

The ICT Competencies of New Accounting Students of Different Intake Channels: The Case of the Universiti Utara Malaysia

Mohd Hadzrami Harun Rasit, Khairina Rosli & Mohammad Azhar Ibrahim

School of Accountancy, Universiti Utara Malaysia, MALAYSIA

hadzrami@uum.edu.my

Abstract

This study aims to investigate the level of information and communication technology (ICT) competency possessed by new accounting students at the Universiti Utara Malaysia according to their intake channels. The study examines five software applications deemed critical for an accountant, namely, word processing; spreadsheet; database; PowerPoint presentation; and Internet and email. A survey was conducted on 182 first year accounting students. Overall, students from the diploma intake channel are found to possess the ICT competency better than those from other intake channels. The competency of students from Matriculation and STPM intake channels in spreadsheet is found to be below average. All students regardless of their intake channels were found to be less competent in database application.

Harun Rasit, M.H., Rosli, K. & Ibrahim, M.A. (2012). The ICT Competencies of New Accounting Students of Different Intake Channels: The Case of the Universiti Utara Malaysia. *Malaysian Journal of Educational Technology*, 12(2), pp. 33-40.

Introduction

The current trend in business and accounting settings requires an accountant who is an ICT literate. International Federation of Accountants (IFAC) published the International Education Guidelines that include ICT knowledge and competency requirements for professional accountants. These guidelines are intended to assist its member bodies in preparing professional accountants to work within the information technology environment. Among others, the guidelines highlight the ICT knowledge and competency requirements for the accountants *vis-a-vis* the ICT users. Accountants must possess skills such as operating system, word processing, spreadsheet, presentation software, Internet tools, research tools, image processing software, database, accounting software, tax return preparation software, time management and billing systems and knowledge work systems (IFAC, 1995, 2003; Wessels, 2005). Related to this, Hanefah et al (2004) posited that several latest technology competencies that should be employed to the accounting graduates include, accounting software, communication software, information system and planning, world wide web searching, windows, word processing software, presentation software, e-commerce, spreadsheet software, technology management and budgeting.

New accounting students at the Malaysian public universities are required to register for an ICT introductory courses in the very first year of their study. This is true regardless of their level of ICT competency whilst entering the university. There are five distinctive intake channels for new accounting students for the Malaysian public universities namely Diploma, a Matriculation Certificate, Malaysian Higher Certificate of Education (STPM), Malaysian Higher Certificate in Religious Education (STAM), and Malaysian Certificate of Education (SPM). Among them, students who hold a diploma are believed to possess ICT competency better than the rest. The reason is simply because the diploma holders had undergone the ICT courses at their previous higher learning institutions. This indirectly means the level of ICT competency of students from different intake channels differs.

It is important to examine the ICT competencies among the new accounting students of different intake channels to determine whether or not they possess a sufficient level of ICT competency. Supposedly the students are found to possess sufficient level of ICT competency, the ICT introductory courses could be then replaced with more advanced courses. In the event where the students are found to be less competent then a plan of actions can be developed to improve their competencies. The authors are not aware of previous studies discussing the ICT competencies of the new accounting students in the Malaysian public university based on intake channels. Previous papers in the context of Malaysia are focusing more on the ICT competencies between gender (see Hew & Leong, 2011; Wong & Hanafi, 2007).

Thus, this study attempts to answer the following research question, namely what is the level of ICT competency of new accounting students of different intake channels prior to entering the university?

The contributions of this paper are two-prongs. First, this is the first paper that determined the level of ICT competency of new accounting students in the Malaysian public university based on intake channels. Second, this paper helps in identifying the area of ICT competencies that the new accounting students of different intake channels are lacking. This paper is structured as follows. The literature review is presented next followed by the method in conducting this study. Results are presented after that. A discussions and conclusion presented next ends this paper.

Literature Review

There were few studies around the globe that investigate the ICT competencies of the accounting students and/or graduates. Stoner (2009) investigates the ICT competencies level of accounting students at the Scottish University over a 10-year period. He found that the students' self-reported word processing, Windows, e-mail and Internet competency levels are considered as good. He argued that the Internet and e-mail competencies among the students, improved rapidly over the period of studies. However, the database and spreadsheet competencies among the students according to him are inadequate.

