

INFORMATION TECHNOLOGY IN ACCOUNTANCY CURRICULA: NECESSITY OR AFTERTHOUGHT

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—Abstract—

Information technology (IT) forms an integrated part of everyday life. The South African Institute of Chartered Accountants (SAICA) has continuously outlined in their Competency Framework that IT is integrated into every task of a Chartered Accountant (CA) candidate. This, together with the ever-changing IT environment, makes the exposure of students to IT in an educational environment more important than ever. This study investigates whether the inclusion of IT in the Accountancy curricula is necessary or whether it is only an afterthought. A mixed-method research approach was used and a questionnaire was developed and administered to 15 SAICA-accredited universities and training offices. The qualitative data collected from these participants were *priori* coded by the Statistical Package of the Social Sciences (SPSS©) based on pre-populated codes and themes identified from the literature. The comprehensive literature study and the analysis of data collected illustrated that it is evident that even though IT is important in our daily lives, IT in Accountancy education may be inadequate. The results indicated that the respondents agree on the importance of the inclusion of basic spreadsheet and word-processing software in the Accountancy curricula. Therefore, the inclusion of IT cannot only be an afterthought, but should be well planned.

Key Words: IT, Accountancy curricula, Competencies, Employers, SAICA

JEL Classification: M40/41

1. INTRODUCTION

A concept emphasised continuously by the governing body of Chartered Accountants (CA(SA)s), the South African Institute of Chartered Accountants (SAICA) (2010:18; 2014a:16), is the importance of information technology (IT) in almost every aspect of CA candidates' (students and accountancy trainees) tasks. Due to the importance of IT, SAICA included in their Competency Framework guidelines (SAICA, 2010:26,30; 2014a:34,40), as part of the pervasive qualities and skills a CA candidate needs to achieve, a specific section

on IT. A seminal approach indicated that in the Accountancy curricula there is an over-emphasis on technical abilities (Accounting Education Change Commission (AECC), 1990; Adler and Milne, 1997:191,199; International Federation of Accountants (IFAC), 1996), which is supported by Pan and Seow (2016:171-172).

It was suggested that to develop additional skills as required by employers, educators should introduce other alternatives. Additional skills gained by students will aid in the concept of life-long learning when they become accountancy trainees, as emphasised by Jones and Sin (2003:141-144). As employers expect a certain level of IT competence from potential accountancy trainees, and because the IT environment is ever-changing, the fundamental skills and competencies gained from an academic perspective will ensure the compliance with employer needs and requirements, including IT (Corbett and Willms, 2002:8), which will ultimately *“enable the professional accountant to make successful use of the knowledge gained through education”* (Lee and Blaszczynski, 1999:104).

Mutula (2010:79) states that due to changing technology and learning environments, many universities are not preparing students with the required IT competencies that will ultimately equip them for the workplace. The SAICA Competency Framework provides a high-level outline on all the required competencies, including IT, which a potential CA candidate should master (SAICA; 2014a). This guideline also provides SAICA-accredited universities with the necessary information to develop their teaching and learning strategies and to place the correct emphasis on the appropriate content. As SAICA permits universities the freedom to develop and design their Accountancy curricula in a way that best suits their needs, (SAICA, 2010:7-8), it is challenging to determine at what IT competency level an accountancy student should enter the workplace as a trainee.

Research by Jackling and De Lange (2008:373-374), Kavanagh and Drennan (2008:283-284) and Leggett, Kinnear, Boyce and Bennett (2004:369) focuses on the general skills of accountancy graduates and accountancy trainees, which serves as an indication that limited research has been done on the specific IT competencies of accountancy trainees in the workplace. This study aims to investigate whether the inclusion of IT in the Accountancy curricula is regarded as a necessity from a university perspective or whether it is only being taught as an afterthought.

1.1. University needs

Brown, Bozalek, Gachago and Wood (2016:1) identified that, from 2006, there has been a significant shift in the use of IT in teaching and learning. The main reason for this change is that universities want to prepare future generation students for emerging technologies (Broekman, Enslin and Pendlebur, 2002:29). All universities are using information and communication technologies (ICTs) to some degree in their teaching with a wide spread of technology tools being utilised in different ways (Gachago, Ivala, Backhouse, Bosman, Bozalek and Ng'ambi, 2013:97). Cretchley (2007:29) explains that a student's exposure to IT throughout his/her studies will directly affect his/her utilisation thereof.

The use of technology is identified as one of the major problems affecting the Accountancy curricula, because the curricula are too detailed and technical, which will ensure that an effective accountant is produced, but not the right candidate with the necessary skills for the workplace (Albrecht and Sack, 2000:3; Nori, Kassim, Ahmad and Nasir, 2016:3315). The importance of IT in an Accountancy curriculum has been echoed by many researchers throughout the past 20 plus years (AECC, 1990; Romney, Cherrington and Denna, 1996:57). The inclusion thereof is perceived by Theuri and Gunn (1998:101) as a necessity to ensure that the future and ever-changing needs of accountants and accountancy students are met.

The implementation of different IT subjects at universities to improve current Accountancy curricula should be evaluated, as some IT topics receive low importance ratings due to the lack of collaboration between universities and employers on the importance thereof (Chang and Hwang, 2003:448-449). The need for specific courses on IT and the teaching of how to effectively use technology could lead to an improved Accountancy curriculum (Albrecht and Sack, 2000:2; Richard, 1993:24; Williams, 1993:76,208). The current overloading of Accountancy programmes leaves little to no room for additional IT courses to be introduced (Chang and Hwang, 2003:445). This notion leads to their suggestion that IT should be integrated into the current Accountancy curricula modules. The integration of IT will further lead to Accountancy curricula being more analytical and interdisciplinary as IT systems will then not only be taught as a separate technical function, but will also be used to analyse information and for decision-making (Howieson, 2003:69). He further explains that it is important to identify what skills and competencies should be included in an IT course as a first

step to bridge the gaps between academic processes and ultimately employer needs.

