

Pre-Service Teachers and their Self-Efficacy toward Online Teaching

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There is an increasing demand for pre-service teachers to acquire the skills necessary to be proficient with the execution of teaching with technology as part of their educator preparation programs (GaPSC, 2018). This need for learning and applying technological proficiencies to enhance student performance in online classes can lead to divergent educator perceptions of self-efficacy in using technology. This study examined elementary, special education, and secondary pre-service educators' technology integration self-efficacy (TISE) before and after the completion of a comprehensive technology integration project and two semester of education courses.

Literature Review

There has been a notable increase in technology usage in university and K-12 classrooms, which has been driven by mobile technologies, user-friendly applications, and abundant electronic devices. This surge has stimulated recent innovations in how, when, and where technology is used for teaching and learning. Most significantly is the means for content delivery and student engagement outside a traditional classroom, with the aim of improving pedagogy to advance student learning outcomes. The idea of blended learning, an integration of face-to-face and online learning, is expected by many experts to be standard practice in both K-12 and university classrooms in the future. Several states and school districts currently require high school students to complete a blended or online class as a graduation requirement (Shand & Farrelly, 2018). The U.S. Department of Education 2016 National Education Technology Plan (NETP) states: Our education system continues to see a marked increase in online learning opportunities and blended learning models in traditional schools. To meet the need this represents better, institutions of higher

education, school districts, classroom educators, and researchers need to come together to ensure practitioners have access to current information regarding research-supported practices and an understanding of the best use of emerging online technologies to support learning in online and blended spaces (p. 37).

Even though there is a call to action and a hasty rise of K-12 online and blended programs, online and blended learning is not necessarily openly taught or practiced in teacher preparation programs, which tends to lead to a separation of pedagogical instruction and technology training. One way to help solve this challenge is for future educators to be exposed to blended learning environments during their professional development. This solution is in line with Kolb's theory on Experiential Learning (Kolb, 1984) which states that knowledge is created through the transformation of actual experiences matched with reflection from the experience. Therefore, pre-service teachers need to participate in a blended learning course to understand the benefits and challenges of such an instructional design. A 2018 study reported that pre-service teachers shared that the experience of taking an online

course as a student helped in their growth as an effective online teacher. Therefore, it is recommended that teacher preparation programs include teacher-as-student learning situations to deepen their understanding of the concepts first hand (Shand & Farrelly, 2018).

Self-Efficacy

Teachers' self-efficacy beliefs and goal orientations have a huge impact on their educational practice. Teachers are one of the most significant components in the educational system. Their beliefs and attitudes during their educational training affect their behaviors as teachers. Current studies completed in the field of education have shown that knowledge and skills are not sufficient for effective teaching. Teachers' attitudes and beliefs have also been found to contribute to their effectiveness as educators. Even though there are several studies on student motivation for learning, there has been very little research on a teacher's motivation for teaching (Ucar & Bozkaya, 2016). In addition to a lack of research on teacher motivation, there are also very few studies on developing teachers' or pre-service teachers' beliefs about technology integration after a course or educational preparation program. Therefore, it is necessary to look at pre-service teachers' development of beliefs about technology integration (Ünal, Yamaç, & Uzun, 2017).

Bandura theorized self-efficacy and defined perceived self-efficacy as a "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bandura, 1994, p.71). Self-efficacy beliefs have an influence on a person's behavior. For example, people who have a high self-efficacy belief tend to choose challenging work, engage in work, and persist through it. Bandura (1977) stated that perceived self-efficacy is related to

the emergence of behaviors and is important for developing new behaviors.

Teaching self-efficacy is described as the degree to which educators believe that they have the ability to affect student performance. Therefore, it is imperative that educator preparation programs seek to develop pre-service teachers' teaching self-efficacy. In other words, an educator preparation program should cultivate relationships between teacher efficacy beliefs and teacher behavior (Ünal, Yamaç, & Uzun, 2017).