In a related study, Al-Khadash & Al-Beshtawi (2009) investigate the impact of learning accounting by computers on students' perceived skills, and also the effectiveness of teaching undergraduate accounting students courses in using computer in accounting. Based on the survey from 463 accounting students at five Jordanian universities, they reported that the students possessed a general level of competency in data entry and word processing. The competency of the students in spreadsheet and statistical analysis were considered as low.

In the US, Ahadiat (1999) investigates the employers' perspective on the competencies possess by the accounting graduates. He analysed the survey from 99 accounting alumni who graduated within the period of two years from Cal Poly University. He reported that the ICT is among the most important competencies required by the private industry from the university graduates. Also in the US, Burnett (2003) surveyed 32 employers and 76 CPA members to ascertain which skills are important for new graduates and which educational innovations are effective. He reported that the four top-rated professional skills were analytical/critical thinking; written communication; oral communication; and decision-making; whilst the top three technology skills required include spreadsheet; Windows; and word processing.

In the UK, Ahmed (2003) analysed questionnaires of 53 accounting educators listed in the 1998 British Accounting Review Register as teaching or undertaking research in IT and/or IS (information system). The purpose of his study was to identify what IT/IS skills and knowledge that the accountant of today should possess; which of these skills that employers expect them to have; and which of these skills employers would prefer them to have. The survey also sought to discover what level of IT/IS skills are currently included in accounting programmes and what IT/IS skills are likely to be taught in three years time. The results show that accounting education does not equip the students with enough IT/IS skills for their role beyond graduation in their employment. A gap exists between the IT/IS skills that students learned in accounting education at University level and what accountants practice in the real world with regard to IT/IS.

Meanwhile, in Malaysia, studies on ICT competencies have been conducted on both the students, and the educators. Hew & Leong (2011) studied the ICT competencies based on gender differences of 159 pre-university students consisting of lower and upper pre-university students in a Malaysian government upper secondary school from both the science, and the art streams. They reported that, in general, the levels of ICT (word processing, presentations, spreadsheet, Internet, email, database, social networking, PC maintenance and utility) competency of pre-university students in a Malaysian upper secondary school are still very low.

Abdol Latif et al (2008) studied the perceptions of 457 students' on the use of ICT in learning at Open University Malaysia (OUM) by examining their abilities and experiences, with a view to identifying areas in enhancing the effectiveness of e-learning. The study found that half of the students were able to handle without having to seek assistance, the four software applications, namely word processor; email; presentation application; and bibliographic database. In another study, Ling & Ahamad Nawawi (2010) examined the ICT skills needed by a fresh accounting graduate when they first joined a tax firm; to find out usage of electronic tax (e-tax) applications in tax practice; to assess the rating of senior tax practitioners on fresh graduates' ICT and e-tax applications skills; and to solicit tax practitioners' opinion regarding integrating ICT skills and tax software into a tax course. The survey involved 112 tax practitioners. They suggested that the fresh graduates should be familiar with spreadsheet, word processing and e-mail applications.

In a related study, Ismail & Salim (2005) examined the perceptions of 76 accounting educators of 9 public and private higher learning institutions in Malaysia offering accounting degree program, toward the issue of ICT integration into their accounting curriculum. The results indicated that most accounting educators are satisfied with the hardware facilities, support and appreciation received from their head of department and colleagues. Many of them recognized the importance of ICT knowledge and skills in enhancing the future of the accounting profession. However, they expressed their dissatisfaction on several technical aspects of the ICT integration such as inadequacy of application software, network services, technical supports, and allocation of IT-related training. Many of them felt that the extent of IT knowledge and skills integration with the accounting curriculum is still not sufficient.

