School Partnerships: Technology Rich Classrooms and the Student Teaching Experience

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SCHOOL PARTNERSHIPS: TECHNOLOGY RICH CLASSROOMS AND THE STUDENT TEACHING EXPERIENCE

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ABSTRACT

Building upon an established relationship between a college and a local school district, this project formally designated a Partnership School, at which education students conduct field experience. In addition to providing these participating pre-service teachers (students) with a clinically rich experience through closer supervision by and interaction with their faculty supervisor, the project enriched the experience of high school English students by providing appropriate technology in the classroom and integrating it with instruction. The project gave student teachers and educators the ability to collaborate upon and refine lesson planning and delivery, efficiently and effectively meeting the needs required of pre-service student teaching experiences. The study examined three aspects of the project as perceived by the participants: the effectiveness and benefit of using distance observation, the effectiveness and benefit of established technology for completing an edTPA, and the effectiveness and benefit of additional technology for use by the host teachers’ classroom in cloud-based applications.
INTRODUCTION

Creating successful school-to-student teaching program partnerships is essential for thriving undergraduate programs in education. The nature of the student teaching placement has changed, however, with recent developments, including the role of technology and digital literacy in classrooms as well as the need to now complete (currently in New York State and Washington) a teacher performance assessment for teacher certification. At the same time, many undergraduate schools are noticing a decline in the number of placements available for student teachers as K-12 public schools respond to challenges in school reform. In an effort to create a sustained partnership with one local public school, the undergraduate program of this year-long project secured multiple grants in order to enhance both the school’s technology and enhance the student teaching placement.

This article documents the use of the grant funding to develop the partnership school and discusses three focus areas for inquiry: use of cloud technology in the classroom, distance observation of student teachers by supervisors, and the use of in-house technology to complete the assessment required for teacher certification (the edTPA). Each of the inquiry points is examined through the lens of effectiveness as perceived by participants. The purpose of this study was to examine the pilot project in order to make changes for the following year and to decide if it would be beneficial to request additional funding to further establish the partnership school. The study included both pre- and post-implementation surveys as well as recorded interviews. For the purposes of this study, two participants who were involved from the first pilot were included in the final phase of examining the data collected and the authorship of this report. Also included in the examination of data collected were the college professor who was awarded the funding and a graduate research assistant.

The project documented in this article was a year-long project that included a micropilot in the fall and follow-up funding to expand the pilot in the spring of academic year 2013-2014. The project is expected to continue next year with changes based on the feedback collected through this study. Several changes will be implemented next fall and the team will seek additional funding to expand the project.

LITERATURE REVIEW

Technology in the Classroom and Cloud Technology

Hicks and Turner (2013) noted that, “we are citizens in a digital age. And we are worried” (p. 58). Since the 1990s the term new literacies has been debated and evolved. Chandler-Olcott (2009) states, “teachers who want to address new literacies must decide on their own definition of the term” (p. 84). For the sake of this study, the definition that best fits was set by NCTE’s 2008 Executive
Committee. The authors stated that because the world is becoming ever more complex in terms of 21st-century skills, to be truly successful participants in that world, people need to be proficient in multimodal literacies.

These literacies, from reading online newspapers to participating in virtual classrooms—are multiple, dynamic, and malleable. . . . Twenty-first Century readers and writers need to:

- Develop proficiency with the tools of technology
- Build relationships with others to pose and solve problems collaboratively and cross-culturally
- Design and share information for global communities to meet a variety of purpose
- Manage, analyze and synthesize multiple streams of simultaneous information
- Create, critique, analyze, and evaluate multi-media texts
- Attend to the ethical responsibilities required by these complex environments. (NCTE Executive Committee, 2008, p. 1)

Much of the research shows varied opinions about educational technology, both in refute and support of digital technology in the classroom. Some of the worry of digital literacy in school systems stems from the idea that classrooms will become mechanical and sterile, never evolving past the “garden-variety e-learning . . . available on YouTube and similar sites” (Haber, n.d., p. 4). Dean of Southern Methodist University, Bowen, promotes in teaching “naked”—teaching without computer technology (Young, 2009, para. 1) rather than lecturing with PowerPoint or other “cool gadgets” (p. 7) because, Bowen believes, computer-assisted instruction as it has been used the last few years, such as classes that depend on PowerPoint and iPads, has led to boredom and lack of interaction between students and teachers. Many experts agree with Bowen. Opponents of technology and how it is most often used in classrooms today are afraid that, in essence, the “teachable moment” might be lost forever. The way schools are using technology is missing the mark, according to Richardson, educational consultant. He believes that schools are “placing too much emphasis on test scores,” and that goal “will eventually backfire” (as cited in Barseghian, 2012, para. 6). He continues by stating, “technology can be an amazing thing for learning, but the way we’re looking at it isn’t amazing at all. . . . If all we are doing is valuing test scores, then we’re just using technology to deliver the same traditional curriculum” (Barseghian, 2012, para. 6). According to Lehmann, educational consultant, former ELA teacher, and award-winning principal and founder of a progressive science school in Pennsylvania, educators need to allow “technology to redefine everything”; educators need to allow the technology to help “create, research, collaborate, present, and network in all kinds of new ways” (2010). We must reconsider our goals for using technology as Richardson suggests (as cited in Barseghian, 2012, para. 6); we must use it as a “tool” (Lehmann, 2010).
Moje, Young, Readence, and Moore (2000) suggests that there is a more serious reason, besides avoiding boredom, to consider educational digital literacy. She worries that, "the difference between being and not being online may be a deciding factor in the questions of who has and who does not in our world of the future" (p. 128), and there is research to support this idea. A lack of digital literacy skills is "damaging young people's job chances" (Digital Literacy Survey, 2013, p. 1) according to The Prince's Trust researchers. Furthermore, the researchers indicate that 10% of unemployed young people "are embarrassed by their lack of computer skills, while 17% admit they do not apply for jobs which require basic computer skills" (Digital Literacy Survey, 2013, para. 6). The FCC supports this claim as indicated in a study that claims "50 percent of today's jobs require some technology skills and this percentage is expected to grow to 77 percent in the next decade" (Genachowski, 2011, p. 3).

