International Academic Institute for Science and Technology

International Academic Journal of Humanities
Vol. 1, No. 1, 2011, pp. 121-133.
ISSN 2454-2245

International Academic Journal of Humanities

www.iaiest.com

An E-portfolio Application for MSTP Students: What Can We Learn from It?

Hafizan Mat Som [a], Ahmad Muhaimin Mohamad [b], Amzari Jihadi Ghazali [c]

[a] *Kolej Yayasan Pahang, Malaysia (Corresponding Author).*

[b] *Kolej Yayasan Pahang, Malaysia.*

[c] *Kolej Profesional MARA Indera Mahkota, Pahang, Malaysia.*

Abstract

This paper presents findings of a research made to two cohorts of Vocational and Training Education (VET) students at Kuantan, Pahang that have been deploying the E-portfolio system during their training. A qualitative research approach was used, consisting of e-mail interviews and online communication to investigate users' perception and evaluation throughout the session. Qualitative data showed that the E-portfolio was believes could contribute to the improvement of several aspects of teaching and training such as communication, reflection on practical work, motivation of learning, progress based learning, and the construction of new knowledge. In addition, senior staff believed that the use of an E-portfolio would benefit the institution by saving printing costs and enhancing the institution's image to the public and to the awarding body. The findings suggested that, when blended with the current traditional training pedagogy, the E-portfolio system has the potential to be implemented as a showcase E-portfolio, used for online assessment or can be used as a teaching approach. The finding also revealed that user attitudes and the support required for the use of the E-portfolio are the biggest challenges. Based on these findings, a scaffolded approach to the implementation of E-portfolios in MSTP is recommended. The key outcomes of this research are the E-portfolio scaffolding strategies in the MSTP that could be deployed at other Skills Training institutions or organizations which intend to explore the use of E-portfolios in the future.

Keywords: e-portfolio, online learning, technical vocational education, skills training education, blended learning

Acknowledgements: This research was supported and funded by the education aid division, Yayasan Pahang (Pahang Foundation) and Kolej Yayasan Pahang., Pahang, Malaysia.

1. Introduction

The E-portfolio is a subset of the E-learning technology that simplifies some functions in E-learning (Barret, 2010). Generally, E-portfolios may focus on students' participation in compiling and collecting learning evidence or artefacts as indicators of their achievement. This technology is one of the blended learning methodologies that combine traditional learning with electronic engagement. On the other hand, the Malaysian Skills Training Programme (MSTP), also called the Malaysian Skills Training Certification, is one of the certification programmes under Vocational and Education Training (VET). The MSTP is controlled and administered by the Department of Skills Development (DSD), Ministry of Human Resources. In this education sector, until 2012 no institution or industry had yet introduced any E-learning application for their trainees (Dollah et al., 2012). This is because, in VET, the learning approach is different from that of the common higher education system, and the additional features like work-based training, competency-based-training, employability skills and other technical aspects that need to be embedded into the system make it difficult to develop. Ultimately, most VET institutions have chosen to run a traditional system instead of adopting technology training. However, recent research conducted by researchers from University Tun Hussein Onn Malaysia has shown an initial development towards the implementation of an E-portfolio in the MSTP (Mohd Bekri, Ruhizan, Norazah, Faizal Amin Nur, & Tajul Ashikin, 2013; Rahim, 2015; Ruhizan, Norazah, Rahim, Faizal Amin Nur, & Jamil, 2014). The research, which was conducted from 2013 until 2015, reported some findings related to users' perceptions, users' readiness and key indicators for the use of the E-portfolio in the MSTP. Some of the findings recommended that several improvements should be made in order to ensure that the E-portfolio benefitted the MSTP such as restructuring the curricula, modification of teaching pedagogy and equipping the trainers with basic IT skills (Ruhizan et al., 2014). In addition, it recommended that the E-portfolio itself should be prepared and developed to meet the requirement of the MSTP learning environment, thus the indicator of an acceptable E-portfolio for MSTP was produced (Rahim, 2015). This study indicated that the E-portfolio has a bright potential to be introduced to the students and instructors in the MSTP environment.

