



Research Article

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Received: 11 September 2023 / Accepted: 19 February 2024 / Published: 5 March 2024

Korean Pre-Service Teachers' Experiences of Creating an Online Teaching Portfolio in the Teacher Preparation Course

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DOI: <https://doi.org/10.36941/jesr-2024-0021>

Abstract

An online teaching portfolio is a digital collection of artifacts for a teacher's professional development and practice. This portfolio includes a teacher's skills, experiences, and achievements and can be used for professional growth, evaluation, and job search. Recognizing the importance of pre-service teachers' experiences of the portfolio, this study aims to understand the effectiveness of online teaching portfolios (e-portfolios) for Korean pre-service teachers. This study implemented mixed methods during the 2022 academic year, including an exit survey (n=62) and individual interviews (n=4). Study results indicated that the Korean pre-service teachers showed a positive learning experience because they could think about the connections between theory and practice while making the e-portfolio. In addition, making an e-portfolio could positively enhance the PSTs' technology integration ability in lesson planning and evaluations. Also, Korean pre-service teachers self-evaluated that they gained greater confidence in learning new technology applications in their lessons. Based on these results, several implications are discussed regarding the effective usage of online teaching portfolios for teacher preparation programs.

Keywords: Pre-service teachers, online teaching portfolio, e-portfolio, technology integration skills, educational technology, teacher education

1. Introduction

Teaching portfolios have been widely studied in education as a tool for teachers to reflect on their teaching practices and document their professional growth and development (Cheng et al., 2015; Sherry & Bartlett, 2005). A teaching portfolio aims to include a teacher's achievements and abilities and demonstrate their teaching competence. Previous studies have shown that teaching portfolios can positively impact teachers' professional development and improve teaching practices (Alshawi & Alshumaimeri, 2017; Atmacasoy & Aksu, 2018). In addition, by reflecting on their teaching portfolios, teachers can identify areas for growth, set goals, and document their progress. Existing research in this area has explored the various components of a successful teaching portfolio, including teaching

philosophies, lesson plans, work samples, and reflections on teaching. These components are essential for demonstrating a teacher's expertise and providing evidence of pre-service teacher learning in teacher preparation (Cheng et al., 2015; Kecik et al., 2012). Additionally, research has emphasized the importance of including diverse materials in a teaching portfolio to highlight a teacher's full range of skills and abilities (Hsieh et al., 2015).

In the 21st century, an online teaching portfolio is introduced, and it is a digital collection of artifacts and evidence of a teacher's professional development and practice. A literature review of online teaching portfolios highlights several benefits of this approach. Firstly, an online portfolio provides a digital platform for pre-service teachers to reflect on their practice and enhance their achievements and skills (Pegrum & Oakley, 2017; Song, 2020). Additionally, an online portfolio can facilitate continuous professional development by providing a record of a teacher's growth over time (Alshawi & Alshumaimeri, 2017; Atmacasoy & Aksu, 2018).

Although the previous literature explored the effectiveness of teaching portfolios, few studies have been conducted on online teaching portfolios (e-portfolios) with diverse teacher preparation populations. Therefore, this study aims to understand the effectiveness of creating online teaching portfolios (e-portfolios) for Korean pre-service teachers in secondary teacher preparation programs. Specifically, this study aims to explore Korean pre-service teachers' experiences creating e-portfolios in their teacher preparation courses.

2. Literature Review

According to Barrett's (2000) definition, an e-portfolio is a systematic and computer-based collection of learning examples. Through internet technology, learners can conveniently store and gather diverse media types, including text, audio, photos, and animations. The benefit of an e-portfolio is that students can determine and choose the content and assessment, which focuses on reflecting upon development and learning outcomes. Previous studies have shown that an e-portfolio can promote learning analysis, improve quality, and assess real situations (Hsieh et al., 2015; Kecik et al., 2012). In addition, the development of knowledge and thinking skills, including critical thinking and problem-solving skills, is emphasized by various studies (Barrot, 2016; Koraneekij & Khlaisang, 2019; Van der Schaaf et al., 2017).

