VOCATIONAL EDUCATION READINESS IN MALAYSIA ON THE USE OF E-PORTFOLIOS

Ruhizan M.Y, Norazah M. N, Mohd Bekri R
Department of Educational Foundations, Faculty of Education,
University Kebangsaan Malaysia,
Bangi, 43600, Selangor, Malaysia.

Faizal A. N. Y and Jamil A. B
Department of Engineering Educations, Faculty of Technical and Vocational Education,
Universiti Tun Hussein Onn Malaysia,
Batu Pahat, 86400, Johor, Malaysia
bekri@uthm.edu.my

ABSTRACT

This study was conducted to identify the readiness of vocational education on the use of e-portfolios in teaching and learning. The sample selected is composed of 60 teachers and 100 students from two Malaysian skills accreditation center, namely the Centre for Instructor and Advanced Skill Training (CIAST) and Industrial Training Institute Kuala Lumpur (ILPKL). Aspects studied are (i) the knowledge and skills of the students and instructors in ICT applications, (ii) facilities for the implementation of e-portfolios and (iii) student and instructors perceptions of printed portfolio transformation to electronic portfolio. The approach used to collect data is through questionnaires instrument. The data collected was analyzed using descriptive statistical analysis using SPSS 15.0 (Statistical Packages for Social Science). Results showed that: (i) students and instructors have high basic ICT skills and knowledge, (ii) facilities for the of E-portfolio implementation skills training is satisfactory and (iii) students and instructors view print portfolio transformation to electronic portfolios in vocational education needs to be done. However, students are not skilled in applying information technology in learning and integrating new information with existing information.

Keywords: Readiness, Vocational Education, E-Portfolio.

1   INTRODUCTION

Vocational education is education that provides individuals with specific skills for a particular job field. This education is important in creating professional or semi-professional energy to generate income and economic development of a country (Kieffer 2008; Schneider 2008; UNESCO - UNEVOC 2010; Vinh 2010). For example France, Finland, Germany, South Korea and Singapore are not dependent on the results generated by the earth but the people who are knowledgeable, skilled and professional character exhibits in doing a job (Economic Planning Unit, 2010). These goals are achieved due to the existence of a systematic vocational education system and contribute a lot to national development.

Current challenges in vocational education is enhancing the delivery of teaching and learning activities based on ICT (Information Communication and Telecommunication) (Rashid 2006; Jantrakool. 2010; Liaw Yin Huat & Muzafar Mat Yusof, 2011; Neal 2011; Robert 2011; UNESCO -UNEVOC 2010; Vinh 2010). Integration of ICT in vocational education greatly benefits the teachers and students such as: (i) a tool to communicate and disseminate information on-line (Jinnah et al. 2011; Robert 2010), (ii) tools that support and help to improve teaching and learning activities (Ghaznavi et al. 2011; Leask & Meadows 2000), (iii) to motivate and interest students (Neal 2011; Salleh et al. 2011), (iv) creating a learning system that provide greater flexibility (Ahmad Fkrudin Mohamed Yusoff et al. 2011; Govindasamy, 2001). ICT technologies are becoming increasingly important in the development of vocational education in this day and offers great potential in improving the quality of vocational education (Ministry of Human Resources 2008; UNESCO 2008).

Although the integration of ICT in vocational education provides many advantages, its implementation in the teaching and learning process is not an easy thing. The main challenges identified in the integration of ICT in education in Malaysia is the lack of time to prepare teaching materials and lack the skills to master the technology (Ahmad Fkrudin Mohamed Yusoff et al. 2011; Liaw Yin Huat & Muzafar Mat Yusof, 2011; Saud et al. 2010; Radiman & Abdullah 2010; Zurina Yasak et al., 2009). In line with the development of ICT, vocational education system should also be changed over in accordance with the changing times. Change of mind set among teachers and students towards the use of ICT in teaching and learning activities needs to be done. Training institutions should take advantage of existing facilities, so that the programs will be more effective.

In the 10th Malaysia Plan, the main goal in focus is mainstreaming and expanding access, to quality vocational education and improving the competence of graduates in preparation for entering the job market (Economic Planning Unit, 2010). One strategy that has been planned is streamlining vocational education delivery methods. Various concepts in the delivery of teaching and learning that integrate ICT has been introduced in recent times such as e-learning, multimedia aided training and blended learning. E-portfolio is an educational product that use ICT service based on e-learning. It can store all kinds of information in digital form, flexible in

nature, can be accessed at anytime and anywhere (DiMarco 2006: Me & Wen 2011; Montgomery & Wiley 2008; Stefani et al. 2007). E-portfolio is the result of the transformation of a previously written portfolio has long been used in assessing the activities of one's personal activities and one's professional evaluation. The difference is that e-portfolios are easier to use in publishing such information and it can also be used as a learning tool where users can share ideas and information with other users on-line (Bullock & Hawk 2005; Handa et al. 2011; Kilbane & Milman 2005).

