Teacher Education Candidates Providing Educational Technology Professional Development to the University Community through Service-learning

Sara Dempster
Nicholls State University

Aimee M Hollander
Harvard University

Leah Peterson
Nicholls State University

ABSTRACT

Technology use in education has grown at a rapid pace throughout the last decade. However, the COVID-19 pandemic created a lasting impact on technology use for instruction in pre-kindergarten through twelfth grade (PK-12) classrooms and college courses. This creates an even greater need for preservice teachers to be provided with opportunities to develop knowledge and skills related to technology integration. This study explored the impacts of an educational technology service-learning opportunity on undergraduate preservice teacher candidates as well as university instructors. Undergraduate teacher candidate participants completed a course assignment in which they researched and presented various educational technology tools. University professor participants attended these presentations and completed a brief survey on the experience. Through the study, the researchers determined the impacts on each group and implications for further study and development of resources related to the use of educational technology in college courses and preservice teacher candidate preparation.

Service-learning is a versatile and diverse activity used in a broad range of educational settings, where educators aim for students to have meaningful and confrontational learning experiences (Carrington & Saggers, 2008). To simplify, service-learning entails the connection of theoretical knowledge gained in the classroom with practical experience gained in the community and has particular resonance in subjects where academics seek to expand and transform their students' understanding of diversity within their communities (Mergler & Carrington, 2018). The Department of Teacher Education and Nicholls State University utilizes service-learning in a variety of courses to ensure student career preparation.

Educational Technology has been available to K-12 and higher education educators since the 1990s. During the COVID-19 pandemic, educators around the world had to operate remotely and thus K-12 and higher education institutions had to adapt to remote instruction through the use of various technologies. Additionally, due to The Coronavirus Aid, Relief, and Economic Security (CARES) Act funding students had access to devices through 1:1 initiatives (Department of Education, n.d.).

As vaccines were developed and social distancing protocols enacted, higher education intuitions began to adapt to lower COVID-19 infection rates by providing hybrid and face-to-face instruction. However, both students and instructors had become acclimated with access to devices and using educational technology in

their courses. Additionally, faculty have indicated in numerous surveys both the researchers' institution and others a need for training in the area of educational technology (Arya et. al, 2022). Many faculty have indicated that due to institutional requirements to provide instruction, service, and research, they have little time for exploring various types of technology they can incorporate into their courses.

Upon the completion of a teacher preparation program, candidates are expected to possess the knowledge, skills, and dispositions of an effective classroom teacher. This includes knowledge and skills related to the use of technology for all aspects of teaching including but not limited to: lesson planning, instruction, assessment, parent communication, and more. Teacher preparation programs are expected to provide opportunities for teacher candidates to effectively integrate technology into lessons in a meaningful and effective way. To help preservice teacher candidates prepare for the use of technology in the classroom they are required to take an introductory course focused on educational technology. This course is at the beginning of the curriculum so that candidates can develop these skills and apply them throughout their teacher preparation program. The course not only provides the opportunity to expose candidates to the vast number of educational technologies but also how to effectively integrate technology into all aspects of teaching to have positive impacts on student learning.

This study was designed to identify if a preservice education technology assignment could be utilized as a service-learning opportunity to provide professional development to higher education instructors. Specifically, the following objectives were met:

1. Utilize a capstone preservice teacher education assignment as a service-learning opportunity.
2. Identify if the service-learning opportunity influenced college instructor choice/use of educational technology.
3. Examine if the service-learning opportunity influenced preservice teacher preparation for future presentations and lesson implementation.

Service-Learning in Education

In higher education, service-learning has increasingly gained an appreciation for its use as a pedagogical tool for student development (Mason & Dunens, 2019). This increased interest is supported by various external entities that claim the value of service-learning in post-secondary education (Bringle & Hatcher, 1996). Notable supporters include entities such as the American Association of Colleges and Universities (AAC&U) which cites service-learning as a catalyst for improved student engagement and insight (AAC&U, 2007) as well as the Interstate Teacher Assessment and Support Consortium (InTASC) whose standards require teacher candidates to use service-learning to develop and apply a deeper understanding of content areas in meaningful ways (InTASC, 2013). Along with interest from national entities, significant research has been conducted on the effects of implementing service-learning in a variety of settings. Service-learning benefits are cited as ranging from short-term academic achievements to broader areas such as improved civic and social

engagement (Clever & Miller, 2019). Research also provides evidence that service-learning positively affects “personal, attitudinal, moral, social, and cognitive outcomes” (Bringe & Hatcher, 1996, p. 223).