Several studies, however, reveal positive outcomes of embracing and capitalizing digital literacy. The Pearson Foundation Survey on Students and Tablets conducted in 2012 revealed that students believe tablet technology will "transform" learning (Pearson Foundation, 2012, p. 2). Ninety percent of the students who owned personal technology devices (PD) in the study proclaimed that they were learning more effectively and more quickly with their PD after formal instruction; they considered their PD "valuable for educational purposes" (p. 2). Seventy-six percent of those surveyed believed that PD "helped students perform better in class" (p. 2). According to lead researcher Bunker in the New Zealand Computer Society's study of digital literacy, several important findings were discovered; two of those key findings are:

1. "Digital Literacy is now an essential life skill and the right of every[one];" and
2. digital literacy "competence can bring significant benefit to marginalised groups, allowing these groups to participate more fully in society. (Bunker, 2010, p. 7)

Not only will access to and familiarity with technology create an even playing field in society and the job market, but it will increase productivity, creativity, and collaboration in the classroom. In a study carried through by Shephard and Reeves (2012), iPad technology "increases student engagement," "enables collaborative learning," increases student productivity and efficiency, and "improves student technology competency and confidence" (p. 49). Additionally, students praised the benefits and mobility of iPad technology. "We weren't limited to the classroom and we weren't limited to being together ... we could collaborate and corroborate regardless of where we were and regardless of what time it was as long as we have the iPad, which basically modeled the professional life ... and so it really helps us be prepared for the professional world" (p. 50). The New Zealand's Computer Society study supported this student's claim: exposure to technology allows people increased "employment opportunities, [the ability
to] overcome isolation,” “build confidence, and [it] leads to further learning” (Bunker, 2010, p. 7).

In a study by Education Counts in New Zealand by Hegarty, Penman, Kelly, Jeffery, Coburn, and McDonald (2010), research showed that students participating in the study where they were exposed to new technology more often than what they were used to felt not only more comfortable with the technology to which they were exposed, but they were more willing to try newer and different technology by the end of the study. In addition, it was interesting to note that “face-to-face” instruction was still most beneficial to students in the project (Hegarty et al., 2010). This formal instruction need was also supported by Sharpe and Benfield (2009). Finally, it was discovered that the use of the technology gave students familiarity with Web 2.0 technology, and that

familiarity gave [them] confidence, as did a growing knowledge of the possible risks and expected consequences involved in the use of Web 2.0 tools. With this came a greater awareness of copyright possibilities, ethical issues and etiquette when communicating in the digital domain, as well as the creation and utilisation of material once these aspects were explored with the help of the researchers. (Hegarty, 2010, p. 7)

However, for the technology and the skills learned during the study, there needed to be ease of access to both the technology and the Internet (Hegarty, 2010, p. 8). Sharpe and Benfield (2009) called this “functional access” (p. 15) in their study. The Hegarty study also found that teachers and librarians who were involved in the study “felt empowered [after the study] to meet their students on a more ‘level playing field’ (in a technological context)” (Hegarty et al., 2010, p. 11). Finally, Hegarty (2010) discovered that “all participants realized that their old methods of learning were not appropriate for dealing with digital information, and they engaged in risk-taking, collaborative group learning and play, as well as using a wider range of learning strategies,” even their attitudes “shifted” to a much more positive outlook on technology, especially concerning their personal skills with it (p. 11). However, having “functional access” (Sharpe & Benfield, 2009, p. 15) did not necessarily mean smart use of technology nor did it mean clear adaptation of technology into individual’s regular practice; it only allowed for the adaptation to be more common in studies. It is a choice to engage with the technology: “While some learners feel disadvantaged by a lack of functional access to technology or the skills to use it properly, others are making deliberate choices to adopt sophisticated technology mediated learning strategies and ultimately, finding and using a range of tools in personalized, creative ways to support their study” (Sharpe, Beetham, Benfield, DeCicco, & Lessner, 2009, p. 8).