Method

We distributed questionnaires to 186 first year students studying for a Bachelor of Accounting with Honours and Bachelor of Accounting (IS) with Honours at UUM in 2011. The students were asked to answer the questionnaires with the presence of the researchers. This is to prevent the students from leaving the questions in the questionnaires unanswered. Despite this effort, only 185 out of 186 questionnaires are usable for further analyses. Another 3 questionnaires were subsequently excluded from the study leaving the final usable questionnaires for this study to 182.

We replicated and modified the questionnaire of Turner (2003) to suit the Malaysian higher education environment. The questions are stated in both Malay and English languages. This self-assessment questionnaire was divided into three parts, namely Part A, B and C. Part A is used to collect demographic information such as gender, age and prior education history. In Part B, students were asked to rate their awareness of ICT hardware/ application software and the frequency of using those ICT hardware and software using the five point Likert scale ranging from 1-point (unaware/ never use) to 5-point (strongly aware/ always use). Lastly, Part C required respondents to rate their ICT competencies in using Windows, word processing, spreadsheet, presentation application, database, and the Internet and email using five point Likert scale from 1-point (poor) to 5-point (excellent).

Data obtained from the survey were analysed using a statistical analysis program of SPSS version 19. The distribution of responses was tested for normality using the Kolmogorov-Smirnov one-sample test. The data was found to be not normally distributed and the transformations of the data did not result in normality. Hence, the non-parametric statistic of Kruskal-Wallis One-Way Analysis of Variance was used to test for differences in the level of ICT competencies between the three different intake channels (Monroe & Woodliff, 1994; Kasim & Mohd Hanafi, 2008).

Results

Table 1 presents a demographic profiles of the students involved. Out of 182 students, 68.1% of them are female while the rest are male. As for the ethnicity, majority of the students are Chinese, represented by 56.6%, followed by Malay (37.4%), Indian (3.3%) and other ethnic (2.7%). Majority of the students were from the STPM intake channel (48.9%), whereas Matriculation and Diploma intake channels were represented respectively by 31.3% and 19.8% of students.

Table 1 Respondents' Profile

Demographic		Frequency	Percentage
Gender	Male	58	31.9
	Female	124	68.1
	Total	182	100.0
Ethnic	Malay	68	37.4
	Chinese	103	56.6
	Indian	6	3.3
	Others	5	2.7
	Total	182	100.0
Intake Channel	Diploma	36	19.8
	Matriculation	57	31.3
	STPM	89	48.9
	Total	182	100.0

Table 2 presents the students competencies in word processing application. Students from the Matriculation and STPM intake channels rated their competencies as below average in dealing with the advance features of the application¹. Apart of that, all students rated their competencies above the average level. This is true despite of the significant differences in the level of competency between students of different intake channels ($p < 0.01$). Overall, the level of competency of students from the Diploma intake channels, as reflected in the mean value, is higher than the Matriculation and STPM intake channels.

Table 2 Word Processing

Word processing competency	Mean			Chi-Square
	Diploma	Matric.	STPM	
Create and save new document	4.83	4.49	4.29	16.083*
Use font formatting features	4.92	4.61	4.30	16.861*
Use paragraph formatting features	4.81	4.07	3.89	24.892*
Use the mail merge	4.00	2.81	2.64	29.232*
Generate table of content	4.39	3.32	3.18	26.381*
Create an indexing for a document	3.56	2.58	2.61	18.073*
Put a footnote on a document	3.72	2.63	2.78	18.476*
Put an endnote on a document	3.78	2.51	2.75	24.100*
Compile a bibliography	3.56	2.46	2.60	18.039*
Inserting table, picture, smart art, and chart	4.67	4.07	3.82	18.178*
Overall	4.22	3.35	3.29	33.086*

* significant at $p < 0.01$

Table 3 presents the students competencies in spreadsheet application. The competencies among the students from various intake channels appear to be significantly different in all application features measured ($p < 0.01$). Students from the STPM intake channel appear to have a below average level of competency in applying formula, of which is regarded as one of the basic features in spreadsheet application. In addition, these students plus those from Matriculation intake channel rated their level of

¹ We regard functions that include the use the mail merge; generate table of content; create an indexing for a document; put a footnote on a document; put an endnote on a document; and compile a bibliography as the advance features of the word processing application.

competency as below average in dealing with advance features of the spreadsheet application². Students from both intake channels have a low level of competency in all spreadsheet competencies been measured (except for creating and saving data table, format cells and draw chart). Overall, only students from the Diploma intake channels rated their level of competency in using the spreadsheet application as above average.