2. Literature Review

To achieve the 10th Malaysian Plan that was outlined in late 2012, the Department of Skills Training (DSD) identified the main agenda to be attained, which is to mainstream and broaden access to high-quality Technical, Education, Vocational and Training (TVET) in order to increase the skills-based workforce in the nation (Ahmad, 2015; MOE, 2012). The primary action through which to accomplish this mission is to raise the skills of trainees so that their employment opportunities will be improved. Based on the issues and opportunities occurring in current MSTP trends, there are four matters that need to be addressed due to their impact on the quality of the MSTP in current and future implementation.

The first issue that arises in the MSTP is the public perception of the MSTP and TVET as one of the education options in the country. The Director of the Department of Skills Development (DSD), Ministry of Human Resources, Dr Pang Chau Leong, stressed in his paper-"Key Reforms in Revitalising Technical and Vocational Education and Training (TVET) in Malaysia", presented in 2011 at the regional conference on Human Resouce Development, stated that skills training in Malaysia has experienced issues such as poor perception and recognition of TVET due to societal stigma created by the impression that this programme is focusing on school drops-outs, and provides a second-class education with fewer

opportunities for career success. The public sees that this programme is designed for those who have not been accepted for higher academic institutions, and feel that they have no choice but are 'forced to' enroll their children on this programme as an alternative line of education. A nationwide promotional campaign to disseminate the information about this programme needs to be conducted so that the prospective trainees will comprehend the direction and advanced path it offers upon graduation. Other issues like poor monitoring and evaluation of trainees also arose when certain training institutes had not improved their curriculum and facilities to bring them on a par with the standard that had been set (Leong, 2011). Therefore, the second challenge is to upgrade and harmonise the MSTP curriculum in all accredited centres so the quality of the training and its competencies will be maintained by following the standards that have been established. The quality of the curriculum also needs to be revised so it will be upgraded in line with the industry requirements and may reach a similar level to those in the established international TVET institutions.

In addition, the delivery of the curriculum also needs to be streamlined so that maximum comprehension of the module contents can be achieved. Various delivery methods that have been adopted at the international vocational institutions must be studied and tested. The delivery system plays an important role in attracting students and may improve reflection (Puteh & Hussin, 2007), thus enhancing the quality of graduate trainees prior to entering the employment sector. Finally, increasing the skills-based workforce by improving their off-the-job and on-the-job training skills can be achieved by developing highly effective instructors and trainers in the accredited institutions or organisations. These trainers need to possess multiple skills, not only in their particular major field, but also additional skills such as computing, administration, public relations and other soft skills are needed. This programme requires experienced trainers who can teach students more about practical work rather than lecturing in a classroom, as the MSTP training structure is 60-80% hands-on learning and 20-40% theoretical in-class sessions (DSD, 2007). Thus, the professionalism of the instructors is vital to ensure that graduates are adequately prepared for their occupational work and careers and that the gaps between the MSTP and the employment system are kept low (Spöttl, 2014).

E-portfolio has the potential to be proposed as a solution related to public perceptions, student work monitoring and adopting value-added skills for trainees and trainers. Previous research has shown that E-portfolio use could contribute to the enhancement of teaching and learning in terms of reflection, communication, and social relationships as well as improving Information Technology (IT) operating skills and creativity skills (Barrett, 2005; Felce, 2011; Nor, Raja, & Jhee, 2012; Peacock, Gordon, Murray, Morss, & Dunlop, 2010; Yusof, Hashim, Hamdan, & Muhamad, 2013). Furthermore, Barrett (2005), in her brief explanation on researching E-portfolio and learner engagement, noticed that the growth and development of a learner over a specific period of time could possibly be assessed through a series of E-portfolio processes such as reflection, goal setting and self-assessment. Chang (2001) indicated that web portfolios generate numerous effects, such as controlling the learning process, self-examining the advantages/disadvantages, and enhancing student development, and are beneficial to learning. In addition, a study that evaluated the online learning model, involving reading, reflection, display and doing (R2D2), which was proposed by Bonk & Zhang (2006), showed that reflection is derived from the E-portfolios obliging students to conduct self-assessment. This is supported by Mcmahon & Luca (2006), who regard E-portfolios as a self-monitoring and evaluation tool for online learning, which is also agreed by Lowenthal, White & Cooley (2011): remodelling the E-portfolio process

using the 'gate system', which introduces a certain proficiency as the 'gate' in the E-portfolio, could improve the assessment and programme evaluation. Other than that, it was suggested that the E-portfolio could play important roles during learning, such as enhancing student's motivation to accomplish the target required (Coolin & Harley, 2010), and could improve the communication and feedback between students and peers as well as with the lecturer/teacher (Kicken, et.al., 2009; Krämer & Seeber, 2009). From these studies, it was noticed that E-portfolio application could support reflection of students through self-assessment and self-monitoring, recording growth and development, improve student's motivation and could also enhance communication during learning. E-portfolio could be a tool for trainer to monitor his/her trainees as well as improving both users' computer skills. Apart from that, with the adoption of this system, a training centre will be seen as a technology-adopted institution that could increase good perception of public especially parents and potential trainees.