As supported by associations such as AAC&U, service-learning opportunities are often embedded throughout institutions of higher education. Educator preparation providers are no exception. Research specific to departments of teacher education has found that service-learning opportunities have the potential to enhance preservice teacher interest, provide more meaningful and collaborative experiences, improve teaching performance, and build lifelong skills (Bringle & Hatcher, 1996; Carrington, & Saggers, 2008; Dean & Wright, 2017). Furthermore, service-learning has been used as a pedagogical tool for preservice teachers to gain a greater understanding of diverse populations and deepen their knowledge of specific content areas (Clever & Miller, 2019; InTASC, 2013). This impact can empower future teachers through active and more meaningful participation in course-embedded opportunities (Niemi, 2002).

Technology Integration

Educator preparation programs are facing various new challenges. The Covid-19 pandemic in conjunction with the continuously changing landscape of academia has presented barriers in education that have never been seen before (Kasraie & Kasraei, 2010; Rapnta et al., 2021). With these new challenges have come advancements in technology that have the potential to empower pedagogy in the field of education (Kasraie & Kasraei, 2010). Technologically enhanced teacher tools have found their place in education and are creating innovative ways to motivate students and revitalize the classroom (Delgado-Almonte et al., 2010). With advancements, however, comes the responsibility of efficient and effective use. During the pandemic, many educators were required to transition to emergency remote teaching without training or support (Rapnta et al., 2021). Rapnta et al. (2021) called this experience the “unplanned and forced version” of teaching with technology (p. 715). While difficult, this changing landscape has provided an opportunity for preservice teachers to become leaders in best practices and in leveraging educational technology to improve student learning (ISTE, 2021; Rapnta et al., 2021). The International Society for Technology in Education (ISTE) provides standards as a foundation for technology innovation related to learning, teaching, and leading (ISTE, 2021). While these standards are all-encompassing including a framework for students, educators, education leaders, and coaches; they specifically cite educators continually improving their practice, exploring proven and promising technological practices, and advocating for access to educational technologies to meet the diverse needs of all students (ISTE, 2021, p. 5). There is a current and increasing need to invest in technological teaching tools and pedagogy to aid educators in reaching all students in an ever-changing academic environment (Evans, 2021; Kasraie & Kasraei, 2010; Rapnta et al., 2021). As Evans (2021) stated, “If you’re going to invest in technology, invest in the training, support, monitoring, and maintenance to make it work” (p. 1). Educator preparation programs have the chance to train preservice teachers to be leaders in these initiatives, but candidates must be technically and socially prepared to succeed in their journeys as educators (Hankey, et al., 2017, p. 97).

Professional Development for Educational Technologies

With the need to improve the investment in technology-enhanced teaching tools comes the need for increased professional development to support these processes. The effects of a global pandemic further emphasized the need for professional development and support of teachers effectively using technology (Onyema et al., 2020). This is evident in the educator preparation programs that integrated technology into their frameworks prior to the pandemic showing a significant advantage over programs that did not (Onyema et al., 2020). The programs that support educational technologies have provided evidence of improved "teachers' beliefs about teaching and comfort with using technology" and of students in these classrooms "benefiting from the added technology resources" (Blanchard, et al., 2016, p. 216). It is vital for institutions to understand that engagement with and proper use of educational technologies requires an ongoing commitment. Despite the increased reliance on these technologies, many preservice and current teachers are still not supported and are not ready to effectively integrate technology into their practices (Blanchard, et al., 2016; Onyema, et al., 2020; Petegem, et al., 2021). A key factor in professional development related to technology is how aware educators must be of the unrelenting need for continuous knowledge and understanding of the increasingly digital educational environment (Strydom, 2021). "Embracing the digital world and growing as a digital scholar requires us to embrace the notion of continuous professional development." (Strydom, 2021, p. 156). This means that not only is professional development for educational technologies necessary, but that continuous engagement may be just as important.

Course Assignment

The assignment required preservice education candidates to develop a presentation on a variety of specific educational technology tools. The summative assessment meets the main learning objectives for the course, introduction to technology integration for teachers. This assignment also meets national and departmental standards in which candidates are required to utilize a variety of instructional strategies to provide equitable and inclusive learning experiences.

Candidates become experts on the individual technology tools that they present but are also asked to review peer's presentations to learn about the other tools popular in K-12 education. This ensures that candidates build a knowledge base of various technology tools that can be used in K-12 classrooms. Additionally, the assignment requires them to research and discuss specific ways the tool can be used in K-12 lessons which contribute to their ability to import internet-based artifacts into lessons they will develop in the future as they progress through the program.