In skills education in Malaysia, the portfolio is used as a document to evaluate the level of knowledge and performance of students. Its use is still in the traditional paper-based where it is limited for artefact storage alone. According to the Ministry of Education (2011) improving the current delivery of vocational education, should be done by expanding the on-line implementation. The use of e-portfolios in teaching and learning has become very popular at all academic levels. Using the latest technology, the E-portfolio has outperformed traditional paper-based portfolio format and provide the better means for information retention (Bhattacharya & Hartnett 2007; Hallam et al. 2010; Halstead & Sutherland 2006; McAllister & Hauville 2010; Montgomery & Wiley 2008; Siti Fatimah Mohd Yasin 2007; Smyth et al. 2010). The information that can be put into the e-portfolio includes personal artefacts, biodata, lesson plans, assignments, video clips, notes, assessments and the results of work performed (Barrett 2010; Galatis et al., 2009; Gibson & Barrett 2002 Powers et al., 2001; Sweat-Guy & More Buzzetto-2007).

Seeing the potential of e-portfolios in teaching and learning, it is desirable to be applied to replace the existing written portfolio in vocational education in Malaysia. However, the use of e-portfolio for sure will provide challenges in its implementation. Among the challenges to be faced is the need to provide appropriate infrastructure, to ensure that such information can be sent and accessed properly (Ahmad Fkrudin Mohamed Yusoff et al. 2011; Radiman & Abdullah 2010; UNESCO 2008; Zurina Yasak et al., 2009) and must be skilled and knowledgeable to use ICT in teaching and learning. (Ahmad Fkrudin Mohamed Yusoff et al. 2011; Liaw Yin Huat & Muzafar Mat Yusof, 2011; Radiman & Abdullah 2010; UNESCO 2008; Zurina Yasak et al., 2009). In the implementation of e-portfolios in vocational education in Malaysia, the three aspects which are knowledge, skills and infrastructures need to be taken into account.

1.1   Research Questions

1. What is the level of knowledge and skills of vocational instructor on the application of ICT?
2. What is the level of knowledge and skills of vocational student on the application of ICT?
3. How current facility for the implementation of e-portfolios in vocational education?
4. How perception instructors and students about the transformation paper based to electronic portfolios in vocational education?

2   METHODOLOGY

Vocational Descriptive research using questionnaires as research instruments were used in conducting this study. Descriptive study is selected as the its characteristics cover the whole issues or problems, fast data collection, the use of large sample sizes, the information collected directly from respondents in a short time and the results of this study can be generalized to a population study (Check & Schutt 2012; Cohan et al 2011). Even the questionnaire was able to measure the variables to be measured from a large sample size with high precision and a small sampling error (Kumar 2011). A total of 100 students and 60 teachers from two educational institutions namely CIAST and ILPKL have been involved as a sample in this study. For the purpose of getting high validity and reliability, the setting of study sample number is based on sample size determination schedule by Krejie and Morgan (1970). This study used questionnaires in the form of five-point Likert scale (1 = strongly agree, 5 = strongly Disagree) and to collect data in this study, the researchers have distributed on their own the set of questionnaires to the teachers and students. Through this method, researchers are able to explain to the respondents methods to answer the survey form.

The research instrument adoption from ICT competence questionnaire Eberhardy (2009). This instrument comprised 4 sections. Section A relating to knowledge in ICT, section B measuring skill usage in ICT and section C measuring ICT facility for the implementation of e-portfolios. Finally, section D measuring perception about the transformation paper based to electronic portfolios in vocational education. The face validation for items in the research instrument was carried out by three academic staff from National University of Malaysia that is in the measurement and evaluation discipline. The level of reliability of the questionnaires was obtained by conducting a pilot study before implementing the actual study. The pilot study was conducted on 20 teachers and 20 students that were not part of the study sample. Data from 40 samples analyzed using SPSS through Reliability-Scale Analysis of Cronbach Alpha. According to Numally (1978), the alpha value of 0.70 to 0. 90 is an acceptable range of values that enable the instrument to be used in the research. Overall Cronbach Alpha values obtained for each item is 0.8 to 0.9, this means that the instruments used are valid and appropriate. The data obtained were analyzed using the Statistical Package for the Social Sciences (SPSS) version 15.0 for the percentage and mean value.