Table 3 Spreadsheet

Spreadsheet competency	Mean			Chi-Square
	Diploma	Matric.	STPM	
Create and save new data table	4.50	3.68	3.67	10.991*
Format cells	4.44	3.47	3.62	15.754*
Apply formula	3.69	3.00	2.85	10.697*
Apply Excel function	3.72	2.91	3.00	10.400*
Create a worksheet database	3.39	2.39	2.43	16.840*
Use data form to enter data and to find record	3.17	2.26	2.48	14.018*
View data using filter	3.19	2.12	2.24	22.442*
View data using sort	3.22	2.23	2.60	14.860*
Analyze data using database functions	3.08	1.96	2.17	25.833*
Display data that meet comparison criteria	2.97	2.07	2.33	16.716*
Draw chart (pie chart, bar chart etc.)	4.08	3.39	3.34	12.119*
Overall	3.59	2.68	2.79	21.484*

* significant at $p < 0.01$

Table 4 presents the students competencies in database application. The competencies level was relatively low whereby all students rated their level of competency as below average. The result also shows that the difference in the level of competency among students of various intake channels appear to be significant ($p < 0.01$). Apparently, the mean values for all intakes are ranging between poor and average level. Students from the matriculation intake channel with the mean value of 2.03, are the least competent among the three intake channels in handling the database application.

Table 4 Database

Database competency	Mean			Chi-Square
	Diploma	Matric.	STPM	
Create a new blank database	2.97	2.42	2.75	4.449
Create a table and add records	3.14	2.28	2.84	11.158*
Create relationship between tables	2.83	1.93	2.35	12.232*
Set the primary key for table	3.00	1.96	2.37	15.875*
Create form for data entry and data display	2.94	1.89	2.26	18.579*
Apply query to display requirement criteria	2.81	1.82	2.09	19.438*
Prepare report based on the database records	2.83	1.86	2.18	17.804*
Overall	2.93	2.03	2.41	15.614*

* significant at $p < 0.01$

Table 5 presents the students competencies in dealing with PowerPoint presentation. Despite the significant difference in the level of competency among the students of different intake channels ($p < 0.05$), all students rated their competency above the average level.

² We regard functions that include applying function; create a worksheet database; use data form to enter data and to find record; view data using filter; view data using sort; analyze data using database functions; and display data that meet comparison criteria as the advance features of the spreadsheet application.

Table 5 PowerPoint Presentation

Presentation application competency	Mean			Chi-Square
	Diploma	Matric.	STPM	
Create and save the presentation slides.	4.61	4.12	3.91	12.073 *
Work in different views	4.53	3.89	3.76	13.450 *
Change the size and colour of texts.	4.67	4.28	4.12	9.691 *
Apply theme backgrounds.	4.69	4.16	3.94	14.573 *
Embed multimedia elements	4.19	3.77	3.53	6.998 **
Link presentation slides with other files	4.08	3.12	3.25	14.430 *
Deliver presentation using highlighter and pen	4.14	3.28	3.18	15.182 *
Overall	4.42	3.80	3.67	16.239 *

* significant at $p < 0.01$

** significant at $p < 0.05$

Table 6 presents the students' competencies in using the internet and email application. Apparently, the students' level of competency in Internet and email application for all intakes is rated as good. Unlike the previous applications, the level of competency among the students of different intake channels in general, is not significantly different ($p > 0.05$). There is however a significant different in the level of competency among the students in saving an image from Web page; saving information from Web page onto a hard drive; download files from the Internet; create a Facebook site; and send and receive email ($p < 0.05$). Students from the Diploma intake channel rated their competency in using twitter as average whilst the level competency of other intake channels for same is rated as below average.