Research has shown the pivotal role of implementing online teaching portfolios in teacher education programs from various perspectives (Parker et al., 2012; Shroff et al., 2011; 2013). For example, some studies have revealed that PSTs focus on understanding theory but do not receive sufficient time developing and practicing actual teaching practices (Kabilan, 2016; Parker et al., 2012). Other studies have summarized that teacher education programs may not effectively prepare PSTs for classroom practices because of the lack of alignment between theory and practice in teacher preparation courses (Babae, 2020; Chang & Lin, 2012). Thus, it is suggested that incorporating e-portfolios into teacher education programs can address these issues.

Specifically, teacher education programs implement e-portfolios as final preparation requirements (Yusuf, 2017). The PSTs can use e-portfolios to represent their unique conceptions of teaching practices by analyzing, discussing, and evaluating their professional growth. According to a study by Kabilan and Khan (2012), pre-service teachers (PSTs) value e-portfolios as a useful tool for learning and self-assessment. This is because e-portfolios allow PSTs to track their progress and performance over time. Additionally, e-portfolios are a monitoring tool that helps PSTs identify their strengths and weaknesses in their teaching practice. In another study, Beka and Kulinxa (2021) argued that online teaching portfolios allow future teachers to self-reflect and organize their work better simultaneously. They also stated that analyzing and comparing the PSTs' teaching portfolios with each other can positively affect the development of professional competencies for pre-service teachers.

According to Cuesta et al. (2022), creating online teaching portfolios has highlighted the need for teacher candidates to engage in meaningful reflective practice and feedback processes. These

processes should involve broad actions to include future teachers with diverse backgrounds and profiles. The experience of creating online teaching portfolios points to several areas for future research, such as exploring assessment and feedback strategies in greater detail and investigating the role of teacher candidates in developing e-portfolios in educational contexts.

Overall, the literature on online teaching portfolios shows the importance of this tool as a means of documenting a teacher's professional growth and development. In addition, by providing PSTs with a means of reflecting on their practices, online teaching portfolios can play an important role in promoting professional development and improving teaching practices. In conclusion, the literature on online teaching portfolios suggests that this approach has several benefits, including improved professional development, communication skills, and employment opportunities.

This study aims to understand the effectiveness of online teaching portfolios on Korean pre-service teachers. The research questions are:

Q1: How do pre-service teachers report their experience creating an online teaching portfolio in an educational technology integration course?

Q2: How do pre-service teachers report their technology integration ability after creating their online teaching portfolio?

3. Methodology

3.1 Research Context

The study was conducted in a private university's secondary teacher education program in South Korea. The program encompasses various departments, such as Korean, math, special, and early childhood education. The study focused on Teaching Methods and Educational Technology since it emphasizes teaching methodology well-known theories in education, and includes an educational technology component. Completing all mandatory courses enables prospective teachers (PSTs) to receive a teaching certificate after graduation. Even though PSTs had previously taken mandatory courses in educational psychology, philosophy, and educational curriculum, the educational technology course was their first exposure to the teacher education program. Therefore, this course is the only standalone course in the teacher education program for PSTs to learn and implement various educational technologies relevant to their disciplines.

Regarding the online teaching portfolio assignment, PSTs were grouped in team-teaching pairs. The e-portfolio assignment required PSTs to create a lesson plan, which received instructor feedback, allowing them to make revisions. After revisions, PSTs created online micro-teaching videos (10 minutes of mock-lesson videos) and posted them and their reflections to the course LMS. After posting videos and reflections, PSTs were required to watch peer teaching videos and provide feedback as part of the online teaching program; prospective teachers (PSTs) were paired in teams to create lesson plans as part of an e-portfolio project. Instructors reviewed the lesson plans, and PSTs made revisions accordingly. Once the revisions were made, PSTs created 10-minute mock lesson videos and uploaded them along with their reflections to the course's learning management system (LMS). PSTs then viewed and provided feedback on their peers' teaching videos. After this, instructors provided their feedback as the final stage of the online teaching portfolio. Finally, PSTs created their own LMS by going to Google Classroom to post all course materials mentioned above for the final submission. After the peer feedback process, the instructor's feedback was followed as the last stage of the online teaching portfolio. As the last step of the assignment, PSTs created their own LMS by going to Google Classroom to post all course materials mentioned above for final submission.