Technology integration self-efficacy (TISE) is another form of self-efficacy. A teacher's use of technology in education can be affected by many different variables. One of these variables is teacher beliefs. Research reports a relationship between pre-service teachers' educational beliefs and plans and instructional decision and practices. Consequently, teachers' beliefs about the competency of technology use in education demonstrate their instructional activities. TISE is defined as the beliefs associated with using technology in education and is the perception of confidence of teachers and pre-service teachers while integrating technology in instruction (Ünal, Yamaç, & Uzun, 2017).

Blended Learning

K-12 educators and university professors have used technology-integrated activities within their courses to promote student engagement with course content while ensuring academic success. Blended courses in higher education continue to increase along with the demands for them and many researchers consider blended learning to be the emerging default course design. Several K-12 schools have implemented blended courses in a variety of ways that include, flipped classrooms, in class online activities, digital modules, or hosting online class sessions in lieu of face-to-face meetings. The use of blended learning in the K-12

classroom has shown an increase because of its potential to change pedagogy toward a more student-centered and personalized approach. There are many benefits of blended learning, with the most common benefit being flexibility. Other benefits include students being able to work at their own pace with a personalized curriculum, reinforcement of learning, and added engagement with their peers. In 2018, K-12 teachers expressed that one key benefit of blended learning is the availability of various online tools and resources they could use to differentiate instruction (Shand & Farrelly, 2018).

However, blended learning does come with a set of challenges. Sustaining student engagement in the online component of the course when students prefer face-to-face sessions has been quite challenging. Teachers tend to echo the student preference for face-to-face learning. It has been shown that many teachers believed that there was more value in the face-to-face portion of a blended course and therefore preferred it to the online sessions. One challenge reported by university instructors was the lack of time available to learn new technology tools and a lack of support for learning critical functions of the learning management systems (Shand & Farrelly, 2018).

Introduction

When preparing pre-service teachers to tackle 21st century learners and the demands of the ever-increasing world of online education, it is important to not only train them for this endeavor, but to determine their level of comfort for undertaking such responsibilities. According to Horvitz, Beach, Anderson, and Xia (2015, pg. 314) “self-efficacy in teaching is important to examine because teachers with higher teaching self-efficacy are more likely to persist through negative outcome expectations and experiences.” In today’s

ever-changing educational landscape, it is important to have teachers who are able to withstand the demands as well as the difficulties of such a rewarding, yet challenging profession.

Purpose

Previous work established a comprehensive technology integration plan for the Elementary Education, Special Education, and Secondary Education programs at a large public college in northeast Georgia. This plan included implementing an online project over the course of two semesters. The online project was designed to support pre-service teachers as they created and taught an online technology model designed for a particular content area and grade level. The purpose of this paper is to report on the technology integration self-efficacy (TISE) of these pre-service teachers toward online teaching before and after they completed the comprehensive technology integration project and two semester of education courses.

Participants

The pre-service teachers who were involved in this study were students in the first and second semesters of their Elementary Education, Special Education, or Secondary Education Program.

Methods

With author permission, this study used a modified version of the “Examining Faculty Attitudes Toward Online Teaching” survey by Horvitz, Beach, Anderson, & Xia, 2015. This re-designed survey was administered to pre-service Elementary Education, Special Education, and Secondary Education majors before and after they designed and taught an online module to their peers and participated in two semester of education courses. Their

first semester course consisted of learning content related to students with special needs, classroom management, technology integration, and the technological knowledge and skills of building an online class in a learning management system (LMS). The course in the second semester of their program was an instructional strategies course that taught the pre-service teachers all aspects of lesson design, instruction, and assessment. This is also the course in which the pre-service teachers taught and were students in the online classes they built in their first semester course.

Results

Thirty-eight students completed the pre-survey and 33 students completed the post survey. The majority of the pre-service teachers responded more positively on the post survey than they did the pre-survey. For example, they felt stronger about the following statements: knowledge of teaching online, getting through to the most difficult students, controlling disruptive behavior, motivating students, having clear expectations for student behavior, getting students to believe that they can do well, and responding to difficult questions from students.

After two semesters in their education courses, the pre-service teachers felt that they would be able to establish routines, gauge comprehension, promote critical thinking, foster creativity, get students to follow rules and meet deadlines, improve student understanding, and convey expectations, standards, and rules. The experience of creating and instructing an online module allowed these pre-service teachers to feel comfortable with adjusting for different learning styles, using a variety of assessments, facilitating student responsibility for learning, providing an alternative explanation or example when students seemed to be confused, responding

to defiant students online, facilitating collaborative learning, and providing effective learning experiences for students, as well as appropriate challenges for the very capable.