3   FINDINGS

3.1   Vocational Student Level of Knowledge and Skills on the Application of ICT.

Overall mean scores of knowledge level of vocational students in CIAST and ILPKL against the application of information and communication technology is high. This is evidenced by the results of the analysis in Table 1. The result showed that the students are able to: choose to use quality information during the learning process, identify information with the nature of facts and views, evaluate the information obtained critically and efficiently and make an assessment of the

newly discovered information. Students are also seen practicing good behavior (ethics) in relation to the use of information technology.Through the display of Table 1, it also shows that the level of knowledge of vocational students in CIAST and ILPKL against the application of information and communication technology is high. Students are proficient in finding information electronically and they are more skilled in finding information electronically compared to manual. Students also viewed that information technology courses had guided them in producing quality information. However, it had been found that the proficiency level of students in applied information technology in learning and integrate new information with existing information in the learning process is still at an average.

Table 1: analysis of the mean scores of knowledge and skills of vocational students on the application of information and communication technology.

No.	Item	CIAST			ILPKL		
		Mean	**S/D**	**P/L**	**Mean**	**S/D**	**P/L**
	Knowledge						
1	Are able to choose to use quality information during the learning process.	3.8	0.8	High	3.8	0.7	High
2	Are able to identify information with the nature of facts and views	3.9	0.8	High	3.8	0.6	High
3	Practicing good behavior (ethics) in relation to the use of information technology.	4.0	0.8	High	3.9	0.6	High
4	Able to evaluate the information obtained critically and efficiently.	3.9	0.7	High	3.5	0.6	High
5	Able to make an assessment of the newly discovered information.	3.9	0.8	High	3.5	0.8	High
	Average	**3.9**	**0.8**	**High**	**3.7**	**0.7**	**High**
	Skill						
1	Skilled in finding information electronically. (Eg: web sites and database)	4.0	1.0	High	3.7	0.8	High
2	Have enough skills to apply information technology in learning.	3.2	0.8	Moderate	3.3	0.8	Moderate
3	Information technology skills courses that I had attended guide me to produce quality information.	3.9	0.7	High	4.0	0.7	High
4	More skillful in finding information electronically than manually.	4.0	0.9	High	3.5	0.9	High
5	Skilled in integrating new information with existing information in the learning process.	3.1	0.7	Moderate	3.2	0.9	Moderate
	Average	**3.6**	**0.8**	**High**	**3.5**	**0.8**	**High**

S/D=standard deviation   P/L=proficiency level n=100

3.2 The Knowledge and Skills of Vocational Teachers on The Application of ICT.

Table 2 shows the results of the analysis of the vocational instructor level of knowledge on the application of information and communication technology. Overall mean scores of knowledge level vocational instructor at CIAST and ILPKL is high. The analysis showed levels of knowledge of instructor to: choose to use quality information during the learning process, identifying information that has the nature of viewpoint and fact, evaluate critically and efficiently the information obtained, evaluation of newly discovered information and practice good behavior (ethics) in relation to the use of information technology is high.

Table 2: analysis of the mean scores of the level of knowledge and skills of vocational instructor against the application of information and communication technology

No.	Item	CIAST			ILP		
		Mean	S/D	P/L	Mean	S/D	P/L
	Knowledge						
1	Are able to choose to use quality information during the learning process.	3.9	0.5	High	4.0	0.4	High
2	Are able to identify information with the nature of facts and views	4.0	0.5	High	4.0	0.4	High
3	Practicing good behavior (ethics) in relation to the use of information technology.	4.2	0.5	High	4.2	0.5	High
4	Able to evaluate the information obtained critically and efficiently.	3.8	0.7	High	3.9	0.5	High
5	Able to make an assessment of the newly discovered information.	3.9	0.6	High	4.0	0.6	High
	Average	**4.0**	**0.6**	**High**	**4.0**	**0.5**	**High**
	Skill						
1	Skilled in finding information electronically. (Eg: web sites and database)	4.0	0.6	High	3.9	0.7	High
2	Have enough skills to apply information technology in learning.	3.9	0.7	High	3.6	0.7	High
3	Information technology skills courses that I had attended guide me to produce quality information.	4.2	0.6	High	4.3	0.7	High
4	More skillful in finding information electronically than manually.	4.0	0.7	High	3.8	0.7	High
5	Skilled in integrating new information with existing information in the learning process.	3.7	0.6	High	3.6	0.7	High
	Average	**4.0**	**0.6**	**High**	**3.8**	**0.7**	**High**

S/D=standard deviation   P/L=proficiency level n=60

Further analysis of the overall mean score of the skill levels of vocational instructors in CIAST and ILPKL is also high. The result of the analysis shows that the instructor skills in searching for information electronically, applying information technology in teaching and integrating new information with the existing information in the teaching process are high. The instructors also viewed that information technology skills course have guided them in producing quality information.