Mobile technology is becoming a major necessity in today’s educational world. Rossing, Miller, Cecil, and Stamper (2012) define mobile technology as, “the efficient and effective use of wireless and digital devices and technology to enhance learners’ individual outcomes during participation and learning
activities” (p. 2). While this used to be a luxury that simply added to the pleasure of the classroom experience, as the title of Hicks and Turner (2013) suggest, that digital literacy is “no longer a luxury” (p. 64) that can wait. Mobile technology is an ever-present asset that is manipulated by students in their daily lives, and it has proven to be useful to mimic their daily lives in the classroom to make for a more holistic approach to learning, instead of the traditional compartmentalized school layout. Shephard and Reeves (2012) found in their research based on the use of iPads in the classroom that “the nature of mobility is to free up classes from a room environment to enable students to experience learning on the go. As students experience this new phenomena they are able to move, share, question, and compare information which generates discussion around the topic at hand” (p. 49). When students are engaged in their learning, and their learning transcends the classroom, true success for both the educator and the student is achieved. Therefore, as Kane (2011) states, “the dichotomies that tend to be set up by advocates and opponents of classroom computer use are rarely helpful and often are misleading” (p. 271), because in the technological world students are expected to traverse today, the existence of technology in the classroom is no longer an option.

Proponents and opponents clearly have both valid worries and praises in terms of digital technology in the classroom for teachers, students, and student teachers. As technology becomes more prevalent in classrooms, teachers can discern what works best for the specific population of students that they serve.

Distance Observation and Planning Support

Before pre-service teachers can go into the professional world to obtain their own classrooms, they receive their exposure to teaching through student teaching. Student teaching allows pre-service teachers to practice the instructional strategies they have learned in school, learn new techniques, discover their teaching style, and improve their methods of teaching. Student teachers are able to do this effectively with the help of college supervisors, cooperating teachers, and other teaching professionals. Falconer and Lignugaris/Kraft (2002) found that in order for student teachers to benefit from observation, they must be observed and provided feedback from more than just the cooperating teacher. According to Kraffman, “if a student teacher only works with a cooperating teacher, without university supervision, the student teacher may simply learn to model the cooperating teacher’s behavior and not learn general principles that will enable them to teach in a variety of classroom settings” (as cited in Falconer & Lignugaris/Kraft, 2002, p. 369).

In order to prevent student teachers from receiving limited feedback, it is important for them to receive constructive feedback from various individuals. However, sometimes this is unable to happen due to remote location, schedule conflict, or the supervisor’s need to observe and visit other student teachers;
therefore, the frequent visits may not be feasible (Falconer & Lignugaris/Kraft, 2002). In their research on using video-conferencing for distance observation of student teachers, Falconer and Lignugaris/Kraft (2002) found that “field-based experiences, especially in remote locations, can be improved by incorporating distance education technology that allows for increased interaction between students, cooperating teachers, and university supervisors” (p. 369).

One of the main benefits that Falconer and Lignugaris/Kraft (2002) discovered through their study was that when conducting direct observation instruction through video-conferencing, the technology allowed the college supervisor to actually see what the student teacher was doing for instruction at that time without having to travel all the way to the placement school. The student teachers involved in the study felt as though at times the college supervisor was more accessible than the cooperating teacher despite the fact the cooperating teacher was in the same building while the college supervisor was many miles away (Falconer & Lignugaris/Kraft, 2002). At times, cooperating teachers are busy with other tasks and helping other students which limits the time available to observe and assist student teachers; however, by having supervisors readily available through distance observation technology student teachers are still able to get the feedback that they need.

Classroom teaching is known to be a complex process; however, one way for both pre-service and service teachers to learn how to better their teaching is through observation. Gün (2012) believes that, “observing the act of teaching can lead to substantial amount of learning on the part of teachers” (p. 81). In Gün’s study, the student teacher presented a lesson and received feedback from: teacher trainers, learners, colleagues, and self. Gün (2012) found in his study that the views of the observers in his “enabled the teachers to view their teaching from different perspectives” (p. 91). Being observed and receiving feedback from a variety of individuals allowed the student teacher to collect a variety of ideas of strategies, techniques, and activities that worked well in the lesson as well as suggestions for improvement in the future (Gün, 2012).

Results of Gün’s (2012) study show that each observer had a different interpretation of the lesson delivered; therefore, the student teacher was able to interpret each observer’s feedback which then provided direction to the student teacher’s professional development. Gün (2012) concludes his study by stating that “observations of teaching and feedback could be a valuable addition to any teacher education program, giving direction to teachers in their development and helping them to increase their self-confidence and improve their teaching skill” (p. 91). Observation is a key element of distance observation; therefore, the positive effects of multiple viewpoints of in-person observation of a lesson are directly connected to multiple viewpoints of distance observation through technology.