Each candidate was assigned a technology tool designed for or used in the field of education. Candidates were required to research, explore, and test the tool they were assigned and were instructed to become 'experts' on their assigned tool. After an exploration phase, candidates designed a presentation to showcase their assigned tool. Presentations were to include an introduction, links to appropriate websites, embedded tutorials, and other related information. Candidates were also required to discuss how the tool could be used in K-12 and higher education classrooms including specific examples of how the tool could be used in each setting. If applicable, candidates were

also asked to develop example activities or prepare to demonstrate the tool in use during their presentation. To prepare for the presentation day, candidates were instructed to develop talking points to showcase their tool and how it can be used within 2 - 5 minutes. Candidates were also instructed to be prepared to answer attendee questions. This ensured that candidates developed a deeper understanding of their assigned tool rather than basic knowledge only. (See Appendix A for assignment instructions provided to candidates).

Utilization of Student Assignment for Service-Learning

The university's center for teaching excellence in partnership with the department of teacher education created a university-wide event. University faculty and staff were invited to attend the student showcase of educational technology.

During the showcase, faculty were provided a feedback form to fill out during each student's presentation and demonstration of educational technology (supplement 1). On this form faculty and staff were instructed to provide critiques in the following areas:

- Candidate knowledge of educational technology
- The presentation and demonstration of the educational technology
- The candidate's ability to answer questions regarding the educational technology presented
- The candidate's professionalism

Directly after the event faculty and staff were asked to fill out a survey about the event and the presentations they attended.

Results and Conclusion

Nine faculty attended the event and all were part of the College of Education and Behavioral Sciences or College of Liberal Arts. Faculty were from a variety of ranks including instructor, assistant professor, and full professor. When asked "How often do you use educational technology excluding the learning management system Moodle and video conferencing software Zoom in your courses?" 33 percent responded with always meaning they use an educational technology every single class. Forty-five percent of participants indicated they use educational technology occasionally or a few times during the semester and 22 percent of respondents indicated they use educational technology consistently or at least once a week or unit in their courses.

When asked if the student presentations are helpful in educating them on new educational technologies, 100 percent of the respondents answered "Yes".
Eighty-nine percent indicated on the survey that they planned to adopt a technology that was presented by the students in future courses.

The researchers also requested faculty comments on the event. The following comments were:

“I enjoyed seeing candidates teaching faculty about educational technology and becoming the subject matter experts”.

“Next time, provide a greater variety of technologies, many of the educational technologies presented were about google extensions which are great but I would love to see technologies specific to teaching my subject area”

“Continue doing this program for the university and in subsequent years, choose a campus location more centralized to the faculty community.”

The faculty who attended this event use educational technology in their courses at least a few times a semester. All participants found the event to meet the objective of learning about educational technologies that were new to them. The majority of the faculty participants also indicated they planned to adopt a tool that was presented. The faculty who will not be adopting the technology presented by candidates may have educational technology that meets their instructional needs or did not have a tool presented that meets their current needs.

A key component of service-learning as defined by Bringle and Hatcher (1996) is to participate in an organized service activity that meets identified community needs (p. 112). This highlights the importance of community voice in the development, implementation, and assessment of the impact of a service-learning (Bringle & Hatcher, 2009). To address university faculty community needs we plan to have candidates engage with the faculty community earlier in the semester. This engagement may include surveying faculty on the challenges of using educational technology in the classroom. This will strengthen the project and provide a stronger community buy-in to attending the end-of-semester presentations. The low number of faculty and lack of diversity in colleges attending the event may be due to short notice in advertising the event to the university community and that the event was held at the end of the year when instructors are preparing for final exams and final assignments. In the future, the researchers plan to advertise the event earlier in the semester and choose a more centralized campus location for the event.

Service-learning for the preservice teacher candidates occurred during the candidate’s summative assessment in which candidates researched and taught short lessons around educational technologies that professors and instructors in the university community could adopt in future semesters. This assignment meets the idea that *service-learning is academic work in which the community service activities are used as a “text” that is interpreted, analyzed, and related to the content of a course in ways that permit a formal evaluation of the academic learning outcomes (Furco, 1996; Zlotkowski, 1996).* Another core component of service-learning is for student participants to reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of personal values and civic responsibility (Bringle and Hatcher, 1995, p. 112). After the presentation day was complete, candidates were asked to reflect on their experience. Eighty-four percent of candidates felt their presentations went well or really well, eight percent of candidates felt their presentations went great, and eight percent felt that their presentations were “OK”.