3.3   Facilities

Facility analysis for the implementation of e-portfolios in education skills are seen from two points of views which is the instructors' view (Table 3) and the views of students (Table 4). Based on Table 3 instructors in both the training institutions (ILPKL and CIAST) expressed in their workplace has internet facilities (100 percent) and convenience of the internet at work is satisfactory (80 per cent). Next most of the instructors in both training institutions have internet access at home (88 percent). In terms of frequency of internet access in the two training institutions, instructors are seen more frequently access the internet at home (67.5 percent) than work (32.5 percent). In terms of computer facilities are almost all teachers having personal computers (96.5 percent) and personal computers have internet access networks (91.5 percent).

Table 3: Analysis of percentage of facility for the implementation of e-portfolios in skills education from the point of view of instructors.

No.	Item	Frequency Percentage (%)					
		CIAST		ILPKL		Average	
		Yes	No	Yes	No	Yes	No
1	Have internet access at work	100	0	100	0	100	0
2	Internet access at work is satisfactory	90	10	70	30	80	20
3	Have internet access at home	93	7	83	17	88	12
4	Accessing the internet more often at home	70	30	65	35	67.5	32.5
5	Accessing the internet more often at work	30	70	35	65	32.5	67.5
6	Own a personal computer	100	0	93	7	96.5	3.5
7	Personal computers have internet access networks	93	7	90	10	91.5	8.5

n=60

Table 4: Analysis of the percentage of facilities for the implementation of e-portfolios in skills education from the point of view of students

No.	Item	Frequency Percentage (%)					
		CIAST		ILPKL		Average	
		Yes	No	Yes	No	Yes	No
1	Have internet access at an educational institution	100	0	100	0	100	0
2	Internet facilities in education institutions is satisfactory	70	30	64	36	67	33
3	Have internet access at home	72	28	70	30	71	29
4	Accessing the internet more often at home	70	30	60	40	65	35
5	Accessing the internet more often at education institutions	30	70	40	60	35	65
6	Own a personal computer	92	8	70	30	81	19
7	Personal computers have internet access networks	84	16	62	38	73	27

n=100

Table 4 shows the results of analysis of the percentage of facilities for the implementation of e-portfolios in skills education from the point of view of the student. Students in both training institutions view that their learning institutions possess internet facilities (100 percent) and 67 percent said internet facilities in educational institutions are satisfactory. The results of the analysis also found that nearly 71 percent of students from the two training institutions have internet access at home. In terms of frequency of internet access, 65 percent of students from the two training institutions are seen more frequently access the internet at home compared to 35 percent of the institutions. The next 81 percent of the students found in possession of a personal computer and personal computer having internet access network (73 percent).

3.4 Printed portfolio transformation to an electronic portfolio.

Analysis of the percentage of printed portfolio transformation to electronic portfolios in vocational education is described in Table 5. Results show that 63 percent of instructors and 76 percent of students agreed that the existing printed portfolio used in the skills education need to be transformed to an electronic portfolio.

Table 5: Analysis of percentage of instructors and students view the two skills institutions printed portfolio to the transformation to electronic portfolios in vocational education.

No.	Item	Frequency Percentage			
		Instructor (n=60)		Student (n=100)	
		Yes	No	Yes	No
1	Existing printed portfolio (certificate portfolio / Malaysian skills diploma) needs to be transformed to electronic portfolios.	63	37	76	24

4   DISCUSSION

The findings from the aspects of knowledge that the students and instructors are able to choose quality information to be used during the learning process, identify information with the nature of facts and views, evaluate the information obtained critically and efficiently and make an assessment of the newly discovered information. The students and instructors were also seen practicing good behavior (ethics) in relation to the use of information technology. Livingstone (2012) states in the application of ICT in teaching and learning, knowledge and skills are of key importance. This is because without the knowledge and techniques in the search of information resources, information literacy cannot be applied in teaching and learning. Educators and students have to turn to ICT, particularly the internet to enable them to become independent thinkers and effective decision makers (Quigley 2011).

Thus the need for knowledge of information literacy is critical and should be looked into seriously. This is because the reliability and validity of the information sought through the internet will not be known just by looking at the information. Knowledge of ICT is very important, especially for teachers and students because without a good knowledge, it will be a constraint in implementing information literacy in teaching and learning. From the aspect of skill, skilled vocational students find information electronically and they are more skilled in searching information electronically compared to manually doing it.