Thus, this research was implemented to investigate and understand the students' and lecturers' perception after they had been using the system for one training semester. The system was developed using MAHARA software to be utilized by students and instructors of the Malaysian Skills Training Programme (MSTP) in one accredited centre and to research the system's use in order to see its effectiveness and its impact on the MSTP. In addition, this research also aims to investigate the E-portfolio engagement of students from different skills training courses in relation to the learning theories that have been designed for the process of the E-portfolio activities.

In order to achieve the aims of this study, a main research question has been formulated as follows:
"To what extent can an E-portfolio Application perform as an effective learning tool in the Malaysian Skills Training Programme (MSTP)?"

3. Research Methodology

Previous studies have shown that qualitative research is frequently used in evaluation for a range of purposes (Ritchie & Spencer, 1994). In their research on developing a framework for assessing qualitative research evidence to achieve a high-quality result, Spencer et al., (2003) suggested that a researcher must know the rationale for having this type of methodology. For evaluations of programmes, services or interventions, this includes identifying the factors that contribute to successful or unsuccessful delivery; recognising outcomes (intended or unintended) and how they occur; investigating the nature of requirements of different groups within the target population; exploring the contexts in which policies operate; and exploring organisational aspects of delivery (Spencer et al., 2003). Thus, in this research which is envisioned to evaluate the effectiveness of the E-portfolio system, the data collection for the qualitative part was obtained from the email interviews and online messaging. These methods were intended to explore in depth the user experience, views and opinions, as well as suggestions about the E-portfolio that was implemented for about 5-6 months in each group. For this study, the interview which comprised e-mail interviews and online messaging are a "semi-structured" interview due to several enquiry-response processes conducted over the interview period. Even though the first email contained a fixed question, we managed to identify the lack of data in certain emails and issued further enquiries with additional questions to gain more explanation from the respondents. As mentioned by Gill, Stewart, Treasure, & Chadwick (2008) that a researcher should select the appropriate technique by considering the facilities of both researcher and respondents, the research duration, the culture of the respondents and the

agreement of the participants, we think this semi-structured interview is suitable in the context of Malaysian students and employees. The participants' selection was based on a purposive sampling based on the assumption that the researcher wanted to explore, know and understand, the most widely respected respondents from him and the credibility of the findings (Patton, 2002) were selected as study participants.

4. Data Analysis & Findings

These findings are the compilation of all interviews and communications through email and online messaging, with selected representative quotes from that data. The data collection process was done during the system deployment and also after the session ends. Out of 39 trainees in 2013 that registered in early semester, 27 of them successfully completed the session. Meanwhile, in 2014 32 of 55 students succeed the system's implementation. Table 1.0 describes the process of data collection on both cohorts.

Table 1.0 Interviews Data Collection Process for 2013 and 2014 Cohorts

Session	Respondent	Date	Data collection/ Evidence	Data Analysis	Aim
1) During the system deployment 2) After session ends.	27/39 Trainees (2013 cohort) 32/55 Trainees (2014 cohort)	Jan-Dec 2013 Jan-Dec 2014	Email Interviews Facebook messaging application Facebook Postings	- *A priori* codes based on pre-determined themes - Using 'Framework' approach to organising, sorting and analyse the data	- To explore in depth the user experience when using the system - To explore in depth the user experience of deploying the new strategies for the 2014 cohort

The data collection for the qualitative part was scheduled from May 2013 to September 2014 and involved 23 respondents, who were the principal (1), students (15) and instructors (7).Refer Table 2.0. The students and instructors were from Computer System (CS), Fashion Design (FES), Electrical (ELC) and Kitchen Practise (KP) courses.

