ASSESSING IT COMPETENCIES AMONG UNDERGRADUATE STUDENTS

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ABSTRACT

Information Technology (IT) and Information and Communication Technology (ICT) are not new terms to the students and nationwide. IT has been popularize in Malaysia since the introduction of Multimedia Super Corridor (MSC) as one of the initiative to become a developed nation. Since then, IT tools such as computer and Internet have dominated the workplace supporting all aspect of activities and work. Therefore, students graduated from the higher education of learning should possess adequate IT skills in conjunction to the core academic knowledge. This paper discusses the assessment of ICT skills that have been conducted on a group of undergraduate students. In this study, the students have been given a questionnaire to state their perception towards ICT tools and application. Later, they are given a task to be completed in an hour. The task was aimed to assess students' actual skills level. The finding shows that most of the have positive perception towards ICT, however the actual assessment shows that students ICT skills are still at average level. The findings suggest that the students need to sharpen their ICT skills before graduating to prepare themselves for the working environment. While, the university need to take some more initiative to encourage students to apply IT knowledge and skills.

Keywords: Information Technology, Information and Communication Technology, ICT knowledge, IT Competencies, IT Skills

INTRODUCTION

E-skills can be divided into three categories: Information and Communication Technology (ICT) user skills, ICT practitioner skills, and e-leadership skills (Gareis et al., 2014). ICT practitioner skill is the capability related to utilizing ICT skills in for various purposes such as problem solving, marketing, administering and planning. ICT user skill is the capability related to the effective use of ICT application, systems, tools, and devices by individual. While, e-leadership skills refer to the capability owned by the leader of the organization in order to achieve organizational objective. In this paper, e-skill is referring to a skill that is related to the use of ICT tools and applications. Hence, e-skill is also called IT skill or ICT skill.

ICT skill is one of the main requirements before graduate can enter job market. According to Tyler (2005), an individual who lacks ICT skills will be left behind, thus will not be able to compete in the work place, thus left behind in global economy. At the organizational level, lack of ICT-skills will reduce the efficiency of ICT usage (Plaatjies & Mitrovic, 2014), thus ICT will be under-utilized. To date organizations that are not utilizing ICT will lose their competitive power.

Students with adequate ICT skills are expected to be able to utilize the resources that they have such as the computer, network and search engine in order to achieve their information need. Through these tools and applications, students can find all sort of information, filter and analyse them. Moreover, knowledge of ICT and subject domain will contribute to the positive searching behaviour that will drive to the success of information searching (Yamin et al., 2013; 2015).

This paper discusses the ICT skills assessment conducted on a group of students at higher education institution. Students with various backgrounds have been given a task to be completed within an hour. The output produce by the students shows that the students' ICT skills are at average level.

THE NEED FOR E SKILLS

The introduction of Multimedia Super Corridor (MSC) in late 1990s has encourage Malaysian to utilize information technology (IT) in all aspects of living including personal, education and businesses. Surveys by Malaysian Communications and Multimedia Commission (MCMC) in 2014 shows that Malaysian is actively utilizing ICT tools and gadgets in their daily activities (MCMC, 2015a; 2015b). This shows that MSC Malaysia has been successful in making IT or ICT as a part of Malaysian life.

In business, ICT has been recognized as one of the driving factors that pushing businesses worldwide. The Malaysia Digital Economy Corporation (MDEC) has been established by Malaysian government to direct and oversee MSC Malaysia, the national ICT development initiative, advising the Malaysian government on legislation and policies, developing industry-specific practices and setting the standards for multimedia and digital operations (MSC Malaysia, 2016). MDEC identify and award ICT and ICT-facilitated businesses with MSC Malaysia status. This status is a recognition given by Malaysian government through MDEC to recognize the companies' effort in developing or using multimedia technologies to produce and enhance their products and services. According to MDEC (2015) until 2014, a total of 3,632 companies have been awarded with MSC Malaysia status. These companies have created a total of 147,568 jobs and 87% of these total jobs are Malaysian worker.

The success of MSC Malaysia has shown that ICT is a vital tool that drives Malaysia towards developing country in 2020. Thus worker with high ICT skills are highly demanded (Expert Group on Future Skills Needs, 2012) to fulfil the need of those MSC status companies. Therefore, students at the higher education institution should be equipped with adequate ICT skills. The skills can be blended into existing curriculum or offered individually as independent course. In addition, an ICT skill is essential to promote e-learning (Quadri, 2012).

METHODOLOGY
A total of 61 students mostly final year undergraduate were randomly selected from various programs. They are given a questionnaire with likert scale from 1 to 4 to state their perception towards the important of ICT. The scale represent totally disagree (1), disagree (2), agree (3), totally agree (4). The questionnaire was adopted from Yusof and Balogun (2011).

Students were given a task to prepare a certificate for the traditional kite festival (Figure 1). Detail descriptions and format on each information in the certificate are also given. Students are given approximately one hour to complete the task. Once completed, students were instructed to submit their work together with the materials they used as an email attachment. Students' work was marked and appropriate grade were given based on the score they obtained (Table 1).