Table 6 Internet and Email

Internet and email competency	Mean			Chi-Square
	Diploma	Matric.	STPM	
Navigate links	3.75	3.40	3.18	4.861
Conduct a simple search	4.25	3.84	3.81	3.557
Conduct an advanced search	4.00	3.63	3.54	3.328
Create a bookmark / favorites	3.81	3.53	3.67	0.715
Organize bookmarks/favorites by using folders	3.53	3.11	3.39	2.578
Copy and paste text from Web page into document	4.39	4.02	3.99	4.424
Save an image from Web page	4.53	4.18	4.12	6.347**
Save information from Web page onto a hard drive	4.50	4.02	3.85	8.697**
Download files from the Internet	4.67	4.18	3.88	14.212*
Create a blog site.	3.50	3.28	3.20	1.028
Create a Facebook site.	4.61	4.05	3.97	8.091**
Using twitter.	3.00	2.65	2.62	1.930
Send and receive email.	4.81	4.18	4.36	9.781*
Forward email.	4.78	4.00	4.18	11.750
Create an address book.	4.42	3.47	3.62	12.900
Send and receive attachments	4.72	3.95	4.19	8.495
Overall	4.20	3.72	3.72	7.550

* significant at $p < 0.01$

** significant at $p < 0.05$

Discussions and Conclusion

ICT knowledge is important for today's accountant in meeting the current demand in business and accounting environment. The Malaysian public universities required accounting students to register for the ICT introductory courses in the first year of their studies regardless of their intake channels. Altogether, there are five distinctive intake channels namely Diploma, a Matriculation Certificate, Malaysian Higher Certificate of Education (STPM), Malaysian Higher Certificate in Religious Education (STAM), and Malaysian Certificate of Education (SPM). This study aims to investigate the level of ICT competency of new accounting students of the Malaysian public university based on intake channels. The students' level of ICT competency in handling computer applications of word processing, spreadsheet, database, PowerPoint presentation, and Internet and email are measured using a 5-point Likert scale. Questionnaires of 182 new UUM accounting students of three intake channels – Diploma, Matriculation, and STPM – are subsequently analysed.

We found that on overall, students possess sufficient competencies in word processing; PowerPoint presentation; and Internet and email. On contrary, they possess insufficient competencies in database and spreadsheet applications. Related to this, our findings are consistent with Stoner (2009), Al-Khadash & Al-Beshtawi (2009), and Hew & Leong (2011). When it concerns the intake channels, students with a diploma are found to possess the ICT competency better than those from other intake channels. Specifically, the level of competency in word processing; spreadsheet; PowerPoint presentation; and Internet and email of students from the Diploma intake channel are found to be above average, thus sufficient. Likewise, students of matriculation and STPM intake channels are found to possess an above average level of competency in word processing; PowerPoint presentation; and Internet and email. However, their competency in spreadsheet is found to be below average, hence insufficient. In the case of database application, all students regardless of their intake channels were found to be less competent, therefore insufficient.

The findings of this study indicate that level of ICT competency among the students differs. As students from diploma intake channel appear to possess a sufficient level of ICT competency, the educators should give more attention to students of matriculation and STPM intake channels whilst delivering their lecture. In terms of application software, more concentration on spreadsheet and database need to be given. The existing course syllabus would need to be re-evaluated in order to give more emphasize on the areas that shows low competencies. Only then, the students regardless of intake channels would be able to achieve a sufficient level of ICT competency to deal with the respective application software after they graduated.

The findings of this study are subject to limitations. Firstly, the scope of this study is only concentrated on the level of ICT competencies among new intake accounting students, even though the teaching of ICT is integrated into other programmes, and for non-accounting students at the UUM. Secondly, a small number of students were involved in this study, which was due to the time frame of the study. This study was conducted during the second semester intake (December) where the number of students was lower as compared to the first semester intake (July). As previous studies argued that the self assessment is not reliable in measuring computer literacy (see for example Merrit et al, 2005; Ballantine et al, 2007), future research can adopt a different measurement approach such as computer experiment and hands-on test among the students in computer laboratory, in order to get better insight of their ICT competencies. The respondents also could be further extended to cover other universities in Malaysia. It would also be beneficial if future research can investigate factors that influence the level of ICT competencies among the intake channels so much so that measures may be taken to improve these levels.