Table 2.0 The details of the participant Interview sessions

Respondent	Respondent Code	Cohort	Medium of Interview	Number of Respondents
Student	*Student01 – Student07*	2013	Facebook or Email	7 (appointed)
Instructor	*Instructor01- Instructor02*	2013	Facebook or Email	2 (appointed)
Student	*Student14- Student19*	2014	Facebook or Email	6 (appointed)
Student (mentors)	*Student20- Student21*	2014	Facebook	2 (appointed)

Instructor	*Instructor02- Instructor06*	2014	Facebook or Email	5 (appointed)
Principal	*Principal01*	2014	Email	1
TOTAL				**23 people**

The qualitative findings, which were gained from interviews via email and Facebook messaging system can be summarised into the five themes of the potential role of the E-portfolio, the effectiveness of the E-portfolio process, potential benefits of the E-portfolio, issues and challenges of the E-portfolio and, finally, the key factors of E-portfolio successful implementation in the MSTP.

The E-portfolio was identified as having the potential to be used for four purposes: a personal compilation, teaching and learning support tools, alternative storage, and a medium through which to communicate and socialise. The respondents, especially students, believed that the E-portfolio had become a representation of themselves during learning where the achievement records, résumé, reports and all related work and assignments can be compiled into one place. Some of them have described the system as an alternative storage method to their own USB drive. One student elaborates further: *"I think this system is good as a backup storage in case our paper assignment gets lost somewhere from the portfolio file. Then, I can retrieve the files from this system" (FB Comm, 2013, CS, Student8, Male).* The students also used the system to socialise and communicate with peers and instructors, as the majority of the respondents equate the E-portfolio to social networking sites like Facebook. In addition, they commented on the potential of E-portfolio to become part of the assessment method. Similarly, the instructors also agreed that this system has potential to become part of their teaching and learning strategy. Apart from becoming the assessment medium, the E-portfolio was also used as a teaching material by one instructor during the lectures.

In this project, the main target for the use of the E-portfolio was to evaluate the deployment of the E-portfolio that had been developed by adopting the two learning theories that relate to the learning structures in the MSTP. CBT and KEL theories underpinned the process, thus ensuring that the E-portfolio was deployed according to the nature of the MSTP. The primacy of the MSTP learning structure, which is the progress-based learning that was adopted in the process, was believed to effectively play its role in supporting the students to work and submit their output. Some of the quotes that have significant ideas are as follows: 1) *"I apply the PLAN function and put the date of submission so I will remember when I should submit the final report"- (FB Comm, 2013, KP, Student06, Female).*2) *"I can see the potential of the PLAN checklist to become a great way of monitoring the student's work. However, not all of them were aware of this function, even [though] they were being told many times*" *(Email, 2013, KP, Instructor02, Female)*

The process was also developed by following the existing assessment procedure, which is that hands-on or practical work must be conducted before online submission. Then, the process of 'recall and report' after the practical work was done where at this stage, the student needs to develop documentation based on the practical training and insert it on to the E-portfolio. This stage seemed to be effective where the reflection occurred when people gave feedback and comments about their work. The collaborative learning through group-work activities also received a positive response. Most students believed that, through peer collaboration, the motivation for learning could be developed and maintained. Apart from that, the instructors' assistance through the 'Instructor led-deployment' activities was also considered to

be vital due to their role as a main player in this system. However, the students' felt that the instructors lacked the relevant skills, thus slowing the process of adapting the system during the introductory phase. A new strategy of 'peer-mentoring' was deployed in the 2014 cohort, reflecting the findings of the 2013 result that students need more attention and close monitoring by their peers. A quote that is significant to this situation are as follows: *"I prefer my friend to be my assistant because he always shows me how to do something in the system. However, not all people have ability to operate this system very well. So, I think only students who really have passion and are motivated will continue to use this system and consistently asked the mentor for help" – (FB Comm, 2014, ELC, Student18, Male).* This strategy was accepted and was believed able to maintain the students' fidelity to the system.

