the suggested design changes involve better communication, which related to the next theme found in the data.

The second theme that emerged was focused on the importance of support and mentoring of students. Several students recognized the various roles in virtual schooling. These responses were primarily from the blog prompt on student anxiety, which was a new blog prompt for this round. The following response noted the importance of

mentoring by onsite adults (i.e., the school-based teacher and counselor).

The school-based teacher at Susan's school might have also arranged a contact between Susan and a virtual school staff liaison - perferably [sic] the online teacher directly - to help ease Susan's anxiety about the course. I am sure Susan would have benefited from knowing that she was not the only student enrolled in this online course. Perhaps the school-based counselor may have been a likely resource for this information if there were no issues of confidentiality to contend using this approach. In this case, peer-to-peer contact via a dedicated forum by the virtual school would have proved helpful to alleviate stress as well as provided a collection vehicle for documented dialogue about challenges experienced by students. This information could prove vital serving as formative assessment data for immediate instructional system design correction. (Kelly)

Another student took a similar approach, discussing the role of ongoing technical support and progress monitoring.

I would ask Susan if there is anything I can do to help her with her new online class. I will discuss some of the myths associated with online classes with her. I would make sure the computer she will be using will be able to run all the software and websites needed for her online class. I will continually check her progress and make sure she is staying caught up with her class. If she starts to fall behind, I will try to assist her in anyway I can to help her get back on track. These things I know will help ease Susan's anxiety about the course. (Mark)

In these two examples, we see how the responses reflect the need for communication to mitigate student anxiety. However, the first example discussed interactions between multiple parties (e.g., teacher, site liaison, counselor, peers), while the second example focused solely on teacher-student communication.

In the virtual school assignment, one of the scenarios asked about interactions with a hospitalized student. One of the students in the course, Kelly, created this introductory letter:

I enjoyed your video very much. Seems you are well prepared with your textbook for class and an outlined a plan for a successful year even while hospitalized. Now I would like to take a moment to introduce myself. My name is Mrs. X and I will be your virtual school site facilitator until Mrs. Murphy's return. You can expect for [sic] me to monitor your progress at FLVS by maintaining frequent contact with your virtual school course instructor as well as with your parents. At semester end, I will be sure to forward your final percentage and recommended grade received from your instructor to the school guidance counselor. I am available to you to proctors [sic] any necessary exams as well. I'd like to encourage you to develop and maintain frequent, thoughtful, respectful communications with your online classmates. They too can be a source of support to you.

Certainly I'll be in contact with you weekly. However, if at any time you have questions or concerns, please feel free to give me a call at 555-555-5555, Skype me at [Skype handle] during my office hours 7AM-4PM or email me at [fullname]@flvs.com – my preferred mode of contact. I am looking forward to working with you and your mother this year via email, Skype or phone. Max, welcome to the Florida Virtual School experience!

As we can see, many of the elements of best practice for communication (e.g., open channel, expectations, multiple means of contact, etc.) are present in this interaction. While rapport is important with all learners, the letter exemplifies an attempt to alleviate concerns with a student in a unique situation (i.e., hospitalization). All learners can face challenges, but the emphasis on the course was specifically for K-12 online learners, which brings us the next theme, the age-appropriateness of online learning.

Regarding student age, most students responded with an 'it depends' comment, emphasis on motivation versus technical acumen. Many used examples including older adult students having difficulties but being more focused and motivated, but there were exceptions with younger students.

Younger students may feel that online classes are “cool”

or the "new" thing. They may be the "greater facility with technology" but the technology of online classes is just in the beginning. To me, it quickly wears off. Once a student understands the technology behind online classes, the class becomes about the content not the technology. This is where I think the older student then has the upper hand. I agree students in online classes really do need to be "self-motivated, highly organized, and in possession of well-developed study habits" especially compared to traditional classes. This is why I think older students have the advantage for the reasons I previously explained. But I think any age student that has these qualities will be successful in online classes. (Mark)

Several responses highlighted an initial urge to give an advantage immediately to younger students in online courses, but when given more thoughts, some traits related to older students may cancel out the technical skill that younger students already obtained. Martha wrote:

In reading about student age and online learning I at first was in complete agreement. My first thought was - "yes, finally something an older person can do better pertaining to school" - then after thinking about it I am not sure if the statement is entirely true. I do think that older students have the experience with deadlines that younger students don't but I think that there is still a learning curve for all. Where an older student may have the discipline to study, they also have much greater demands in their everyday life that the younger student doesn't. Where an older student may have to strive to learn, the younger student already knows how to navigate the web.

These responses are similar and they point out how older students may lack some skills based on less exposure and comfort with navigating the online world, but compensate for this deficiency with more self-discipline and self-regulation.

One student, Kurt, responded to one of the assignment scenarios by describing how teachers could assist with a student's self-regulation, which encompasses aspects of multiple themes: student age, mentoring, and design.

In this scenario the student made the decision with the onsite teacher that he was doing good enough to allow him to "back off" of his class because of other obligations. The entire curriculum and assignments are at the fingertips of the student as well as the support student. It would be of great service to require each student that you're supporting to sit down with you and create a plan of action from the beginning. During this time all of the entities including the rules, regulations, and requirements could be reviewed as collaborative team. By creating a plan of action before the class begins after enrollment other obligations of the student and you could be taken into account. The student could have worked ahead to be able to "back off" because of track. During this session you and your student may even feel that the requirements cannot be met in the time frame at hand and that taking the class online during another season is best. The support teacher, parent, and student can create a communication schedule to build in gentle reminders to help the student stay on track.