When observing a student teacher, whether in person or through using technology, providing feedback to the individual is crucial to professional
development: “Feedback is any information provided to a student that helps correct, reinforce, or suggest change in his or her performance” (Henning & Nottingham, 2014, p. 49). Individuals providing feedback should focus on key characteristics such as specificity, timing, tone, and relation to educational and career goals (Nottingham & Henning, 2014). Sempowicz and Hudson’s (2012) research has shown that the willingness for mentors to provide feedback directly affects the willingness for student teachers to utilize the feedback, which in turn results in student teachers developing skills of critically reflecting on their own teaching practices.

Feedback can be provided orally or through writing, but each provide the observer with “an opportunity to ‘unpack’ specific aspects of the lesson (e.g., classroom management, time management, group work), make helpful suggestions for improvement and model strategies for the mentee to try in future lessons” (Sempowicz & Hudson, 2012, p. 52). Sempowicz and Hudson (2012) found that positive and constructive feedback can provide student teachers with confidence in teaching abilities, desire to continue professional development, and ability to self-reflect with greater ease. Regular and ongoing oral feedback and written feedback proved to be effective when used together. Oral feedback was given continuously after a lesson was presented, while written feedback was provided as a reminder of the oral feedback which could be presented to the student teacher that day or the next to initiate reflection and reinforce previous oral feedback (Sempowicz & Hudson, 2012).

Providing constructive and effective feedback is a key element of any type of observation. All the studies provided demonstrate the importance the observation has in a student teacher’s placement experience by helping them develop professionally, whether it is introducing new ideas, encouraging self-reflection, or asking them to think critically. Observation is key to developing best practices.

**GRANT PROJECT AND EVALUATION METHODS**

The field of education and teacher certification across the United States is changing rapidly. In New York State this is in part because of the participation in the edTPA teacher performance assessment, which mandates inclusion in the teacher certification process. The edTPA assessment, completed during the course of student teaching, requires education students to video record lessons, and to submit the recordings digitally for review accompanied with three to five lesson plans and supporting discussion. The college program that was the focus of this study also requires a submitted video and draft edTPA as part of the senior seminar course taken prior to student teaching. As a result, student teachers must have access to sufficient technology in the school districts in which they are placed; this generally includes, at a minimum, a digital camera and Internet access adequate to upload videos. No efficient method for collecting these videos currently existed at this campus or the host school for student teaching that was
a focus of this study; furthermore, many rural schools, though willing to place
student teachers, are not sufficiently equipped to handle their needs. Student
teachers may, therefore, not be exposed to the 21st-century teaching and learning
in technology skills required by the changing field; in turn, neither are their
students and/or host teachers. In addition, student teachers from the college
campus of this study are placed throughout the state, creating a situation in which
some students leave their placements much more prepared than others because
of exposure to technology-rich classrooms and instruction.

This innovative project created a student-teaching model that addressed the
challenges outlined above by designating a "partnership school." A local school
district, a short drive from the college, was selected as a partnership school. This
school has an estimated 31-40% of students from families receiving public
assistance. Many of the school students do not have regular access to technology
in the home. Though the school currently places college student teachers on a
regular basis, both for participation observation and student teaching, additional
funding provided through two grants allowed the researcher to formalize the
arrangement, beginning in fall 2013 and continuing to the end of the spring student
teaching placement in 2014. The funding for this study was awarded through the
SUNY Innovative Instruction Technology Grant that provided $9,725
for the pilot study and New York State C-TEN grant for roughly $20,000.

The selected collaborating teacher for the initial fall semester pilot was a
secondary English teacher who was currently hosting student teachers and
had made a year-long commitment to the project. In the spring semester, two
additional teachers were added: a sixth grade classroom and a high school foreign
language classroom. The pre-service students who participated in the project
were selected from a pool of those who were student teaching in the local area.
The typical senior education student conducts 50 hours of fieldwork in the fall
Methods course (during which they teach four lessons), followed by student
teaching in the spring (accompanied by a seminar course); students are typically
not placed in the same school for both experiences. This partnership allowed for
a change to this structure, placing students in a team of two during fall Methods
participation to establish a basis for success to carry over into a student teaching
team placement for one member of the team in the same classroom in the spring.
Longer experience in one classroom, and using the technology to be deployed
by this project provided benefits on two fronts:

1. simple improvement in students’ comfort in and exposure to the classroom;
and
2. the ability of pre-service teachers to provide 21st-century teaching and
learning skill development to students in the classroom.

This clinically rich experience allowed student teachers to better develop their
skills, improve the experience of the secondary students, and make future place-
ment of additional pre-service teachers more likely.
Another element of the project's clinically rich experience was distance observation of the student teachers. Student teachers are currently placed across the State, reporting to multiple supervisors. In most cases, college seminar faculty never meet the on-location host teachers. The current structure also calls for the student teaching supervisor to visit the classroom a minimum of three times in each placement; because of driving time, scheduling conflicts, and the inevitable cancellation of a lesson due to weather, three times is generally the upper limit. Faculty members teaching the seminar course that coincides with student teaching typically never view the fall seminar lessons, and only see the student teaching lessons when assigned as a supervisor. In conjunction with in-class observations, distance observation via video provided more opportunities for immediate feedback, and could be used by faculty and supervisors as a means to view students who are at a significant distance. Recorded distance observation would allow for notation by the supervisor and a graduate assistant to be viewed by the student teacher while reviewing the video. Reflection becomes much more robust: students would have more observations and would be able to see the video play out, rather than trying to recall events that occurred.