3.2 Study Participants

The study participants were 80 Korean undergraduate PSTs in the six classes (Spring 2022 and Fall 2022). However, due to attrition, opting out, and incomplete surveys, 62 secondary education PSTs

were in the study. Table 1 shows the demographic of survey participants.

Table 1. Survey participants

Category	Frequency	%
Major		
Mathematical Education	7	12.1
Early Childhood Special Education	16	27.6
Special Education	11	19.0
Korean Language Education	4	6.9
Psychology	4	6.9
Physical Education	2	3.4
Taekwondo	2	3.4
Nursing	2	3.4
Child Welfare	2	3.4
Food Technology / Food Service Industry Cooking	5	8.6
Health and Medical Management	1	1.7
Science and Technology / Mechanical Automotive Engineering	1	1.7
Electrical and Electronics Engineering	1	1.7
Grade		
Freshman	1	1.6
Sophomore	24	39.3
Junior	22	36.1
Senior	14	23.0
Age		
20-25	58	95.1
26-30	2	3.3
30 or more	1	1.6
GPA		
4.5	17	27.9
4.0-4.49	25	41.0
3.5-3.99	15	24.6
3.0-3.49	3	4.9
2.99 or less	1	1.6

3.3 Data Collection and Analysis

A survey was given at the end of the course to examine PSTs' perspectives on the online teaching portfolios. The survey included 18 items that asked about PSTs' experience with the e-portfolio. In addition, PSTs were asked to respond to a 5-point Likert scale with five as 'strongly agree' and one as 'strongly disagree.' The survey was adopted based on existing surveys from previous studies about e-portfolios for PSTs (Lin, 2008). Regarding an online survey, the first screen consisted of the research participation agreement. Thus, informed consent forms were provided before PSTs conducted the online survey. The consent forms contained specific information and the purpose of the research. If PSTs were unwilling to participate in the survey, they had the right not to complete it. Also, in Korean higher education, the consent committee only applied to medical research and experiments with physical matter. This research's topic only covers social science, so the study did not have any risk of harming PSTs. Only medical research that deals with human body experiments needs a thorough IRB committee process in Korean higher education. PSTs were asked to voluntarily participate in the exit survey when completing their coursework each semester. There is no penalty for not participating in the survey, and no compensation is provided. All research participation is voluntary.

After the survey, the researchers recruited in-depth interview participants. Among survey participants, four PSTs volunteered to join the individual in-depth interview. The interview was conducted via Zoom synchronous session, and the interview duration was 30-40 minutes for each participant. SPSS 26.0 program was used for quantitative data analysis to carry out descriptive statistics. In addition, a thematic analysis was implemented to analyze the interview analysis (Castleberry & Nolen, 2018). Table 2 shows the interview participants' information.

Table 2. Interview Participants

Number	Gender	Grade	Major
S ₁	Female	Junior	Nursing Department
S ₂	Female	Senior	Special Education
S ₃	Male	Sophomore	Math Education
S ₄	Female	Junior	Early Childhood Education

4. Results

4.1 Survey Results

Table 3 shows the descriptive statistics of survey results. The survey results are as follows. The survey was adopted based on existing surveys from previous studies about e-portfolios for PSTs (Lin, 2008).