The next theme is the E-portfolio benefits, which can be divided into two parts: beneficial to the teaching and learning areas; and beneficial to the institution involved. It was believed that the E-portfolio could improve the communication between the students and instructors as well as with peers through the messaging system functions. In addition, the E-portfolio also increased the students' efforts and motivation to accomplish given tasks when performed with friends and mentors. The skill of operating a computer and the IT skills in general have also improved since the implementation of this system, especially for students with a low level of IT literacy. The E-portfolio also showed the potential to support a 'green environment', which meant less paper and printing. The respondents did mention that the E-portfolio has contributed to saving the cost of printing and the use of paper. The senior staff also mentioned that, by implementing this system, the institution could improve its image to the public as a 'high-tech' centre, and thus qualify to earn more 'stars' in the rating procedures conducted by the Department of Skills Development (DSD), which is the awarding body of the MSTP. One lecturer said *"The students show some improvement in terms of using the computer and Internet application. This is good for them, especially students from this course that rarely use a computer during the training. This experience, hopefully, can help them when they graduate and begin to work in the industries soon..." (Email,2013, LDG, Instructor07, Female)*

The E-portfolio issues and challenges were mostly discussed and raised the respondents' interest during the data collection session due to the real situation that had happened throughout the implementation. The primary issues mentioned were the user attitudes and behaviour towards the use of this system. Some of the users chose to leave in the middle of the process, showed signs of personal inhibition, and refused to participate in the community of use. The instructors believed that this is because of those students' lack of IT proficiency and personal attitudes. The role of instructor has also been raised, as most of them did not demonstrate any competence in operating the system. The principal mentioned:- *"The biggest challenge to encounter is the user's willingness to do this. Both instructor and students must possess a high perseverance and keep a good effort from the beginning until the end of the session. The students were from a low-achiever background, so we don't expect they can easily adapt to the system. They will… but it may take lots of time. We have to be patient and tolerant with this situation..."(Email,2014, Principal, male)*

The lack of support from the management, administrators and system developer was also expressed as one of the reasons why the E-portfolio implementation could fail. The insufficient number of computers also impacted the users from courses other than CS due to the limited number of computers provided on the campus. Furthermore, most of the students mentioned that the Internet facilities were unstable and not

capable of catering for a great deal of users at one time. Thus, the lagging and waiting during the session made them despair and gradually leave the system.

The final theme, which is the E-portfolio success factors, has been described as being the 'catalyst' to increase the chances of this system being used in future implementation. The first factor is that appropriate E-portfolio functions and processes need to be designed so that the E-portfolio will meet the requirements of the users and program structures. The institution's support, which comprises the instructor engagement, enforcement from the management, the peer mentoring and sufficient training and workshops, must be planned and set up before and along with the use of the system. Then, the facilities and tools required by the system need to be cost efficient in terms of the software and hardware involved. A dependable Internet line is also one of the major keys to the success of the implementation due to the nature of 'on-line' application requirements. A student's informed: *"I have my own laptop, however, I need to use the Wi-Fi on campus as I don't have personal broadband service. But, it seems that the Wi-Fi is unstable and always hang when I tend to upload my work. It's really annoying and takes time. We have many things to do instead of waiting. So I'll just leave the work to be uploaded by itself. But, it doesn't work as expected. The uploading process was stuck and ended just like that..." (FB Comm,2014, ELC, Student18, male)*

Other than the themes mentioned above, the data analysis also yielded several useful pieces of information that might help to develop a better implementation in the future. The instructors did mention that students on CS courses quickly adapted to the system due to their frequent use and practice compared with students on the other courses. They said that, the more IT-literate a student was, the easier it was for them to adapt to the system. They suggested that several mentors should be assigned in one class so more assistance could be provided. The instructors also recommended a guideline or framework of support to be developed which focused on certain types of users. This framework should be tried out in the coming implementation to see its effectiveness and, from time to time, modifications can be made to the framework until it achieves a mature level of usefulness.

4.1 E-portfolio Scaffolding Framework

From the interviews with the respondents, it was mentioned that the biggest challenges in the E-portfolio deployment are the user attitude and the support needed to ensure the survival of the system. This support is required for both instructors and students who are recognised as lacking the capability to use the system, and for people who demonstrate issues of negative personal attitudes. Despite the objective of this support being to assist the user, some of the strategies like merit for participation can increase users' motivation to continue using the system. Determining the types of user can be conducted by the instructor based on the Rubrics of Assessment and the statistics of use from the administrator's page in the E-portfolio. The head of department or the supervisor can identify the capabilities of the instructor based on the annual skills and performance appraisal. This technique is recommended to be used in the coming implementation with a proper plan on how to put it into real practice.

4.1.1 Types of User

Three types of user were identified along with the project implementation. There are two dimensions that need to be taken into consideration before any decision concerning assistance and guidance could be offered. The dimensions are 'IT competency or proficiency' and 'User's motivation'.