At the end of the study these pre-service teachers felt more comfortable using computers for word processing, Internet searching, and e-mail communication, which facilitated their willingness to teach online. These pre-service teachers also agreed with the following statements.

Teaching online can provide an opportunity to reflect and rethink classroom teaching

- By experimenting with new pedagogical approaches and alternative means of assessment.
- By gaining new knowledge, skills, and insights about my teaching.
- By having a higher level of interaction with my students.
- By "stretching" or taking on a new challenge.
- By renewing interest in teaching (overcoming staleness, apathy).
- By reaching students in different geographical locations and with different cultural backgrounds.

There were some surprising results, however. These pre-service teachers felt more positive about some aspects of teaching online classes before they taught their online class than they did afterwards. Afterwards, they did not feel as strongly that teaching online could provide an opportunity to reach students at different stages of their learning lives (e.g. more mature/experienced, older, younger, etc.). These pre-service teachers also felt less positive about their ability to help online students value learning, control students dominating online discussions, and that teaching online could provide an opportunity to learn new technology or teach a new subject area. The table below shows the questions that the pre-service teachers

were significantly more positive about after creating and teaching an online class (Table 1).

Table 1

Survey Questions Pre-Service Teachers Significantly More Positive About After Project

Question	p-value
To what degree did you feel that it is important to learn to teach online?	0.000
How much do you think you can foster individual student creativity in an online course?	0.014
How well do you think you can establish an online course (e.g. convey expectations; standards; course rules) with each group of students?	0.034
To what extent do you think you can provide an alternative explanation or example when students in an online class seem to be confused?	0.009
How well do you think you can respond to defiant students in an online setting?	0.013

Conclusions

Since the majority of these pre-service teachers are millennials, one can assume that they were comfortable using computers for word processing, Internet searching, and e-mail prior to the study. According to Demographics (2014), as this generation is acclimated to using technology with simplicity and as it has been a fluid part of their development, they have a positive view of its impact on their lives far more than any other generation. "More than 74 percent feel that new technology makes their lives easier" (Demographics, 2014, pg.1). Therefore, the pre-service teachers were excited to learn about flipped classrooms as an introduction to online teaching and learning and as a way for teachers to renew their interest in teaching (overcome staleness, apathy). The first semester course taught them how to use knowledge of copyright law, navigate the technical infrastructure of a learning management system, use the Internet to provide links and resources for students, and

how to successfully create and teach an online course. They also had an opportunity to practice using asynchronous and synchronous discussions to maximize interaction between students in an online class.

As the pre-service teachers built their online modules, they were able to experiment with new pedagogical approaches and alternative means of assessment, which led them to gain new knowledge, skills, and insights about teaching, "stretching"- or taking on a new challenge, and understanding the potential to reach students in different geographical locations and with different cultural backgrounds. Another assignment from this class was a classroom management portfolio that focused on the basics of classroom management such as: establishing routines and rules, controlling disruptive behavior, setting clear expectations for student behavior, and motivating students. As the pre-service teachers created this assignment, many of the aspects of managing

a classroom were discussed for face-to-face and online environments.

In their second semester course, the pre-service teachers were immersed in instructional strategies focusing on critical thinking, responding to difficult questions from students, reaching difficult students, gauging comprehension, promoting critical thinking, fostering creativity, improving student understanding, and getting students to believe that they can do well. These pre-service teachers also created and delivered lessons to K-12 students that provided practice in adjusting for different learning styles, using a variety of assessments, facilitating student responsibility for learning, providing an alternative explanation or example when students seem to be confused, facilitating collaborate learning, and providing good learning experiences for students, as well as appropriate challenges for the very capable.

