THE ICT COMPETENCIES OF NEW ACCOUNTING STUDENTS OF DIFFERENT ADMISSION CRITERIA: THE CASE OF SRI LANKAN PRIVATE UNIVERSITY

P.A.B.H AMARATHUNGA[1], DR. SHAMITHA PATHIRATNE[2]

[1]Lecturer, Faculty of Business Studies and Finance, Wayamba University, Lional Jayathilake Mawatha, Kanadulla, Kuliyapitiya . (buddhini@wyb.ac.lk)

[2]Dean, Faculty of Computing, ESOFT Metro Campus, No 29/1, Milagiriya Avenue, Colombo 04. (samitha8@yahoo.com)

Abstract

The current trend in business and accounting settings requires an accountant who is an ICT literate. International Federation of Accountants (IFAC) published the International Inculcation Guidelines that include ICT erudition and competency requisites for professional accountants. These guidelines are intended to avail its member bodies in preparing professional accountants to work within the ICT environment. Amid others, the strategies highlight the ICT erudition and competency requisites for the accountants vis-a-vis the ICT users. This study aims to investigate the level of information and communication technology (ICT) competency possesses by new accounting students at the Private University in Sri Lanka according to their Admission Criteria. 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 Foundation Diploma Admission Criteria are found to possess the ICT competency better than those from other Admission Criteria. The competency of students from London AL and GCE A/L Admission Criteria in spreadsheet is found to be below average. All students regardless of their Admission Criteria were found to be less competent in Database Management System (DBMS).

Key Words: Accounting, Admission Criteria, Competency, ICT, Undergraduates

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 Inculcation Guidelines that include ICT erudition and competency requisites for professional accountants. These guidelines are intended to avail its member bodies in preparing professional accountants to work within the ICT environment. Amid others, the strategies highlight the ICT erudition and competency requisites for the accountants vis-a-vis the ICT users. Accountants must possess skills such as Operating Systems (OS), Word Processing Applications, Spreadsheet Applications, Presentation Software, Internet implements, Research implements, Image processing and enhancement applications, Database Management Systems, Accounting Applications, Tax return preparation Packages, time management , billing cum point of sale (POS) Application and erudition work

systems (IFAC, 1995, 2003; Wessels, 2005). Cognate to this, Hanefah et al (2004) posited that several latest technology competencies that should be employed to the accounting graduates comprise, accounting Applications, communication Applications, Information System (IS) and orchestrating, World Wide Web probing, Windows, Word processing software, Presentation, software, e-commerce, Spreadsheet Packages , Technology supervision and costing.

Incipient accounting students of the university is required to register for an ICT initiatory courses in the very first year of their study. This is true regardless of their caliber of ICT competency whilst entering the university. There are Three distinctive Admission Criteria for incipient accounting students for the university namely Foundation Diploma, a General Certificate of Secondary Education(GCSE) Advance Level Commonly kenned as London AL , General Certificate of Education Advanced Level (GCE A/L). Among them, students who hold a Foundation Diploma are believed to possess ICT competency better than the rest. The reason is simply because the Foundation Diploma holders had undergone the ICT courses at their antecedent higher cognition institutions. This indirectly betokens the caliber of ICT competency of students from different Admission Criteria differs.

It is paramount to examine the ICT competencies among the incipient accounting students of different Admission Criteria to determine whether or not they possess a sufficient level of ICT competency. Suppositiously the students are found to possess sufficient level of ICT competency, the ICT initiatory courses could be then superseded with more advanced options. In the occurrence where the students are diagnosed to be less competent then an orchestration of actions can be developed to amend their competencies. The authors are not cognizant of anterior studies discussing the ICT competencies of the incipient accounting students in the university predicated on Admission Criteria.

Thus, this study endeavors to answer the following research question, namely what is the caliber of ICT competency of incipient accounting students of different Admission Criteria prior to entering the university?