Table 1: Score Range and Grade

Score Range	Grade
$x < 34.45$	F
$34.45 <= x < 39.45$	D
$39.45 <= x < 44.45$	D+
$44.45 <= x < 49.45$	C-
$49.45 <= x < 54.45$	C
$54.45 <= x < 59.45$	C+
$59.45 <= x < 64.45$	B-
$64.45 <= x < 69.45$	B
$69.45 <= x < 74.45$	B+
$74.45 <= x < 79.45$	A-
$79.45 <= x < 89.45$	A
$x >= 89.45$	A+

Figure 1: Example of the certificate

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FINDINGS

Figure 2 shows gender distribution among students involved in this study. As shown in the figure, most of the respondents are female (83%) while male is only 17%.

Figure 2: Gender

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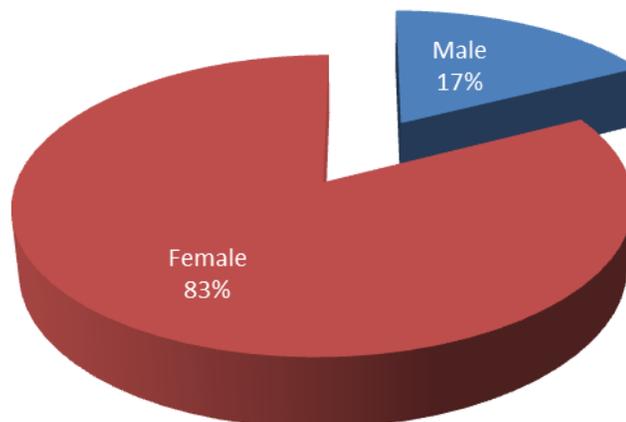
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Table 2 summarize students' perception on ICT. Students' feedback were simplified by merging the scale 1 to 4 into 2 classes (agree and disagree), where 3 and 4 were grouped as agree and 1 and 2 as disagree. The finding shows that most of the students have very positive perception toward ICT.

Table 2: Student Perception

No.	Items	Agree	Disagree
1.	ICT enhances my learning.	100	50.79
2.	ICT provides better learning experiences.	100	46.03
3.	I would work harder if I could use ICT.	90.48	63.49
4.	I learn more from ICT than I do from books.	76.19	69.84
5.	ICT is useful in dissemination of information.	96.83	61.90
6.	ICT makes course more interesting.	96.83	55.56
7.	ICT skill is worthwhile.	95.24	60.32
8.	ICT gives opportunity to learn more.	98.41	39.68
9.	I won't have anything to do with ICT.	9.52	44.44
10.	I have phobia for ICT equipment.	7.94	53.97
11.	ICT can't address the needs of university system.	17.46	73.02
12.	The state of facilities discourages me from using ICT	26.98	79.37

Table 3 summarizes the score obtained by the students based on the task that they have completed. Two students fail the test while the rest pass at minimum grade D+. Most of the students appear to score at grade C, C+, B- and B. Six students obtain grade A and three obtain A-. The score distributions are visualize as graph as shown in Figure 3.

Table 3: Score for the task

Minimum Score	Grade	Frequency	Percentage
0	F	2	3.28
34.45	D	0	0.00
39.45	D+	4	6.56
44.45	C-	3	4.92
49.45	C	9	14.75
54.45	C+	8	13.11
59.45	B-	10	16.39
64.45	B	11	18.03
69.45	B+	5	8.20
74.45	A-	3	4.92
79.45	A	6	9.84
89.45	A+	0	0.00
	TOTAL	**61**	**100**

Figure 3: Graph Score Distribution
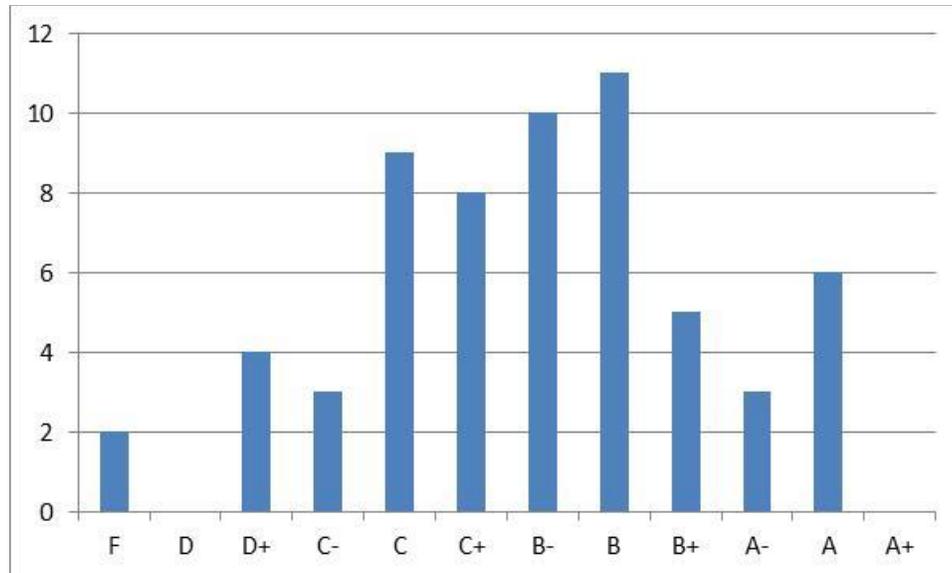
CONCLUSION

Overall the score seems to reflect that the students' ICT skills are at average level. Students should give more effort to learn and improve their ICT skills. Critically, the skills need to be enhanced before graduating as to prepare themselves for the working environment. At the same time, the university need to take some more initiative to encourage students to apply IT knowledge and skills while taking the courses.

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