Type 1 (Competent-Motivated)
The first type of user consists of a group of people who possess acceptable competency in operating IT (computer and applications) and also are recognised as having a good attitude and passion to learn and take new challenges. This 'Competent-motivated' user is expected to score marks in the range of 70-100% in the rubrics of evaluation.

Type 2 (Incompetent-Motivated)
The second type of user is a group of people who lack competency in IT literacy, and thus require more attention and assistance in this area. Despite being incompetent, people in this group show satisfactory behaviour and determination to take on new challenges. This 'Incompetent-Motivated' user includes people who get scores of 40-69% in the rubrics of evaluation.

Type 3 (Incompetent-Unmotivated)
The last type of user is a group of people who have a poor level of IT competency as well as having issues with their personal attitude and behaviour where signs of refusal to learn are shown. This type of user needs more attention with the aim of increasing motivation and at the same time assisting them with their IT skills. This 'Incompetent-Unmotivated' user includes people who score 0-39% in the rubrics of evaluation.

4.1.2 Scaffolding Techniques
There are a few techniques and assistance that have been developed by incorporating the previous literature and the suggestions from the respondents. These ideas have been put down on paper and have been reorganised to come out with a holistic plan.
E-portfolio Workshop/Training
The E-portfolio workshop and training should cover a complete delivery of information and practical training as well. The importance of this training prior to and alongside the system deployment has been mentioned in previous research into E-portfolio implementation (Kocoglu, 2008; Krämer & Seeber, 2009; Ring & Ramirez, 2012; Zainal-Abidin, Uisimbekova, & Alias, 2011). It stated that, with proper training and information dissemination, the E-portfolio can raise user's motivation and comprehension of the objectives of use. The workshop must also be led by a skilled demonstrator so the hands-on training can be executed. This training should be compulsory for all types of user, despite their IT skill and behaviour. It is like an induction course which introduced users to the aims of the application and demonstrates how to use each function in it to achieve that aim.

IT Literacy Support
The IT literacy support should cover the training or courses specifically on IT-related use, such as hardware operating, software use, Internet applications and other related courses. These extra classes/courses can be conducted once or twice a week to improve the users' IT skills. The essential skills, especially on how to use Microsoft Office, Internet applications and basic functions of hardware like scanning and file transferring from other devices, need to be learned and mastered in order to make the E-portfolio deployment easier. Kocoglu (2008) also suggested that extra attention on IT skills should

be taken into consideration in order to achieve optimum use of the system. This second technique is recommended to be applied to type 2 and 3 users who have difficulties in IT literacy regardless of their behaviour.

Holistic Motivational Support

The holistic motivational support is a support that aims to increase the motivation of users who lack confidence and have an attitude like personal inhibition, shyness, and rejection of new developments. Holistic here means that it is vital to plan the support in every possible way such as conducting a motivational course or training, focus group or personal consultation with the counsellor or organise visits to another institution or industries to see how other people work. Kicken et al. (2009) agreed that advising and consulting learners could improve motivation and strengthen their self-confidence to join the community and take part in activities. This strategy is dedicated to type 3, who are incompetent and who also experience issues relating to their attitude and behaviour. Therefore, it is hoped that this holistic motivation support could cater for the attitude issue so the users can develop their self-esteem and raise their confidence to continue with the E-portfolio use along with other users.

Personal Hands-on Consultation

A personal hand-on consultation is where a one-to-one teacher (mentor/trainer) per user is needed. This is to cater for the type 3 users who are incompetent and unmotivated. This is because some of them have issues like shyness, which means that they do not like to be given advice publicly. This personal hands-on method aims to provide extra training on the use of the E-portfolio. It is unlike the motivational support strategy described above, where this technique is more on guiding users to use the system personally. It is like personal tutoring for the user so he/she can ask questions without feeling shame or hesitation. Personal tutoring like this can stimulate and develop the users' interest as well as providing quality advice on the system's use (Zainal-Abidin et al., 2011).

Peer-mentoring

The peer-mentoring technique was implemented with the 2014 cohort and received positive feedback from the participants. Thus, this approach should be continued for future implementation with further improvements, such as providing more mentors, creating a smaller group for coaching, and designing special training for mentors to strengthen their skills. Ring and Ramirez (2012) suggested students were more likely to ask favours of their friends or acquaintances. It is hoped that this peer-mentoring could maintain the users' motivation to use the system, especially for the type 2 and 3 users. In addition, the mentor can create a community of use for their group and connect with other groups to make the use more interesting. Peacock et al. (2010) mentioned that the users' participation in a community can create a meaningful ambience for the users and this connection will enhance the possibilities of sharing ideas and socialising.