This study has two broad objectives. First, to determine the caliber of ICT competency of incipient accounting students in the university predicated on Admission Criteria. Second, this paper avails in identifying the area of ICT competencies that the incipient accounting students of different Admission Criteria are destitute.

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 span. He discovered that the scholars' 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, ameliorated rapidly over the period of studies. However, the database and spreadsheet competencies among the students according to him are inadequate.

In a cognate study, Al-Khadash & Al-Beshtawi (2009) investigate the impact of learning accounting by computers on students' perceived skills, and additionally the efficacy of edifying undergraduate accounting student's courses in utilizing computer in accounting. Predicated on the survey from 463 accounting scholars in five universities in Jordan, they reported that the students had a general level of competency in typing and handling Word Processing packages. The competency of the students in Spreadsheet Applications and Statistical analysis Applications were measured as low.

In the US, Ahadiat (1999) examines the employers' standpoint on the competencies own by the accounting graduates. He scrutinized the survey from 99 graduates who graduated within the span of two years from Cal Poly University. He stated that the ICT is among the most paramount competencies required by the private industry from the university graduates. Additionally in the US, Burnett (2003) surveyed 32 employers and 76 CPA members to ascertain which skills are paramount for incipient graduates and which scholastic innovations are efficacious. He reported that the four top-rated professional skills were analytical/critical cerebrating; indited 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 edifying or undertaking research in IT and/or IS (information system). The purport of his study was to identify what IT/IS skills and erudition 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 additionally sought to discover what caliber of IT/IS skills are currently included in accounting programmes and what IT/IS skills are liable to be edified in three years' time. The results show that accounting inculcation does not equip the students with enough IT/IS skills for their role beyond graduation in their employment. A gap subsists between the IT/IS skills that students learned in accounting inculcation at University level and what accountants practice in the authentic world with regard to IT/IS.

Abdol Latif (2008) studied the awareness of 457 scholars' on the utilization of ICT in studying at Open University of Malaysia by inspecting their abilities and experiences, with a vision to classifying the regions in augmenting the efficacy

of e-learning. The researcher has discovered that a moiety of the students were able to utilize without having to seek support, the four packages, namely Word Processing Application; email client ; Presentation application; and Database Management System.

In another study, Ling & Ahamad Nawawi (2010) examined the ICT skills desired by a fresh accounting alumni obtain new employment in a tax firm; to ascertain utilization of electronic tax (e-tax) applications in tax practice; to evaluate the ranking of senior tax practitioners on new alumnae's ICT and e-tax applications skills; and to solicit tax practitioners' estimation regarding assimilating ICT skills and tax software into a tax course. The survey involved 112 tax practitioners. They recommended that the fresh alumni should be habituated with Spreadsheet, Word Processing and e-mail applications.

In a cognate study, Ismail & Salim (2005) examined the perceptions of 76 accounting educators of 9 public and private higher cognition institutions in Malaysia offering accounting degree program, toward the issue of ICT integration into their accounting curriculum. The results designated that most accounting educators are slaked with the ICT infrastructure, Assistance and gratitude received from their head of department and colleagues. Many of them apperceived the paramountcy of ICT cognizance and skills in enhancing the future of the accounting vocation. However, they expressed their dissatisfaction on several technical aspects of the ICT integration such as inadequacy of application software, network accommodations, technical fortifies, and allocation of IT-cognate training. Many of them felt that the extent of IT erudition and skills integration with the accounting curriculum is still not sufficient.

Method

The researchers has distributed the questionnaires to 186 first year students studying for a Bachelor of Accounting(Honors) and Bachelor of Accounting (IS) (Honors) of private university in Colombo, Sri Lanka. The students were asked to answer the questionnaires with the attendance of the researchers. This is to obviate the students from leaving the questions in the questionnaires unanswered. Notwithstanding this effort, only 185 out of 186 questionnaires are utilizable for further scrutinizing's. Another 3 questionnaires were subsequently incomplete and omitted from the study leaving the final to 182.