Pre-service teachers can become frustrated when technology applications they explore in coursework on campus cannot be implemented in the classroom, due to limitations in the support and technology available in public school buildings. Many of the college education courses spend a large amount of time exploring cloud-based technologies that can enhance the lesson experience (also supported by the Common Core State Standards), such as wikis, blogs, podcasts, and webquests; literacy classes spend a great deal of time exploring multimodal literacies and the digital literacy skills needed to be successful as teachers and learners.

Rural school districts, in particular, often have limited capacity to allow student teachers to carry out these types of lessons. Many 7-12 schools in upstate New York, including the target Partnership School, do not possess the technology needed to support edTPA and to teach technology skills; however, students are increasingly being asked to become engaged with technology. The partnership nurtured that engagement by allowing student teachers to provide this support to individual students, in the form of mobile devices (laptops, iPads, and Kindle Fires). Student teachers were able to see firsthand the effective use of technology in the classroom, classroom students received exposure to those technologies, and even the collaborating classroom teacher found new ways to align units and lessons to enhance student engagement. Due to being a school nestled in the heart of one of the poorest counties of the state, with over 56% of the students on free or reduced lunch in this district, this program offered many opportunities that students did not have otherwise. In addition, the town itself lies in a cellular deadzone which makes it even more difficult for students to access their homework on Edmodo, Castle Learning, or Schoology at home via Smartphone technology. This district is a rural, primarily Caucasian population;
417 students are enrolled in the district of which there are only six Black students, seven Asian students, one American Indian or Alaska Native student, 18 Hispanic/Latino students.

For the model partnership to have the greatest impact upon the collaborating institutions, a suite of technology solutions were deployed at the Partnership School and with participating student teachers. A wide angle digital video camera allowed for digital recording of the classroom, and both students and teachers were provided with an online environment (Vimeo PRO, www.vimeo.com/pro) in which to save recordings for recall and refinement of teaching prior to final submission for "official" performance assessment. The project also deployed an online planning program available to the supervisor, seminar faculty member, host teacher, and student teachers. This program, www.planbookedu.com, provided ready access to lessons and materials, which was hoped to be beneficial in a co-teaching environment. To enhance the secondary students’ 21st century technology skills, and to prepare them for computer-based testing (including the possible Partnership for Assessment of Readiness for College and Careers, or PARCC, assessment), the project deployed class sets of mobile devices, capable of accessing cloud technologies, to facilitate the creation, storage, and transfer of students’ classroom work. The student teaching team guided students through lesson plans, developed in collaboration with the Partnership School host teacher and the college faculty supervisor, that fully integrated the use of the tablets. These devices allowed students to access reference materials and provide feedback in real time, to complete assignments in a paperless fashion, and to become more familiar with an increasingly ubiquitous (and increasingly useful) technology.

Purchased through these two grants were high quality web cameras for each classroom, one classroom with a laptop cart and a class set of laptops with Windows 8, two classrooms with charging stations and class sets of iPads, two Apple TVs, a class set of Kindle Fires, a Vimeo Pro account, and Planbookedu accounts.

LIMITATIONS

One significant limitation to this study was the delay in fulfilling the grant purchases once awarded. There were large delays in both cases as we had to wait for accounts to be set up, price quotes to be collected, purchase orders to be completed, and then wait for the arrival of the materials. Once the materials arrived on campus, there were additional delays while we waited for the IT group to establish the technology and the property management tags to be affixed. After delivery at the school, there were even more delays as the faculty had to familiarize themselves with the technology. In both the fall and spring semester, whole months of the student teaching placements were lost without the technology yet in place.
Once the technology was in place there were additional delays as there were troubleshooting issues and technology that was defective and needed to be returned. Each of the participants interviewed, regardless of perceived comfort level with technology in the pre-survey, noted the “learning curve” of adapting the new technology to the classroom. As one participant noted, “it was definitely a learning year.” Participants and students with the laptops struggled at first using Windows 8, the foreign language teacher who was more comfortable with her “PC” noted that it took her time to decode how to use the iPads and stated that it was a “challenge” for her to adapt. The same participant stated that she was confident the following year would be stronger because she would be past this learning curve and the need to rediscover ways to write her lessons to include technology. She joked when stating that next year would be better, “so, please don’t take them away.” This statement sums up an important aspect of the project in that to have success, the project must include the same participants for multiple years.

An additional complication included the switching of two second semester student teaching placements from first section (starting in January) to second section (starting in March). As a result, because the edTPA needed to be completed in the first section, these two student teachers were unable to participate with the edTPA portion of this project and the study was limited to feedback from only one participant student teacher.

