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E-PORTFOLIO READINESS AMONG PRE-SERVICE TEACHERS AND PRACTICUM SUPERVISORS AT A MALAYSIAN UNIVERSITY

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Abstract

Innovative practices in teacher education programmes produce a ripple effect in the types of teaching and learning methods that will be practiced in the classroom. In line with the prevalent use of technology for education, electronic portfolios (e-Portfolios) have been introduced across higher education institutions. This study aimed to explore learner and supervisor readiness prior to the implementation of an e-Portfolio in a teacher education programme. The e-Portfolio is intended to be used for professional development during practicum by pre-service teachers who major in Teaching English as a Second Language (TESL) at a Malaysian public university. This is a qualitative study that involved data collection through semi-structured interviews with 8 undergraduate students and 4 lecturers. The data were transferred to NVivo 12 and thematic analysis was employed to analyse the data. Based on the Technology Readiness construct, the motivators and inhibitors in relation to the e-Portfolio were revealed. Motivators pertaining to the e-Portfolio comprised communication and shareability, accessibility and convenience, and tracking progress and documenting performance. On the other hand, the inhibitors included learning to use the e-Portfolio and workload. The findings of this study revealed pertinent issues that need to be considered prior to introducing innovative tools in teacher education programmes.

Keywords: e-Portfolio, pre-service teachers, teacher education

1. Introduction

Educators are often shouldered with the arduous task of producing wholesome individuals who can contribute to progress and development. At school-level, the quality of teachers is the most important determinant of student outcomes (Ministry of Education, 2013). Practicum is a pivotal component for new teachers as it serves as a preparatory phase for them to put theory into practice (Yunus et al., 2010). As such, one of the educational initiatives outlined by the Malaysian Ministry of Education is to improve the training of pre-service teachers by increasing the time allocated for practicum (Ministry of Education, 2013). By extending the time for practicum, pre-service teachers have more opportunities to practice in schools under the guidance of other more experienced teachers. Apart from extending practicum training time, the Ministry of Education (2013) also underlines the need to equip teachers with alternative teaching and assessment approaches including those that are project and technology based. It is especially pertinent for pre-service teachers to understand and apply these approaches during the pivotal phase of their practicum. Discrepancy between pre-service teachers' beliefs and instructional practices can occur when emphasis on examinations takes precedence during practicum (Othman & Kiely, 2016). The use of innovative tools such as the e-Portfolio (Harun, 2019; Kabilan, 2016; Krishnan & Yunus, 2017; Muhammad et al., 2018; Ziden et al., 2020) reflects the shift towards the integration of technology in Malaysian teacher education programmes. The e-Portfolio promises assessment potential for the 21st century because it can include a diversity of digital evidence in the form of audio, video, and textual format and is therefore a catalyst for the story-telling of learning (Jamieson-Proctor & Finger, 2009).

This study recognises the magnitude of building quality pre-service teachers particularly during the pivotal phase of practicum. The aim is therefore to introduce an e-Portfolio as an innovative tool for pre-service teachers during practicum and it will serve as a platform for pre-service teachers to exhibit practicum-related artefacts. The use of e-Portfolio mirrors the type of modern technology-based teaching and learning that can be applied by pre-service teachers. Nevertheless, the integration of innovative tools as part of practicum might present unforeseen challenges for pre-service teachers and stakeholders namely the practicum supervisors. This warrants a thorough investigation of the participants' readiness to use e-Portfolio as a new technology for practicum. The concept of technology readiness provides an insight into students' responses towards the incorporation of technology in their learning processes (Warden et al., 2022). As such, the technology readiness of the pre-service teachers and practicum supervisors were investigated prior to the introduction of the e-Portfolio. Technology readiness indicates an individual's propensity to employ new technologies for home and work-related goals (Parasuraman, 2000). Based on the technology readiness construct which categorises "motivators" as positive contributors and "inhibitors" as negative contributors towards an individual's propensity to make use of new technologies (Parasuraman, 2000), the objective of this study is as follows:

To explore the motivators and inhibitors of using e-Portfolio for practicum at a public university in Malaysia.