The researchers has replicated and modified the questionnaire of Turner (2003) to suit the Sri Lankan higher edification environment. The questions are verbally expressed in both Sinhalese and English languages. This selfassessment questionnaire was divided into three components, namely Part A, B and C. Part A is utilized to amass demographic information such as gender, age and prior inculcation history. In Part B, students were asked to rate their cognizance of ICT hardware/ application software and the frequency of utilizing those ICT hardware and software utilizing the five point Likert scale ranging

from 1-point (nescient/ never use) to 5-point (vigorously vigilant/ always use). Lastly, Part C required respondents to rate their ICT competencies in utilizing Windows, Word Processing, Spreadsheet, presentation application, Database, and the Internet and email utilizing five point Likert scale from 1point (poor) to 5-point (excellent).

Data obtained from the survey were analyzed utilizing a statistical analysis program of SPSS version 19. The distribution of replications was tested for normality utilizing the Kolmogorov-Smirnov one-sample test. The data was found to be not mundanely 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 acclimated to test for differences in the caliber of ICT competencies between the three different Admission Criteria (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 origin, mainstream of the undergraduates are Sinhalese, represented by 56.6%, followed by Tamil (37.4%), Muslim (3.3%) and other ethnic (2.7%). Majority of the students emanated from the GCE A/L Admission Criteria (48.9%), whereas London AL and Foundation Diploma Admission Criteria 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	Sinhalese	68	37.4
	Tamil	103	56.6
	Muslim	6	3.3
	Others	5	2.7
	Total	182	100.0
Admission Criteria	Foundation Diploma	36	19.8
	London AL	57	31.3
	GCE AL	89	48.9
	Total	182	100.0

Table 2 presents the students competencies in Word Processing application. Students from the London AL and GCE A/L Admission Criteria rated their competencies as subpar in dealing with the advance features of the application.

Apart of that, all students rated their competencies above the average level. This is true despite of the consequential differences in the caliber of competency between students of different Admission Criteria ($p<0.01$). Overall, the caliber of competency of students from the Foundation Diploma Admission Criteria, as reflected in the mean value, is higher than the London AL and GCE A/L Admission Criteria.

Table 2 Word Processing

	Mean			
Word Processing competency	Foundation Diploma	Matric.	GCE A/L	Chi-Square
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 Package. The competencies amid the students from sundry Admission Criteria appear to be expressively different in all application features quantified ($p<0.01$). Students from the GCE A/L Admission Criteria appear to have a subpar level of competency in applying formula, of which is regarded as one of the rudimental features in Spreadsheet Package. In additament, these students plus those from London AL Admission Criteria rated their caliber of competency as subpar in dealing with advance features of the Spreadsheet Package. Students from both Admission Criteria have a low caliber of competency in all Spreadsheet competencies been quantified (except for engendering and preserving data table, format cells and draw chart). Overall, only students from the Substructure Diploma Admission Criteria rated their caliber of competency in utilizing the Spreadsheet application as above average.

Table 3 Spreadsheet

Spreadsheet competency	Mean			Chi-Square
	Foundation Diploma	London AL	GCE A/L	
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 Management System (DBMS). The competencies level was relatively low whereby all students rated their caliber of competency as subpar. The result withal shows that the difference in the caliber of competency among students of sundry Admission Criteria appear to be consequential ($p<0.01$). Ostensibly, the mean values for all intakes are ranging between poor and average level. Students from the London AL Admission Criteria with the mean value of 2.03, are the least competent among the three Admission Criteria in handling the Database Management System (DBMS).

Table 4 Database

Database competency	Mean			Chi-Square
	Foundation Diploma	London AL	GCE A/L	
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 paramount difference in the caliber of competency among the students of different Admission Criteria ($p<0.05$), all students rated their competency above the average level.