The participants knew going into the project that for some students the extended exposure to hand-held devices would be new. Several students did not have access to technology at home and took additional time to get comfortable with the new technology in the classroom. One teacher noted that several of the students did not “even have iPods, let alone iPads.” Another teacher noted some resistance from a few students that “shut down when they don’t understand something” and that now with extended exposure, “it is less intimidating and scary.” She described one female student that was very withdrawn at first when using the technology because she was not familiar with Google Drive and was intimidated, but now is comfortable using this cloud site. The same teacher described a few students who would not type papers at first, but are now more comfortable as well due to the extended exposure. One host teacher stated that it was important for the students to explore this technology in “a safe environment” that would allow them to “foster skills that they use properly” because they did not have access at home.

Alvermann (2008) discusses the participatory culture of technology for young people and that for most, online culture is just an extension of the real time self. She points out that “disparity has tangible effects” (p. 15) in that students without access to technology and high speed technology are not adept at participatory culture. This includes a lack in the ability to search for quality sites and interact with peers digitally and collaboratively. These students are at a disadvantage and may struggle academically and socially to compete with those students who do
have access. The same students who participated in the pilot will be past the learning curve as they participate in year two and will be much more adept at participating with technology.

The project, while providing one-to-one access in the classroom, did not allow the students to fully adopt the technology by keeping and taking the laptop or iPad home. As Warschauer (2011) has noted, the use of one-to-one technology cuts down on the time students need to master basics “rather than deploying the technology for broader learning” (p. 32). Some time was, of course, lost in the learning of the tools inside the classroom, but the consistency of presence in the classroom helped diminish this effect. Had students had the opportunity to take the technology home and take ownership of the technology, the fluency with using the tools would be increased for students across all coursework.

Another potential limitation as indicated by Warschauer’s research was the need to rearrange lessons to fit the available technology, “rather than the technology being picked up as necessary to support learning” (p. 32). When the technology was first introduced to the classroom, there was some shifting of lessons to fit the needs of the available technology. Once the teachers were more comfortable with the consistent presence of the technology this shifted to using it to support lessons rather than changing lessons to support technology. In large part, this was a planning limitation. The teachers did not know when the technology was to arrive, so they had to plan without it, where later, they were able to plan knowing it would be there if needed to support a lesson.

As this was a pilot project, these timing concerns and troubleshooting concerns were expected. For the follow-up year starting in fall 2014, there will be significantly less issues as the project continues with participant teachers at the partnership school.

FINDINGS AND DISCUSSION IN FOCUS AREAS

The project findings were segmented into three focus areas: Cloud Technologies and Technology Rich Classrooms, Distance Observation and Planning Support, edTPA Support. The findings are reported for each focus area although there is occasionally some overlap in theme or analysis. The findings were derived from the pre- and post-survey which was administered digitally to all participants (host cachers and student teachers) as well as from a series of recorded interviews of all participants. In addition, the authors reflected back upon artifacts collected from the project including distance observation feedback, researcher notes, logs of technology usage, and e-mail communication.

Cloud Technologies and Technology Rich Classrooms

Cloud technology integration in the classroom lessons and a technology rich classroom environment were both a principle focus of this study. The International
Reading Association (2009) highlights the importance of this technology in their position statement on digital technology stating that:

to become fully literate in today’s world, students must become proficient in the new literacies of 21st-century technologies. As a result, literacy educators have a responsibility to effectively integrate these new technologies into the curriculum, preparing students for the literacy future they deserve. (p. 1)

One student teacher noted the disjoint between the practices of the college classroom and the availability of technology in the public schools. She noted that it was “cool to be able to use different things we have talked about in class” that she would not normally be able to do because “that’s not practical” in schools with limited technology access. She noted that when she is a “regular teacher” (a classroom teacher on her own) that she would be “much more inclined” to use the technology thanks to this experience. In the pre-survey, only two respondents strongly agreed that they felt, “confident in my ability to integrate technology into lesson plans” while the post-project survey noted that six respondents strongly agreed with this statement. When responding to the pre-project survey prompt “I feel as if my coursework properly prepared me to use technology in the classroom,” four respondents noted that they agreed, two were neutral, and one disagreed. Post-project, those numbers rose and two strongly agreed, two agreed, two were neutral, and one disagreed. Pre-project four respondents agreed that they “feel comfortable using technology with a cloud-based format in a classroom setting,” two were neutral, and one disagreed. Post-project survey results had five respondents strongly agree and two were neutral.