Merit of Participation

Merit means recognition given from a higher awarding body or upper-level management to show appreciation of the contribution or efforts that have been made in a certain area. The merit is not bound only to prizes but can also be a letter or certificate of appreciation or award. However, depending on the

institution's budget, the merit can also be a voucher or a prize. These merits should be organised to raise users' interest and improve their motivation to accomplish the E-portfolio use until they completed the tasks assigned. Krämer and Seeber (2009) and Ring and Ramirez (2012) also suggested that, by giving appreciation to the users, they will feel that all their hard work and efforts have paid off. This strategy is meant to be applied to all types of user, with the hope that it could enhance their motivation and passion to use the system and maintain their fidelity to it. **Table 3.0** illustrates the proposed scaffolding techniques based on the user types that have been elaborated previously.

Table 3.0 The Scaffolding Technique Based on User Types *(Source: Self-study)*

User / Scaffolding	Type 1 (Competent - Motivated)	Type 2 (Incompetent-Motivated)	Type 3 (Incompetent-Unmotivated)
E-portfolio Workshop/ training	√	√	√
IT Literacy Support		√	√
Holistic Motivational Support			√
Individual/Personal Hands-On Consultation			√
Peer-mentoring		√	√
Merit of Participation	√	√	√

5. Conclusion

This research has been successfully accomplished and has resulted in providing the key information required for E-portfolio implementation in the Malaysian Skills Training Programme (MSTP). Other than that, the scaffolding framework based on the users' motivation has also been outlined, so it could serve as a recommendation to any organization or institution that wishes to run the E-portfolio application. Looking back at the research questions, which was to investigate the effectiveness of E-portfolio system as a learning tool in MSTP, this research has found the answers based on the evidences gathered from the qualitative methods applied. The final findings suggested that E-portfolio has bright potential to be introduced and implemented in MSTP. The four potential purposes discovered are; to be personal compilation, teaching and learning support tools, alternative storage, and a medium through which to communicate and socialise. E-portfolio also suggested could improve student's motivation, learning responsibility; the progress based learning, knowledge construction and reflection, communication and could also enhance the institution's image to public. Then, through the information and responses gathered from the interviews as well, this research had proposed a framework on scaffolding techniques that might help institutions in MSTP sector to plan and organize strategies towards the successful implementation.

References

Ahmad, I. (2015). DSD Presentation 2015. Retrieved May 21, 2015, from https://prezi.com/fvv7cmbejjca/dsd-presentation/

Barret, B. (2010). E-Portfolio Programs as Strategic Tools for Implementation and Evaluation. *Review Of Business Research*, *10*(2), 56–63.

Barrett, H. C. (2005). *Researching Electronic Portfolios and Learner Engagement*. *The Reflect Initiative*. Retrieved from http://electronicportfolios.org/reflect

Bonk, C. J., & Zhang, K. (2006). Introducing the R2D2 Model: Online learning for the diverse learners of this world. *Distance Education*, *27*(2), 249–264. https://doi.org/10.1080/01587910600789670

Chang, C.-C. (2001). A study in the evaluation and effectiveness analysis of web-based learning portfolio (WBLP). *British Journal of Educational Technology*, *32*(4), 435–458.

Coolin, K., & Harley, P. (2010). *ePortfolios and Lifelong Learners: Five ePortfolio Pilots*. United Kingdom.

Dollah, M. N., Saedon, M. A., Taja Arifin, H., Abd Razak, M. L., Rakon, Z., & Abd Hamid, N. (2012). Personal Communication. Sept 2012. Putrajaya: Department Of Skills Development, Malaysia.

DSD. (2007). PANDUAN DAN PERATURAN-PERATURAN PENTAULIAHAN PANDUAN PELAKSANAAN SISTEM PENILAIAN JPK/07/SISTEM PENILAIAN(P4)[Guidelines and Regulations in Malaysian Skills Certification 2007]. Putrajaya: Department Of Skills Development, Malaysia.

Felce, A. (2011). *Developing an e-portfolio based pedagogy for work-based learners*. Middlesex University.