While adult learners can also work with their instructors to create individualized plans of action, K-12 virtual students could utilize multiple mentors (e.g., parent, teacher, facilitator, counselor, etc.) to mitigate lapses in motivation or problems with isolation.

In summary, the themes uncovered in the analysis of student responses and documents included a strong emphasis on the ability of quality instructional design to overcome issues related to student performance and motivation, the importance of mentoring, and a general ambivalence toward age as a factor in student performance in online courses. These themes were slightly different from previous iterations of the course. In the next section, we provide some guidance on how these themes can inform course design changes for future sections of It6230.

3. Recommendations for Course Design

Students of this course felt very strongly that many of the problems associated with online learning could be alleviated through better instructional design. It should be noted that two of the students in the course were doctoral students in instructional technology and one student was

close to earning their educational specialist degree. Thus, these students would have had significantly more coursework in instructional design than students working on their Master's degree, and this may have influenced their thoughts on the importance of instructional design. It should be noted that while it was not an even dichotomy, students focus on either instructional design or support and mentoring as the key factor in student success.

However, one area that lacking was the connection between some of the statements about design in blogging prompts and the actual suggestions that were part of the case study assignments. The unit prior to the virtual schooling unit heavily discussed the purpose and use of Web 2.0 tools; yet, when asked to provide recommendations for the case study situations, only one student mentioned the specific use of these tools (e.g., this student went so far as to mention the tools they explored in their submission for the assignment in the Web 2.0 unit). Despite the importance of both instructional design and communication to the success of the virtual learner, the lack of this connection was disappointing. Thus, one recommendation would be to explore ways to make the connections between the units more explicit. One such way to accomplish this recommendation is to make the blog prompts more targeted (e.g., have explicit statements regarding student age that bound responses and comments to K-12 age ranges only). Another method is to allow students to see quality and subpar submissions from previous semesters that could help shape student responses and assignments without telling them exactly how to complete the assignments.

A similar recommendation involved guidance on student mentoring. While students understand the importance of communication with the student, it often seemed to be discussed between student and only one other adult despite the focus on various roles in virtual schooling (i.e., the designer, teacher, and facilitator) in the course content (i.e., the example from Kurt mentioned earlier was the exception rather than the norm). One way to facilitate understanding is to include role-playing situations where students in the course would be assigned specific roles in the K-12 online learning environment. If that was impractical, including more extensive case studies that were more explicit in demonstrating the interconnectedness in the various roles.

Finally, students in the course did not see a strong correlation between student age and success in online courses. They noted that some challenges might exist (e.g., technical skills for adult students, motivation and self-regulation for younger students), but the students acknowledged that these stereotypes were not steadfast. This perspective was a slightly different take from the Round 2 students, who did not convince in the relevance of online learning at the elementary level, and may be the result of a change in the blog prompt. On one hand, the student responses show that they were indeed applying the knowledge of the myths regarding generational differences discussed in the first unit of the course. However, on the other hand, if the discussion had steered away from its original intent (i.e., discussing differences between online learning at the elementary and secondary level versus discussing differences between K-12 online learning and adult learners taking online courses), perhaps some modifications to either the prompt or the course materials should be made.

Conclusions

K-12 online learning has been growing in the US for more than two decades. In 2006, Michigan became the first state in the country require students to have an online learning experience in order to graduate from high school. Two years later, in order to better prepare teachers to support this online learning graduation requirement, the state revised its educational technology standards for teachers by adding three new standards to address the design and delivery of online learning for K-12 students. In the M.Ed., in K-12 technology integration program at WSU, these three new standards were primarily incorporated into a course called IT6230 – Internet in the Classroom.

This article represents the third round of data collection for an action research project designed to examine the impact of new curriculum on changing perceptions of in-service teachers in the course and to revise and improve the K-12 online learning curricular materials. The third

round of data collection was also the first time course offered during the summer semester. The standard practice of condensing a 15-week course into a seven-week course resulted in many of the readings and reflective activities that had been used in rounds one and two being excluded from the course.

From a thematic perspective, students focused heavily on the instructional design process for online courses as a key factor in determining student success. Students who emphasized this theme quickly acknowledged that it took time for good online course design. Further, students also highlighted the importance of their support and mentoring. In terms of support, consistent and constant communication (e.g., open channel, expectations, multiple means of contact, etc.) was particularly referenced as a best practice. Finally, unlike the previous two rounds of data collection, there is no clear trend in how students perceived the impact of age on K-12 student success in online learning. Instead, the students emphasized motivation, and downplayed technical acumen.

From an instructional design perspective, in this condensed format, it became quite apparent that many of the student reflections and the other student activities were not well integrated. Therefore, when examining the student artifacts generated from the course, the thematic analysis relied quite heavily on the student reflections (i.e., their responses to the instructor's blog prompts and the students interaction on each others' blog posts). Another disconnect identified following the round two data collection, which was not strong enough in the round three data to be referenced above, but still had isolated references was the need for more Michigan-focused curriculum. The existing K-12 online learning curricular materials were created through funded initiatives in Iowa, with partnership institutions located in both Iowa and Florida. Therefore, the materials largely focused on K-12 online learning programs and practices in those jurisdictions. Given the unique nature of K-12 online learning in the state and the graduation requirement, future offerings of IT6230 should endeavor to include more Michigan-focused curricular materials.

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