It is important for the purposes of the project to extend the project over multiple years in the same site locations. One reason for doing this is to establish the technology as truly beneficial and not just what some may call, “the halo effect” in which students respond simply to the novelty of the technology and not the true benefits of incorporation. Each of the participant teachers noted an initial halo effect. One teacher stated that the students “were beside themselves” when they realized the iPads were coming to her class. She stated that the students, “were so excited they couldn’t wait.” Once they received the iPads, she noted that the “kids felt special because they got them and no one else did.” She also noted that, “emotionally kids are happy when they get to play with stuff, who isn’t happy with toys; I mean everybody is happy with toys.” After time, when the students were over the initial excitement and after they stopped viewing the iPads as toys and more as tools, she mentioned that the students really took ownership over the iPads and their own learning as they became engaged. She also noted that the inclusion of the technology “gives the learning a purpose and its more authentic because it puts it on them” indicating that the students saw more value and took responsibility for active learning. Another teacher noted that students “can see the value in the technology and the investment and time that it takes to do all that” (set up of cloud sites). The student teacher being interviewed
at the same time picked up this thought and continued on to say that students were “taking the initiative to use all the technology.” The host teacher also noted that the technology allowed the students “to have a little more access to challenge us too” in that students can fact check or offer additional information on the spot.

Another aspect of the project that the sixth grade teacher brought up was that students are becoming more responsible. As they continue to have extended exposure to the technology, this responsibility will grow. In particular, she noted that they are becoming more responsible because of their role in the maintenance of the iPads (charging, putting away) and in knowing Internet safety (which sites are appropriate and safe for school and research). She mentioned a key learning moment using Edmodo in which students realized what they post goes to the whole class. This situation that caused some embarrassment occurred when one student posted a crush to the whole class instead of just the intended recipient.

One key factor that all participants noted was the portability and flexibility of the technology. Each participant noted portability and flexibility as clear benefits that led to perceived success. Included within the participant identification of portability and flexibility was the ease of access for both students and the teachers. One teacher noted that for the entire school, there was only one computer lab and this lab held desktops. She noted that with 45 teachers sharing one lab it often was not available and it was time consuming to bring a class in. With the iPads, she was able to access materials in class, saving time and also allowing for on-the-spot inclusion. As one participant stated, this portability of technology “allows for more freedom, more creativity and more collaboration.”

Collaboration between students was mentioned by all participants during the interviews. One student teacher noted that she appreciates Google Drive because it allowed her to see which student in a partnership made what changes and contributions. The students were accountable for their individual work within a group and could not hide behind their peers. She noted that it was “a useful tool when grading a group assignment.” The host teacher of this partnership noted that, “it [Google Drive] makes projects, research, group work, drafting, revising, and peer editing, so much easier and so much more accessible.” It not only led to collaboration between students, but it also allowed teachers the opportunity to team up on projects and share the technology. As one teacher stated, “it was a benefit to the whole community.” One teacher noted that in-person group work sometimes has serious problems when students do not like each other. This inclusion of technology allowed students who would not typically work together an opportunity to collaborate “and produce quality work” when normally they would not “make the effort to be near each other.” She noted that students are more “proactive and are self-advocates” because they have access to documents from home, other places within the school, and can even carry a laptop to the teacher to ask a question. She noted that the students and teachers had the experience of learning the new technology together. It is this type of environment that aides young adolescents in development and allows them the opportunity to
“take more risks associated with learning new concepts and principles when they have opportunities to collaborate” (Brown & Knowles, 2007, p. 160). Students begin to feel comfortable sharing questions, thoughts, and providing feedback both to each other and the teacher. This collaborative learning engagement has many benefits including a better development of self as a learner.

Reciprocal mentorship as a form of collaboration was a theme that emerged from the participant interviews. While the student teachers were ushered into the world of professional teaching by the host teachers, the host teachers also experienced guidance from the student teachers in regard to the inclusion of the technology. As one host teacher put it, “she’s [the student teacher] been pretty much at the helm since we got them [the iPads], but as I’ve observed her, I have made notes of things I am going to do for my lessons in the future.” Other host teachers noted a reliance on the student teacher to guide in this new technology. One host teacher described how she and the student teacher had used Google Drive and that she relied on the student teacher at first to teach her how to use this cloud technology. She noted that she knows how to use it and uses it all the time now because of the student teacher.

### Distance Observation and Planning Support

A second aspect of the project that was a focus was the use of distance observation and enhanced planning support. In a very early pilot, the professor from this project watched a lesson live via Skype. This worked well as feedback was immediate in a follow-up live interview; however, there were challenges with the Internet “freezing” and getting a clear image. For the official pilot, the student teachers recorded videos of their teaching and posted them to Vimeo. Supervisors, host teachers, and the graduate assistant were all given access to provide feedback. This system was chosen as a way for student teachers to practice taking video clips and uploading for the dual purpose of fulfilling an edTPA requirement. The process also held challenges though, as the process invited a delay in feedback. After the initial pilot, the participants agreed to provide feedback within one day.

All student teaching participants noted the importance of feedback. As one student put it, “feedback is an absolute critical part of anything I do” and another noted that “I know it will help me improve my teaching abilities.” Interestingly, student teachers disagreed on their comfort level with the video distance observation. One noted that she was “slightly unsure about recording digitally for review—I believe it is a helpful practice, but the idea of being recorded and watched is still slightly nerve wracking,” while another student teacher said that she will “feel more comfortable knowing it [the video] will be reviewed at a later date. I feel more confident when there isn’t someone sitting in the room grading me.”