The pre-service teachers most likely did not feel that teaching online could provide an opportunity to reach students at different stages of their learning lives (e.g. more mature/experienced, older, younger, etc.) or to teach a new subject area because they are pre-service teachers who are being trained to teach one set of grade levels and/or one subject area. Learning new technology comes very naturally to millennials and therefore, they may not think of online teaching as a pathway to learning new technology. In addition, after having taught an online module, these pre-service teachers have now experienced the work that goes into planning and teaching an online class. The increased workload up front when teaching online, along with the difficulty of helping students value learning while not dominating online discussions may have caused their enthusiasm for online teaching to wane. It also could be that pre-service teachers are attracted to the field because of the face-to-face interactions and the close relationship

they yearn to have with their learners. They may feel that some of that is missing in an online environment.

Overall, the education course -instructors felt that immersing pre-service teachers in the world of online teaching by having them create and teach an online module has given them the opportunity to experience the flexibility and the pitfalls of the online environment. As part of the survey, pre-service teachers were asked, "If you were to teach online, what would be your main reason for choosing to teach online?" Some of the responses include:

- "Being able to teach students who couldn't normally make it to school."
- "Just to be versatile in my teaching ability, to add an additional capability to my skill."
- "Reaching students in different geographic areas."
- "I think it is a great way to reach some students who don't thrive in school settings."
- "I think it's important to teach using online resources as our world becomes more and more dependent on technology. Students in physical classrooms are not receiving enough time using and learning the possibilities of technology."
- "To immerse students into a new approach of what a 'classroom' looks like. For students to be introduced to the idea that a classroom can also be online shows them the power and importance of technology as it applies to the classroom."

A pre-service teacher summed up the entire comprehensive technology integration project experience as,

Based on the technology project building my own online class and taking a class online, I feel prepared to use my skills at my field placement. I gained

additional experience using computers and techniques that make operations easier. I have also added to my repertoire an abundance of technology tools that can be used to enhance and accommodate students' learning. I have no doubt that I will be able to succeed in utilizing technology tools in field after practicing and trying out various programs.

According to Bandura (1977), this statement by a pre-service teacher who participated in the study has achieved the perceived state of self-efficacy. This individual has also reached a state of teaching self-efficacy and technology integration self-efficacy (TISE) other forms of self-efficacy. Teachers' self-efficacy affects everything they do and every decision they make in their classroom. Therefore, education preparation programs should prepare and support pre-service teachers' teaching self-efficacy as well as their technology integration self-efficacy (Ünal, Yamaç, & Uzun, 2017).

References

- Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp.71-81). New York, NY: Academic Press. (Reprinted in H. Friedman [Ed.], *Encyclopedia of mental health*. San Diego: Academic Press. (1998)).
- Bandura, A. (1977). *Self-efficacy: The exercise of control*. New York: W.H. Freeman and Company.
- Demographics (2014, February 26). Millennials: Technology=social connection. Retrieved May 8, 2018 from <http://www.nielsen.com/us/en/insights/news/2014/millennials-technology-social-connection.html>
- Georgia Professional Standards Commission, (2018). 505-3-.01 *Requirements and standards for approving educatory preparation providers and educator preparation programs*, p.11. Retrieved May 8, 2018 from <https://www.gapsc.com/rules/current/educatorpreparation/505-3-.01.pdf>
- Horvitz, B.S., Beach, A. L., Anderson, M.L., & Xia, J. (2015). Examination of faculty self-efficacy related to online teaching. *Innovations in Higher Education*, 40, 305-316.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.
- Shand, K., & Farrelly, S. G. (2018). The art of blending: Benefits and challenges of a blended course for preservice teachers. *Journal of Educators Online*, 15(1), p 1-15.
- Ucar, H., & Bozkaya, M. Y. (2016). Pre-Service teachers' self-efficacy beliefs, goal orientations, and participations in an online learning environment. *Turkish Online Journal of Distance Education*, 17(2), 15-29.
- Ünal, E., Yamaç, A., & Uzun, A. M. (2017). The effect of the teaching practice course on pre-service elementary teachers' technology integration self-efficacy. *Malaysian Online Journal of Educational Technology*, 5(3), 39-53.
- U.S. Department of Education, (2016). Future ready learning: Reimagining the role of technology in education. *Office of Educational Technology*. Retrieved from <https://tech.ed.gov/files/2015/12/NETP16.pdf>