Table 5 PowerPoint Presentation

	Mean			Chi-Square
PowerPoint Presentation competency	Foundation Diploma	London AL	GCE A/L	
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 color 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 utilizing the cyber world and email application. Ostensibly, the students' level of competency in Internet and email application for all intakes is rated as good. Unlike the antecedent applications, the caliber of competency among the students of different Admission Criteria in general, is not significantly different ($p>0.05$). There is however a paramount different in the caliber of competency among the students in preserving an image from Web page; preserving information from Web page onto a hard drive; download files from the Internet; engender a Facebook site; and send and receive email ($p<0.05$). Students from the Foundation Diploma Admission Criteria rated their competency in utilizing twitter as average whilst the caliber competency of other Admission Criteria for same is rated as subpar.

Table 6 Internet and E-mail

Internet and E-mail competency	Mean			Chi-Square
	Foundation Diploma	London AL	GCE A/L	
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 cognizance is consequential for today's accountant in meeting the current demand in business and accounting environment. The University requisite is that accounting students to register for the ICT exordial courses in the first year of their studies regardless of their Admission Criteria. Altogether, there are three distinctive Admission Criteria namely Substructure Diploma, a General Certificate of Secondary Education (GCSE) Advance Level, General Certificate of Education Advanced Level (GCE A/L). This study aims to investigate the caliber of ICT competency of incipient accounting students of a private university predicated on Admission Criteria. The students' level of ICT competency in handling computer applications of Word Processing, Spreadsheet, Database,

PowerPoint presentation, and Internet and email are quantified utilizing a 5-point Likert scale. Questionnaires of 182 incipient accounting students of three Admission Criteria – Substratum Diploma, London AL, and GCE A/L – are subsequently analyzed.

It has been discovered that on whole, undergraduates have adequate competencies in Word Processing; PowerPoint presentation; and Internet and email. On conflicting note, undergraduate have deficient competencies in Database and Spreadsheet Packages. Cognate to this, our findings are consistent with Stoner (2009), Al-Khadash & Al-Beshtawi (2009), and Hew & Leong (2011). When it concerns the Admission Criteria, students with a Substratum Diploma are found to possess the ICT competency better than those from other Admission Criteria. Concretely, the caliber of competency in Word Processing; Spreadsheet; PowerPoint presentation; and Internet and email of students from the Foundation Diploma Admission Criteria are found to be above average, thus sufficient. Likewise, students of London AL and GCE A/L Admission Criteria are found to possess an above average level of competency in Word Processing; PowerPoint presentation; and Internet and email. Though, undergraduate's competency in Spreadsheet is found to be subpar, hence inadequate. In the case of Database Management System (DBMS), all students regardless of their Admission Criteria were found to be less competent, therefore insufficient.

The findings of this study designate that caliber of ICT competency among the students differs. As students from Foundation Diploma Admission Criteria appear to possess a sufficient level of ICT competency, the educators should give more attention to students of London AL and GCE A/L Admission Criteria whilst distributing their lecture. In positions of application software, additional attentiveness on Spreadsheet and DBMS need to be given. The subsisting course syllabus would require to be re-evaluated in order to give more accentuate on the areas that shows low competencies. Only then, the students regardless of Admission Criteria 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 inhibitions. Firstly, the scope of this study is only concentrated on the caliber of ICT competencies among incipient intake accounting students, albeit the edification of ICT is integrated into other programmes, and for other undergraduates students at the University. Secondly, a minute number of students were involved in this study, which was due to the undergraduate batch of the study. This study was conducted during the second semester intake (August / September) where the number of students was lower as compared to the first semester intake (January / February).

As anterior studies argued that the self-assessment is not reliable in quantifying computer literacy (Merrit, 2005 and Ballantine, 2007), future research can implement a different quantification approach such as computer practical's and hands-on test amid the students in computer laboratory, in directive to acquire improved understanding of their ICT competencies. The respondents withal could be further elongated to cover other public and private universities in Sri Lanka. It would additionally be benign if future research can investigate factors that influence the caliber of ICT competencies among the Admission Criteria so much so that measures may be taken to ameliorate these calibers.

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 preuniversity 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. 289295.

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. 731.

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. 158169.