1.1. E-portfolio

An e-Portfolio encompasses a compilation of evidence that demonstrates an individual or a group or people's achievements and abilities. The e-Portfolio can be stored online or in a transportable storage device such as a compact disc (Challis, 2005; Lorenzo & Ittelson, 2005). Software and applications for creating e-Portfolio via the Internet include Mahara, Digication and Google Drive (Carl, 2016). E-Portfolios can be classified into three general categories: for learners, for instructors, and for institutions (Lorenzo & Ittelson, 2005). Learner e-Portfolios can contribute to academic goals including technology literacy skills, critical thinking, and writing development. Furthermore, learners can use e-Portfolios to showcase their attainments to potential employers. Instructor e-Portfolios can exhibit instructors' work to learners, co-workers and the public. Imparting knowledge and best practices can be especially valuable when instructors share with the community. Institutional e-Portfolios comprise other e-Portfolios such as learner and instructor e-Portfolios, and are intended for accountability and accreditation. In recent years, the implementation of e-Portfolios has gained traction in the Malaysian higher education context. Studies with a focus on teacher education programmes include using e-Portfolio as an assessment to measure student teachers' soft skills (Muhammad et al., 2018), for reflective practice among TESL undergraduates (Krishnan & Yunus, 2017), to construct the professional identity of student teachers (Harun, 2019), and to develop information, media and technology skills among teacher trainees (Ziden et al., 2020).

1.2. Technology readiness

Technology readiness is described as a four-dimension construct of mental motivators and inhibitors that influence an individual's inclination to employ new technologies (Parasuraman, 2000). Motivators comprise optimism and innovativeness that contribute to technology readiness whereas inhibitors consist of discomfort and insecurity that reduce it. Optimism is described as a positive perception towards technology and a belief that it contributes to people's lives. Innovativeness is defined as an inclination to be a technology innovator. Discomfort denotes a perceived lack of technology control and sense of being overcome by it. Insecurity refers to a feeling of scepticism towards the use of technology and apprehensions about the possible negative consequences. The Technology Readiness Index (TRI) published in 2000 consists of 36 belief statements that measure participants' technology readiness based on the four dimensions of optimism, innovativeness, discomfort and insecurity and it has been applied in educational and business contexts (Parasuraman & Colby, 2015). A revised index known as TRI 2.0 that comprised 16 items was later published (Parasuraman & Colby, 2015).

The original TRI and the updated TRI 2.0 are used as instruments to measure general technology readiness using the terms: "new technologies", "high-tech products and services" and "technology-based system" (Parasuraman & Colby, 2015, p. 6). When discussing the TRI, Parasuraman and Colby (2015) admitted that the drawback with measuring technology attitudes with a scale is that the items become less relevant as the technologies change over time. Furthermore, studies that employed TRI typically involved a large number of participants for example a study that looked into students live online learning readiness consisted of 913 respondents (Tang et al., 2021) and another study that investigated self-directed learning and technology readiness in blended learning setting involved 207 respondents (Geng et al., 2019). Since

the emphasis of the present study was on the specific use of the e-Portfolio and involved a relatively small group of pre-service teachers and practicum supervisors, the study employed a qualitative method to investigate technology readiness. We believe that by collecting word-based data, the participants' motivators and inhibitors towards the use of e-Portfolio were better captured and led to subsequent understanding for how to implement the e-Portfolio more effectively.

2. Research Methods

This study aimed to investigate e-Portfolio readiness among a group of pre-service teachers and practicum supervisors before the e-Portfolio was introduced. The e-Portfolio was intended as a professional development initiative to be implemented during the pre-service teachers' practicum. This qualitative study was conducted at a public university in Malaysia that offers Teaching English as a Second Language (TESL) at an undergraduate level. Purposive sampling was applied in the participant selection of this study which consisted of students and lecturers of the TESL programme. The participants were selected since they recently underwent practicum and therefore were able to contribute to the discussion regarding the future implementation of an e-Portfolio during practicum. The students consisted of eight undergraduates who had completed 14 weeks of practicum using the conventional method of completing handwritten lesson plans. A total of four lecturers with teaching and practicum supervision experience participated in this study. Semi-structured interview was used as the data collection method for both groups of respondents after the practicum session ended in 2022.

The interview recordings were transcribed, and the data were imported to NVivo 12 to be analysed using thematic analysis as prescribed by Braun and Clarke (2006). In the first stage of data analysis, the entire set of data was reviewed in order for the researchers to become conversant with the data. In the second stage, the data were coded data thoroughly by examining each item. The subsequent step involved creating the sub-themes based on the technology readiness construct; the first themes consisted of motivator that was further divided into optimism and innovativeness, and the second theme was inhibitor which was further categorised into discomfort and insecurity. In the final stage of data analysis, the themes and sub-themes were reviewed by checking and re-coding the entire data set.

3. Findings

Data from the interview revealed the participants' technology readiness towards e-Portfolio as a new technology in a teacher education programme. With reference to the motivators and inhibitors of the technology readiness construct, the findings are organised according to the emerging sub-themes from the coded data. In the interview excerpts, the supervisors are labelled with the letter "S" whereas the pre-service teachers are labelled with the letter "P".

3.1. Motivator: Optimism

The findings revealed that the motivators related to optimism included communication and shareability of e-Portfolio, accessibility and convenience of e-Portfolio, tracking progress and documenting performance using e-Portfolio, and relevance of e-Portfolio to the teaching career.