However, students lack the skills to apply information technology and integrating new information with existing information in the learning process. Instructors are not troubled in mastering information and communication technology skills. Overall, the instructors are skilled in finding information electronically, to apply information technology in teaching and integrating new information with existing information in the teaching process. According to Hashim et al (2010) information and communication technology skills are very important. Graduates in the 21st century, which do not have the skills to access, select, evaluate, use and manage information using the latest technology will give a negative impact after studying and also while in the workplace. Tomei (2010) explained that the lack of ICT skills will cause the students to not being able to do their research well due to their inability to find the required information. Skills to be learned and owned by lecturers and students in the implementation of teaching and learning are the skills to get the information, skills to compile all the various information and the skills to use information technology (Kim et al. 2012; Romeo et al. 2012; Somekh 2007).

Facilities for the implementation of e-portfolios in skills education in Malaysia are good. Skills training institutions are seen to have internet access and internet facilities provided are good. Al-Khasawneh et al. (2013) reported that the use of the internet has contributed to education, such as providing the opportunity to improve quality and provide the opportunity to study in a broader context. Peters (2009) noted that the progress of the internet has brought positive changes to the way teachers teach, students learn and communicate. Internet revolution does not only find information globally, it even forges closer ties between human to communicate. Next most of the students and instructors have internet access at home, possess a personal computer and personal computer have internet access network. In terms of frequency of internet access students and instructors are seen more frequently to access the internet at home than in educational institutions and workplaces. This may be due to the relatively limited time constraints in the workplace and educational institutions. The findings showed no constraints arising in the implementation of e-portfolios in vocational education in Malaysia in terms of access to facilities. Computers and the internet are very important in the implementation of e-portfolios to enable students to manage information and learn on the go and at the time of their choosing. This allows students to manage their own time effectively. Students also have the opportunity to get experience talking with teachers and peers and experts in getting views on any matter.

Next on the whole student and instructor agree printed portfolio transformation to electronic portfolios in vocational education needs to be done. Students and instructors of vocational education in Malaysia agree printed portfolio transformation to electronic portfolio needs to be done. The use of a printed portfolio is not relevant to be applied in vocational education at present. This is because the printed portfolio is static, limited in sharing information with others, process management, evaluation and updating the material are difficult and cannot improve the professional skills (McAllister & Hauville 2010; Smyth et al. 2011; Stefani et al. 2007). On the contrary, electronic portfolio has many advantages over the printed portfolio, which are being able to save and organize material more easily, share information, enhance professional skills, increase graduates' generic skills and facilitate the search for information (Bhattacharya & Hartnett 2007; Halstead & Sutherland 2006; McAllister & Hauville 2010; Smyth et al. 2011).

5 CONCLUSIONS

Overall, it can be concluded that the use of e-portfolios in vocational education in Malaysia can be done. This is because instructors and students have the basic knowledge and skills in ICT. Training institutions also have enough facilities to apply the e-portfolio. Instructors and students also viewed that printed portfolio transformation to electronic portfolios in vocational education needs to be done. However, students are not skilled in applying information technology in learning and integrating new information with existing information. Therefore, students should be given more exposure to the application of ICT in learning. Among the proposals to improve

their skills for the implementation of the use of e-portfolios in vocational education are: (i) the need to provide training on the use of ICT skills, (ii) encouraging lecturers to produce innovative teaching methods and with high technology, (iii) the administrator should make changes to the curriculum, especially subjects related to computer literacy, and (iv) improving ICT infrastructure. Courses in information technology are a must because of its use are able to increase the students' knowledge and skills.

Information technology is undergoing a technological revolution that is very fast. This is because the technology has become a media medium to deliver information and communication, especially in teaching and learning in this cyber era. If the student refuses and did not follow any course on information technology, they are not likely to know how to use the latest information technology tools. Therefore, vocational education institutions in Malaysia must pursue the rapid current changes so that the teaching and learning process would be more relevant in line with the latest developments. The findings of this study have an impact on the implementation of the e-portfolio in vocational education in Malaysia.

Mastery of basic knowledge and skill in ICT and adequate facility showed no problems to implement e-portfolios in vocational education in Malaysia. It is a step that can be done with the transformation of vocational education in Malaysia, towards streamlining the delivery method and enhances organizational capacity in producing human resources, characterized by K-workers in a knowledge-based economy era. Efforts to improve the quality of teaching and learning should be done in earnest to create excellent training institutions, which are able to produce graduates who have the skills, and globally competitive in employability.

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