Table 3. Descriptive statistics of the survey result

Question	M	SD
1. I considered the connections between what I learned and what I will teach.	4.19	.865
2. I gained greater confidence in learning new technology applications.	3.97	.923
3*. I was confused about the whole experience.	3.19	1.084
4. I understood better my strengths and weaknesses as a future teacher.	3.97	.868
5*. I did not see any value in reflection.	2.06	1.172
6. I revisited my prior learning experience in more specific and complex ways.	3.79	.852
7. I gained greater confidence in integrating technology in future classrooms.	4.02	.914
8. I could see my growth and achievement throughout the years.	4.10	.936
9*. I did not learn anything from this experience.	1.90	1.141
10. I became more organized and understood its importance.	3.90	1.036
11. I could review my existing technology skills while gaining additional ones.	3.94	.885
12*. I became less confident in using technology in my future classrooms.	2.16	1.176
13. I could showcase my work to future employers.	3.74	1.007
14*. I felt challenged and overwhelmed by technology.	2.66	1.159
15. I learned from synthesizing the final product.	3.94	.939
16. I learned much from communicating, interacting, and collaborating with peers.	3.98	.983
17*. I did not learn any additional technology integration skills.	1.85	.956
18. I learned from reviewing my peers' e-portfolios online.	4.13	.932

First, the PSTs reported a positive experience creating an e-portfolio in a technology integration course. PSTs responded that they could think about the connections between what they learned and what they will teach through making the e-portfolio (4.19±.865). PSTs also evaluated that through the e-portfolio, they could revisit their prior learning experience in more specific and complex ways (4.02±.914) and see themselves growth and achievement (4.10±.936). In particular, PSTs responded that they learned from reviewing peers' e-portfolios (4.13±.932) and communicating, interacting, and collaborating with peers (3.98±.983). They responded that they could better understand their strengths and weaknesses as a future teacher through this special experience (3.97±.868).

Second, making an e-portfolio could positively enhance the technology integration ability. PSTs said they gained greater confidence in learning new technology applications (3.97±.923) and integrating technology in future classrooms (4.02±.914). Specifically, PSTs expressed they were able to review their existing technology skills while gaining additional ones after making an e-portfolio (3.94±.885).

Third, the PSTs reported that they understood the importance of e-portfolios (3.90±1.036) and found many advantages of e-portfolios in a technology integration course. Specifically, the PSTs responded they revisited their prior learning experience in more specific and complex ways by making an e-portfolio (3.79±.852).

4.2 Interview Findings

After making an online teaching portfolio, the interview analysis showed various aspects of PSTs' experience. These are summarized: 1) receiving positive experiences, 2) gaining self-confidence, 3) enhancing technology integration skills, and 4) feeling more prepared as future teachers. Firstly, interview participants described their positive experiences working on their online teaching portfolios. Here are some examples.

Unfortunately, I had little chance to make my teaching portfolio in the teacher education program, but this course and assignment helped me do it. In addition, I like this assignment because I can reflect on and summarize what I learned from coursework (S4).

It was my first time filming a teaching demonstration video for my class. That was a good experience to have. In addition, it seems to have helped to create a specific view of the class or a practical and feasible lesson plan (S3).

Secondly, interview participants responded that they gained self-confidence in the lesson plan and implementation through making an online teaching portfolio. Specifically, they mentioned that enhancing their technology integration skills for lesson plans and implementation was one of the key confidences while working on an online teaching portfolio.

Regarding implementing educational technology, I've never really thought about ADDIE or ASSURE models or anything like that before taking this course. However, while working on the teaching portfolio assignment, I realized the importance of the systemic design of educational technology. Also, playing with new educational technology apps for educational purposes and focusing on how to implement them in my specific major fields was a new and interesting experience; I will use these in my future classes (S2).

This interview finding showed that PSTs self-evaluated that they gained greater confidence in learning new technology applications and integrating educational technology into their lesson plans and implementation.

Thirdly, they explained that an online teaching portfolio made them more prepared as future teachers. Also, this assignment was necessary for them before starting the field experience.

*I already have experience making my teaching portfolio and planning my class. So I think I can prepare the lesson more easily next time. I think that this assignment helped me a lot (S1).
At first, this assignment was not easy, but I thought it would help me grow the most. This online teaching portfolio assignment should be mandatory for all pre-service teachers in the program. Therefore, I thought it was necessary. (S2).*

To conclude, PSTs pointed out that online teaching portfolio assignments should be mandatory requirements before they graduate from this teacher education program. In addition, they mentioned that this assignment was more valuable than just testing their knowledge with paper exams.