3.1.1. Communication and shareability

The respondents explained that using e-Portfolios can open up opportunities for communication between supervisors and students, and can motivate students to share their e-Portfolios with a bigger audience.

"I think you can also at the same time also sort of explore pre-service teachers to you know…alternative ways of communicating with lecturers… their supervisors and also sharing their work." – S2

"If the pre-service teachers have this awareness that everyone else can also look into their thoughts, share their minds, if they have some inhibition of expressing themselves publicly, this will really be helpful to them." – S4

3.1.2. Accessibility and convenience

The participants cited ease of access and convenience as advantages of using the e-Portfolio for practicum.

"I think it would give you a kind of head start in a sense that you can access their work when they share on e-portfolio before you actually go and see them." – S2

"I think the e-Portfolio will definitely be beneficial for the students, not just for our students but to those they share the e-Portfolio with. That form of accessibility, that will be something you know it can reach a lot of parties compared to what we are practicing at the moment, even if we do reflection, it is just between my students and me." – S4

"One of the strengths is all the data and information will be more organised and it is easier to access compared to all the paperwork and files. If it is in the e-portfolio we just need to click, click on the information and we can get all the information." – P4

"It is a brilliant idea because it eases the workload as a pre-service teacher. Because doing the traditional method, it was challenging because there are many things to do. And with this e-Portfolio coming up, we don't have to, like, print it out. I think it's like for a pre-service teacher, we care about our mental health and then doing things like traditional method is quite hard. But when we can do it, like on the tip of the tip of our fingers, it helps us a lot." – P5

3.1.3. Tracking progress and documenting performance

The findings demonstrated the potential of the e-Portfolio in enabling pre-service teachers and their supervisors to track their progress and performance throughout practicum.

"It will be the record for pre-service teachers, for the supervisors, for their supervisors to check whether the student is doing good in his practice, in his or her practicum or not." – P8

"There is a record of the teacher performance, so they can keep track on that and make constant improvement on their performance." – P2

"It will be easier for supervisors to assess pre-service teachers' performance. Instead of like texting the students saying please send me this and that, because everything is in the e-Portfolio, so the pre-service teacher just needs to update and the supervisor can just… whenever they want to access they can

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just click the e-Portfolio and then they can see okay what my students did, okay I need to assess this student tomorrow and I can see from the e-Portfolio my students have done this." – P4

"I think of one of the strengths is the teacher will be more confident in teaching as they will see improvements, they will see their whole process in their e-Portfolios, like all the memories they will see since the beginning until the end." – P1

"The pre-service teacher could improve based on the hands-on experience that they have as time passes. They would know more on how to adjust the teaching approaches accordingly in teaching the students by looking and reflecting at their previous lessons, students' responses and students' progress." – P6

3.1.4. Relevance to teaching career

The participants mentioned the relevance of the e-Portfolio to their teaching career, seeing it as a collection that they can refer to and showcase to potential employers in the future.

"Another strength is when pre-service teachers become a teacher in the school, they can look back at their e-Portfolios and modify a few things they have done during their practicum and make their lessons better." – P3

"I think it also can be used if they want to go for an interview, they can just send, okay this is my e-Portfolio have a look." – P4

3.2. Motivator: Innovativeness

The findings revealed that the motivators related to innovativeness included sharing of e-Portfolio, inclination to use e-Portfolio, and relevance of e-Portfolio to 21st century learning.

3.2.1. Sharing of e-portfolio

The sharing of e-Portfolio was a motivator for one of the students who perceived it as a showcase of their work that can be shared with peers and juniors.

"If I make an e-Portfolio, I can share it with my juniors or my course mates so that they can be inspired by what I have done and we can help motivate each other during the practicum." – P3

3.2.2. Inclination to use e-portfolio

The participants revealed their inclination and willingness to use the e-Portfolio since it was a novel tool.

"In terms of access, you know everyone can access it. It's not been done before that. That to me is already a good start plus point for me, for all of us." – S3

"I will be very willing to use the e-Portfolio because I personally like to see like everything is organised and it is easy for everyone to access. I think it also can be used if they want to go for an interview, they can just send, okay this is my e-Portfolio have a look." – P4

3.2.3. Relevance to 21ˢᵗ century learning

One of the participants perceived the use of the e-Portfolio as relevant to the type of 21ˢᵗ century learning that is being practiced by them.

"I think since it is aligned with the 21st century of learning, we are more modernized people, so why not? We make use of the technology. It's not to say the conventional method is not effective, but we have the opportunity to use it. So why not?" – P5

3.3. Inhibitor: Discomfort

Based on the findings, the inhibitors related to discomfort were learning to use the e-Portfolio, and workload.