Acknowledgment

The authors are grateful for the financial grant received from Universiti Utara Malaysia (UUM).

References

- Abdol Latif, L., Bahroom, R., San, M.N., Awang, A.I. & Nik Abdul Rahman, N.N. (2008). *Learners' ability, experience and perception of use of ICT in learning and education: A comparison between Open University Malaysia (OUM) and European universities*. Paper presented at Agria Media 2008 And ICI-8 Information Technology and Education Technology Conference and Exhibition.

- Ahadiat, N. (1999). *Skills necessary for a successful career in accounting*. Pomona, CA: California State Polytechnic University.
- Ahmed, A. (2003). The level of IT/IS skills in accounting programmes in British universities. *Management Research News*, 26(12), pp. 20-58.
- Al-Khadash, H.A. & Al-Beshtawi, S. (2009) Attitudes toward learning accounting by computers: The impact on perceived skills. *Journal of Accounting and Taxation*, 1(1), pp. 1-7.
- Ballantine, J.A., Larres, P.M. & Oyelere, P. (2007). Computer usage and the validity of self-assessed computer competence among first year business students, *Computers & Education*, 49(4), 976–990.
- Burnett, S. (2003). The future of accounting education: A regional perspective. *Journal of Education for Business*, 78(3), pp. 129-34.
- Hanefah, H.M., Ismail, S., Alwi, K., Mohamed, R. & Mat Zin, R. (2004). *The development of accounting education in Malaysia: Pre and post independence*. Paper presented at National Conference on Social Science and IT.
- Hew, T.S. & Leong, L.Y. (2011). An empirical analysis of Malaysian pre-university students' ICT competency gender differences. *International Journal of Network and Mobile Technologies*, 2(1), pp. 15-29. Retrieved from <http://ijnmt.intimal.edu.my/>
- IFAC (1995). *Information technology in the accounting curriculum*. International Education Guideline 11, December, IFAC Education Committee.
- IFAC (2003). *Information technology for professional accountants*. International Education Guideline 11, January, IFAC Education Committee, Revised Version.
- Ismail, N. A. & Salim, B. (2005). Perceptions of accounting academicians toward the issue of information technology integration into the accounting curriculum. *Jurnal Penyelidikan Pendidikan*, 7, 75-88.
- Kasim, M. A. & Mohd Hanafi, S. R. (2008). The existence of audit expectation gap in Malaysia. *Malaysian Accounting Review*, 7(1), pp. 89-106.
- Ling, L.M. & Ahamad Nawawi, N.H. (2010). Integrating ICT skills and tax software in tax education: A survey of Malaysian tax practitioners' perspectives. *Campus-Wide Information Systems*, 27(5), 303-317. doi: 10.1108/10650741011087748
- Merritt, K., Smith, D. & Renzo, J. C. D. (2005). An investigation of self-reported computer literacy: Is it reliable? *Issues in Information Systems*, 6(1), pp. 289-295.
- Monroe, G. S. & Woodliff, D. R. (1994). An empirical investigation of the audit expectation gap: Australian evidence. *Accounting & Finance*, 34, pp. 47–74. doi: 10.1111/j.1467-629X.1994.tb00262.x
- Stoner, G. (2009). Accounting students' IT application skills over a 10-year period. *Accounting Education*, 18(1), pp. 7-31.
- Turner, R. (2003). *IS skills of business students in transition from secondary to tertiary studies*. Informing Science. June, 835-842. Retrieved from <http://proceedings.informingscience.org/IS2003Proceedings/docs/106/Turne.pdf>.
- Wessels, P.L. (2005). Critical information and communication technology (ICT) skills for professional accountants. *Meditari Accountancy Research*, 13(1), pp. 87-104.
- Wong, S. L. & Hanafi, A. (2007). Gender differences in attitudes towards information technology among Malaysian student teachers: A case study at Universiti Putra Malaysia. *Educational Technology & Society*, 10(2), pp. 158-169.