5. Discussion

This research study delves into the impact of online teaching portfolios on Korean pre-service teachers (PSTs) within a secondary teacher education program, highlighting the multifaceted benefits of this digital documentation in their professional development. The study's findings reveal that online portfolios facilitate PSTs' engagement and understanding of technology integration and are pivotal in synthesizing their academic learnings and practical experiences. Through the creation and maintenance of e-portfolios, PSTs can reflect critically on their journey, thereby gaining invaluable insights into their growth and areas for improvement.

The significance of e-portfolios extends beyond mere reflection; they are instrumental in building PSTs' confidence in navigating and applying new technology within educational settings. This confidence is not just about using technology but integrating it effectively to enhance teaching and learning processes. Such integration is vital in today's digitally driven educational landscape, where technology's role is increasingly central to innovative teaching strategies.

Furthermore, the research underscores the positive correlation between e-portfolio practices and PSTs' development of technology integration skills, echoing findings from previous studies. This correlation is crucial, as it indicates a consistent trend in the beneficial impact of portfolios across different contexts and cohorts. The ability to critically reflect on university-led teacher preparation courses and apply theoretical knowledge in practical scenarios further exemplifies e-portfolios' role in bridging the gap between theory and practice.

Interviews conducted as part of the study shed light on personal testimonials from PSTs, who reported an enhancement in their technology integration capabilities and a significant boost in self-confidence. This self-assurance, rooted in the comprehensive preparation offered by the e-portfolio process, prepares PSTs for the multifaceted challenges of future classrooms. They emerge as more competent, reflective, and adaptive educators, ready to employ technology creatively and effectively.

The study's advocacy for mandating online teaching portfolios in teacher preparation programs is based on their proven efficacy in fostering professional growth among PSTs. By making e-portfolios a prerequisite for field experience, educational institutions can ensure that PSTs are well-equipped with the necessary skills, confidence, and reflective capabilities to thrive in modern educational environments. This approach not only enhances the quality of teacher education but also aligns with contemporary educational demands, preparing future teachers to navigate and contribute to the evolving landscape of education with competence and confidence.

In conclusion, incorporating online teaching portfolios in teacher preparation programs is a beneficial practice and a necessary evolution. As this study illustrates, e-portfolios offer a comprehensive platform for PSTs to engage deeply with their professional development, integrating technology with pedagogy in meaningful ways. This integration is essential for developing technologically proficient educators and reflective practitioners capable of adapting to and shaping the future of education.

6. Conclusion

The advent of online teaching portfolios represents a paradigm shift in how educators document and share their professional journey, encompassing experiences, skills, and achievements. As digital platforms become increasingly integral to educational environments, these portfolios offer a dynamic and accessible means for teachers to reflect on their growth, showcase their competencies, and advance their careers. The study conducted during the 2022 academic year provides valuable insights into the role and efficacy of e-portfolios, particularly for Korean pre-service teachers, highlighting the multifaceted benefits of this digital tool in their formative professional stages.

E-portfolios serve as repositories of credentials, work samples, and reflective spaces where educators can critically assess their pedagogical practices against theoretical frameworks. This reflective practice is crucial in bridging the often-discussed gap between theory and practical

application in teaching. The study's findings underscore the role of e-portfolios in promoting a deeper engagement with this reflective process, allowing pre-service teachers to make meaningful connections between their coursework and real-world teaching scenarios. Such reflection is instrumental in fostering a holistic understanding of teaching methodologies and their impact on student learning.

Furthermore, integrating technology into lesson planning and evaluation, as facilitated by e-portfolio creation, points to another significant advantage. In today's tech-savvy learning environments, effectively incorporating digital tools into educational practices is indispensable. The study reveals that engagement with e-portfolios enhances pre-service teachers' proficiency in leveraging technology for pedagogical purposes, preparing them for modern classrooms' digital demands. This enhanced capability is not limited to the mere use of technology. However, it extends to its strategic application in designing and assessing learning experiences, making education more interactive, engaging, and accessible.