An unsuccessful component of this was the use of enhanced planning support in the form of a cloud application called planbook.edu. This website service allows users to create online lesson plans. In theory, this application was going to allow
the student teacher, host teacher, supervisor, graduate assistant, and seminar instructor to all have access to lesson plans and see changes occur in real time. The application also allowed for the user to post any associated documents to the plan, such as handouts. The student teacher in the opening pilot and first term had prior experience to the site through the senior methods course; however, both found it to be an extra step vs. just sending an e-mail attachment. The full integration of the Planbook technology can be very situational. By the time pre-service teachers begin their student teaching experience, they often have a preferred style of planning and communication which they have developed from their prior preparatory coursework and experiences. If the technology does not mesh with their typical planning process, it can create for a disconnect between the practicality and the implementation of the technology. The site usage was not reinforced by the support team (host teacher, supervisor) and was dropped as a result. This application does still have potential, but only if scaffolded in learning, reinforced by the team, and found valuable by the student teachers. For one student teacher, it was too much technology introduced at once to keep track of and one host teacher that does her planning by PowerPoint found the site to be cumbersome and repetitive.

edTPA Support

There is scant information regarding this aspect of the study. Participants were not able to actively engage with this due to the timing and, of the five student teachers, only one was able to complete the edTPA using the equipment purchased. Now that the technology is in place, the follow-up year should provide more evidence of the success or challenges connected to this aspect of the project. The one student teacher that participated noted great frustration with the entire process. Once she was able to sort out technological challenges, an additional challenge related to capturing quality sound arose. Using the technology on hand, the student teacher was unable to capture good quality sound in the videos in particular if students were far away from the microphone or were chatting in small groups.

FUTURE CHANGES

The project will undergo several changes for next year. Many of the participants commented on the learning curve with the new technology. At the suggestion of one of the participants who noted “I think there should be a component of a brief training, and not just for us,” any additional classrooms that will be added to the project will undergo a brief orientation not only to the project but also to the specific technology assigned to the classroom.

Other significant changes will occur around the distance observation. Preferably, feedback will be provided directly after the close of the lesson in an enhanced
Skype format; however, with the persistent challenge of Internet quality, those lessons that are to be taped should be reviewed within 24 hours and include time stamps for the student teacher to use as reference points. In addition, the participants can chat via Skype or another chat program such as Appear.in. As one participant noted, "I prefer a conversation because I like to talk . . . you can ask follow-up questions and get ideas." In addition, we will require shared reflection journals as opposed to just a journal for the seminar course that is taken during the student teaching semester. Reflection must be valued, have ample time and opportunity to occur, and student teachers must be open to the associated vulnerability in examining strengths and weaknesses (Magiera & Moon Ro, 2014, p. 2). In order to have successful reflections, they must be reinforced by the supporting faculty in more than just a student kept journal.

In addition, the following year, the team will not continue to use the enhanced online planning support. It may be introduced again at a later time, but was viewed as too cumbersome for the opening implementation of the project. While there is value in the enhanced online planning, it may be best to establish other aspects of the project first before adding in too many layers.

The project will need to support additional auxiliary high quality microphones for capturing good sound for the edTPA videos in the future. The microphones that came on the laptop were not good enough to capture high-quality sound. A table microphone should be suitable, but will require some troubleshooting to perfect next year.

Due to staffing changes, the project will reallocate the Kindle Fires. We were unable to gain any usable feedback this year in regard to this particular technology. The learning curve was steep for this technology for the teacher that was assigned them and due to a very late start, she was unable to use them when her student teacher was assigned to her first session placement. By providing a new teacher the technology in the late spring, the participant should have time to learn how to use the device, troubleshoot any issues, and decide how to incorporate in the classroom before the following school year.

**CONCLUSION**

While the original pilot was scheduled for only a semester, it is clear to these participant study researchers that a pilot of a full year was needed to evaluate the continuation of this project. The additional time was needed to establish relationships with the partnership school, order and disseminate the technology, troubleshoot technology concerns, and then move toward implementation. It is expected that the follow-up year will better establish this partnership between the college and the school and will prove the project successful. The team plans to seek out additional grant funding to expand the project to more classrooms.
As this initial project demonstrated, technology when used appropriately has the power to enhance classrooms and learning in meaningful and sustainable ways instead of making classrooms places where creativity is lost in a series of 1s and 0s, where students lose the ability to access clarification and teachers lose the opportunity to assess and address student learning as it happens. All the research and data gathered certainly has proven that “capability, rather than a standardised literacy, is key to success in dynamic technological environments” (Hegarty, 2010, p. 12). As Lehmann, Principal of Science Leadership Academy in Philadelphia, stated, the use of technology must become “like oxygen: ubiquitous, necessary, and invisible” (2010) and if this happens, creativity, cooperation, and connectivity will grow exponentially.

**REFERENCES**


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