3.3.1. Learning to use the e-portfolio

The participants explained that becoming conversant with the e-Portfolio might be a challenge since it is a novel tool.

"For those who are not internet savvy or IT savvy, then you need to give training first, of course. Not only to students but also most importantly to the lecturers. You need to know how to use it." – S2

"Could be students' attitudes…. motivation because this is the first time right. They're going to take a liking to this instantly, probably you need more time, but I think with conscious effort should be okay." – S3

"This is a new thing so pre-service teachers need to adapt to this. It might also require some time and energy to implement the e-Portfolio." – P2

"Because this e-Portfolio is still new, never been implemented before. Some of the students maybe some of the pre-service teachers don't have that motivation to do it because they think the conventional method is better because we are used to doing things, maybe some of us pre-service teachers will think like that." – P5

3.3.2. Workload

The findings revealed that another concern related to the e-Portfolio was additional workload for the pre-service teachers.

"There has to a commitment there. They need to be committed to it and I'm afraid that if considering the kind of workload that they will have as future teachers they might not be able to commit." – S4

"It takes time for pre-service teachers to update e-Portfolio from time to time. It might be challenging for them because they need to do the school work and at the same time they need to update the information online." – P4

"The challenge for me is it is time-consuming because we need a lot of time to prepare this e-Portfolio and other than e-Portfolio we also need to create something like ROS, and then we need to write lesson plans." – P7

"Time management will be a little hectic because the school is already taking up a lot of our time, and then after school hours we still have to do school things and then we have to do our final year project so I think if it is like that it will be a little bit heavy for pre-service teachers to take all the burden." – P1

"There are so many things going on during the practicum, so many things to do and participate in. I think e-Portfolio also requires extra effort from the pre-service teachers to make it happen." – P3

3.4. Inhibitor: Insecurity

The findings revealed that the inhibitors pertaining to insecurity were Internet connection and technical issue.

3.4.1. Internet connection

Findings of this study revealed that Internet connection and access remained a possible concern among supervisors and pre-service teachers.

"I think it's only about internet. Another thing is the computer of the pre-service teachers… whether they can support what you are going to develop or not. If it's too old sometimes, it's not working on theirs. So, all the infrastructure, I think. Let's say they are teaching in an internal part of Sabah and the internet line is not available so how are they going to upload?" – S1

"If some pre-service teachers are going to be stationed in some areas in a not stable internet connection, I think that'll be a problem." – S2

"At most I think would be access because it's going to be online, so if the students do not have access let's say if they go to rural schools for practicum maybe they cannot log into the system, cannot log into the system as frequently." – S3

3.4.2. Technical issue

Technical issue related to storage space was also cited as a possible concern when implementing the e-Portfolio.

"I think the main challenge would be limited storage. Although when we sign up it is free but free doesn't mean it is free. So maybe they would give us like certain storage for us to keep uploading our upload our documents and all email. We have 15 gigabytes only and it goes to the e-Portfolio." – P5

4. Conclusion

The findings of the study revealed a combination of motivators and inhibitors among pre-service teachers and practicum supervisors with regard to the future implementation of the e-Portfolio as part of a teacher education programme. The motivators with a focus on the dimension of optimism proved that the use of the e-Portfolio comprises potential positive contributions for the pre-service teachers and practicum supervisors during practicum. The motivators categorised under the dimension of innovativeness revealed interest and eagerness among the participants to lead the use of the e-Portfolio. Nevertheless, the inhibitors revealed the participants' discomfort and insecurity dimensions. We found the inhibitors to be particularly valuable as they indicated the pertinent matters that need to be addressed prior to

implementing the e-Portfolio. Based on the findings of the study, the preparatory steps include: (1) Detailed briefing and hands-on training must be conducted with the participants prior to e-Portfolio implementation (2) The e-Portfolio should be administered in accordance with practicum tasks so as not to increase the pre-service teachers' workload (3) The implementation of the e-Portfolio should take into account the fact that some pre-service teachers might encounter limited access to Internet connection.

Since e-Portfolios have been implemented in teacher education programmes with various purposes including to assess student teachers' soft skills (Muhammad et al., 2018), to promote reflective practice among student teachers (Krishnan & Yunus, 2017), to construct student teachers' professional identity (Harun, 2019), and to develop information, media and technology skills (Ziden et al., 2020), it is therefore timely to introduce e-Portfolio in the present study's context. By drawing from the experiences of pre-service teachers and supervisors of a teacher education programme, this study brings to light the issues that could potentially contribute to or hinder the success of the e-Portfolio in the higher education context. This study also highlights the preparation that educators and researchers need to consider prior to the implementation of new technologies.

Acknowledgments

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