These findings have broad implications for teacher education programs, suggesting that incorporating online teaching portfolios can significantly enhance the quality and relevance of teacher preparation. By integrating e-portfolios into the curriculum, educational institutions can provide pre-service teachers with a practical framework for continuous learning and professional development. This approach not only equips future educators with the necessary skills and confidence to navigate the complexities of modern education but also encourages a culture of reflective practice and innovation.

In light of these insights, it is evident that online teaching portfolios represent a critical resource in the professional development arsenal of educators. They offer a platform for showcasing achievements, reflecting on practice, and engaging with the digital tools that shape contemporary education. For teacher preparation programs, including e-portfolios can elevate the training experience, aligning it more closely with the demands and opportunities of the 21st-century educational landscape. As such, the study's advocacy for the widespread adoption of e-portfolios in teacher education underscores their potential to transform teaching and learning for the better, preparing educators not just to meet the challenges of today but to anticipate and shape the innovations of tomorrow.

7. Recommendations

Incorporating online teaching portfolios into teacher education programs offers a comprehensive approach to fostering professional growth and competency among pre-service teachers (PSTs). The advocacy for e-portfolios as final graduation requirements is rooted in the multifaceted benefits that these digital platforms provide. Beyond merely serving as a repository of documents and evidence of teaching practice, online teaching portfolios enable PSTs to engage in a deep, reflective process critical to their development as educators.

One of the paramount benefits of e-portfolios is the opportunity for PSTs to develop teaching competencies through critical reflection. This process involves examining their teaching practices, methodologies, and pedagogical beliefs. By documenting their experiences, challenges, successes, and lessons learned in an online portfolio, PSTs can critically analyze their approaches to teaching, identifying areas of strength and opportunities for growth. This reflective practice is about self-assessment and engaging in a continuous improvement cycle, where PSTs can set goals, implement strategies, and evaluate outcomes, fostering a lifelong learning mindset.

The unique nature of online teaching portfolios allows PSTs to represent their conceptions of teaching and learning dynamically and personally. PSTs can articulate their educational philosophies, teaching strategies, and classroom management approaches through analyzing, discussing, and evaluating their professional growth. This personalized representation of teaching practices enables PSTs to distinguish themselves in the job market, showcasing their readiness to integrate into the teaching profession with a well-defined identity and approach to education.

Furthermore, the online teaching portfolio is a valuable learning and self-assessment tool. By tracking their performance and achievements over time, PSTs can witness their evolution as educators. This longitudinal perspective is instrumental in building confidence and self-efficacy, as PSTs can visually and empirically observe their progress from novice to competent educators. The ability to document and reflect on this journey not only enhances their understanding of effective teaching practices but also reinforces their commitment to professional development.

Implementing e-portfolios as a graduation requirement in teacher education programs underscores the recognition of their value in preparing well-rounded, reflective, and competent teachers. This requirement ensures that PSTs engage with the portfolio process meaningfully, integrating it into their professional identity rather than viewing it as a mere academic exercise. It emphasizes the importance of reflection, self-assessment, and articulating a professional teaching identity as core components of teacher preparation.

In sum, online teaching portfolios represent a pivotal element in teacher education, offering PSTs a platform to reflect on their practices critically, document their growth, and articulate their visions as educators. By making e-portfolios a graduation requirement, teacher education programs can ensure that their graduates are competent in their subject matter and reflective practitioners, ready to contribute to the evolving field of education with confidence and a deep understanding of the teaching and learning process.

8. Limitations

This study emphasizes the importance of the perspectives of prospective teachers (PSTs) regarding the online teaching portfolio in their pre-service teacher preparation program. However, it's important to note that this study is limited to individual faculty members' efforts in technology integration at a single Korean university. As teacher education programs constantly change, these findings may not be applicable in all cases. Therefore, future research should expand this study with a larger sample size to validate the results.

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