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, *204*(6), 291–5. https://doi.org/10.1038/bdj.2008.192

Kicken, W., Brand-Gruwel, S., Merriënboer, J. J. G., & Slot, W. (2009). The effects of portfolio-based advice on the development of self-directed learning skills in secondary vocational education. *Educational Technology Research and Development*, *57*(4), 439–460. https://doi.org/10.1007/s11423-009-9111-3

Kocoglu, Z. (2008). Turkish Student Teachers' Perceptions on The Role Of Electronic Portfolios in Their Professional Development. *The Turkish Online Journal of Educational Technology*, *7*(3), 71–80.

Krämer, J., & Seeber, G. (2009). E-portfolios as tools to assess generic competences in distance learning study courses. *eLearning Papers*, (September), 1–8.

Leong, P. C. (2011). Key Reforms in Revitalising Technical and Vocational Education and Training (TVET) in Malaysia. In *Regional Conference on Human Resource Development Through TVET as a Development Strategy in Asia*. Sri Lanka.

McMahon, M., & Luca, J. (2006). Online Student Contracts to Promote Metacognitive Development. In *23rd annual ascilite conference* (pp. 563–572). Sydney.

MOE. (2012). *Malaysia Education Blueprint 2013 - 2025*. Putrajaya, Malaysia.

Mohd Bekri, R., Ruhizan, M. Y., Norazah, M. N., Faizal Amin Nur, Y., & Tajul Ashikin, H. (2013). Development of Malaysia Skills Certificate E-portfolio: A Conceptual Framework. In *1st International Malaysian Educational Technology Convention* (Vol. 103, pp. 1177–1186). Elsevier B.V. https://doi.org/10.1016/j.sbspro.2013.10.340

Nor, R., Raja, S., & Jhee, Y. S. (2012). Enhancing Learning through Process E-Portfolios among ESL Graduate Students in an Education University, *18*(10).

Patton, M. (2002). *Qualitative research and evaluation methods* (3rd Ed). Sage Publications; Thousand Oaks, CA.

Peacock, S., Gordon, L., Murray, S., Morss, K., & Dunlop, G. (2010). Tutor response to implementing an ePortfolio to support learning and personal development in further and higher education institutions in Scotland. *British Journal of Educational Technology*, *41*(5), 827–851. https://doi.org/10.1111/j.1467-8535.2009.00986.x

Puteh, M., & Hussin, S. (2007). A comparative study of e-learning practices at malaysian private universities. In *International Malaysian Educational Technology Convention* (pp. 1177–1188). Johor Bahru, Malaysia.

Rahim, M. B. (2015). E-portfolio indicator for competency assessment and virtual learning in Malaysia Skills Certification. *TVET@Asia*, (4), 1–13.

Ring, G., & Ramirez, B. (2012). Implementing ePortfolios for the Assessment of General Education Competencies. *International Journal of ePortfolio*, *2*(1), 87–97.

Ritchie, J., & Spencer, L. (1994). Qualitative data analysis for applied policy research. In A. Bryman & R. G. (eds) Burgess (Eds.), *Analyzing Qualitative Data* (p. 1994). London: Routledge.

Ruhizan, M. Y., Norazah, M. N., Rahim, M. B., Faizal Amin Nur, Y., & Jamil, A. . (2014). Vocational Education Readiness In Malaysia On The Use of E-portfolios. *Journal of Technical Education and Training*, *6*(1), 57–71.

Spencer, L., Ritchie, J., Lewis, J., & Dillon, L. (2003). Quality in Qualitative Evaluation : A framework for assessing research evidence A Quality Framework. *Social Research*, *108*(21/08/05), 170.

Spöttl, G. (2014). Teacher Training in TVET A Structural Dilemma and the Role of Standards. In *4th World Congress on TVET* (pp. 530–536). Malacca, Malaysia: Universiti Tun Hussein Onn, Batu Pahat.

Yusof, N., Hashim, R. S., Hamdan, S. I., & Muhamad, T. A. (2013). E-Portfolio and Creative Writing by Young Malaysians : Production of Concrete Poems. In *Recent Advances in Educational Technologies* (pp. 76–81). Cambridge, USA.

Zainal-Abidin, W., Uisimbekova, A., & Alias, R. A. (2011). Post-implementation strategy for the adoption of e-portfolio among students in a Malaysian public university. In *2011 International Conference on Research and Innovation in Information Systems, ICRIIS'11*. https://doi.org/10.1109/ICRIIS.2011.6125670