1.2 SAICA requirements

The first version of SAICA's Competency Framework only included specifics to the extent that a potential CA(SA) should be able to "*understand how IT impacts a CA's daily functions and routines*" (SAICA, 2010:30). The 2014 update specifies a list of appropriate software that an accountancy trainee should be able to use at a basic level within a relevant accounting/business context (SAICA, 2014a:40). It is evident that it is a SAICA requirement for accountancy students to be taught the mentioned IT software and tools during their studies; however, it is not clear how these are taught. One of the factors contributing to this ambiguity is the fact that more creative freedom is left to universities to design their curricula to suit their specific needs (SAICA, 2010:16; 2014a:22).

With their constant changing and reviewing of key aspects within their educational programmes, training programmes and professional examinations, SAICA (2014a; 2015) embraces the constant changes in knowledge and skills (Novin and Pearson, 1994:54) associated with the ever-changing workplace requirement changes (Albrecht and Sack, 2000:2) and strives to maintain their standards and to keep their qualification up to date.

1.3 Employer requirements

In a 2011 study, 68 percent of Accountancy practitioners agreed on the importance of IT in an Accountancy curriculum (Wally-Dima, 2011:13,17). Other reasons identified for the inclusion of IT in an Accountancy curriculum are so that employers can maintain their competitive strengths and to employ people who will be able to function in an IT-dominant environment (Theuri and Gunn, 1998:101-102), so that accountancy trainees do not become underqualified business advisors (Allen, 2000:152), that accountancy trainees hit the ground running and, due to increased market competition, time constraints are placed on the training of new employees (Siegel, Sorensen, Klammer and Richtermeyer, 2010:44). Wally-Dima (2011:10-11) postulates that limited research is available on the specific types of knowledge and skills employers expect Accountancy students to have when they enter the workplace. There exists an expectation from employers on what their accountancy trainees should be able to do when they enter the workplace. Stumke (2014:137) summarises the general comments of

employers on their views regarding the IT competencies of students and accountancy trainees in Table 1.

Table 1: Employer views on student and accountancy trainee IT competencies

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| <ul style="list-style-type: none"> • Less theory and more practical hands-on competencies relevant to the requirements of the business world. • I think trainees must learn how to do an audit in a paperless environment. • As businesses become more virtually operated and transactions more automated, IT awareness is critical to being effective. Trainees would be disadvantaged when having to learn IT skills only when employed; this could influence the intake depending on university IT incorporation. • So important. Students do not know how to manipulate data to use it to their advantage, resulting in inaccurate information. • The trainees should be on at least a basic level when they arrive at work. The level currently is too low. Some have never been exposed to Excel and Word. • Excel is vital. • Too much time goes into training staff to execute the basics in software tools. • To a great extent I find that trainees rely on IT to do the ‘thinking’. They are data capturers and do not understand the accounting or other processes behind the IT tool. Too much reliance is put on IT to produce the correct answer instead of using it to aid in processing time. • The trainees have IT skills but not specifically pertaining to the work they do. |
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Source: Stumke: 2014:137

The strong message evident from Table 1 is that even though students and accountancy trainees have IT skills, those skills are either at a very low level or not relevant to their work environment. The lack of skills on basic operating systems forces employers to train students when they start employment and, as indicated, this may sometimes lead to them not being employed in the first place.

The teaching method at universities may not expose students adequately to ensure that they possess the required IT competencies for the workplace. This leads to the notion of including specific IT competencies into the Accountancy curricula. It may, however, prove to be difficult as the current curricula are already overloaded and focus more on technical competencies. If thought is put into how different IT competencies could be linked to already existing Accountancy modules, the inclusion thereof may prove to be possible and will lead to the Accountancy curricula being more analytical and interdisciplinary.

When taking previous research into consideration, as well as SAICA’s changing Competency Framework and the views of employers, it can be viewed that the Accountancy curricula, as they are currently structured, may not be structured

sufficiently to include IT competencies as expected for the workplace. The aim of this study is to identify whether the inclusion of IT in an Accountancy curriculum is regarded by universities as a necessity or whether it is just being taught to comply with SAICA's requirements; therefore, an afterthought.

2. METHODOLOGY

The study used a mixed-method research approach, consisting of both qualitative and quantitative methods. Creswell, Ebersöhn, Eloff, Ferreira, Ivankova, Jansen, Nieuwenhuis, Pietersen, Plano Clark, and van der Westhuizen (2010:110) and Welman, Kruger and Mitchell (2012:214) argue that the main purpose of the qualitative method is to identify themes and patterns, ideas, concepts, behaviours, interactions, incidents, terminology or phrases to interpret and simplify the words. Data collection should be limited to manageable and understandable texts that should then be organised into orderly categories to then be summarised as to bring meaning to the concepts in a process known as coding (Creswell *et al.*, 2010:110; Welman *et al.*, 2012:213-214).

In contrast to the qualitative method, quantitative research is presented in numbers and not in language and is where structured methods are used to identify and evaluate trends and relationships between variables (Creswell *et al.*, 2010:258; Welman *et al.*, 2012:52). The random selection of participants from a large population is the ideal way in which the variables should be gathered (Welman *et al.*, 2012:52). The target population for this study focused on four main respondent groups, i.e. accountancy students, accountancy trainees, accountancy lecturers and employers with the sample being based on all the 15 SAICA-accredited universities (SAICA, 2014b) and training offices (SAICA, 2014c) as listed in 2014. The 15 SAICA-accredited universities are: Monash South Africa, Nelson Mandela Metropolitan University, North-West University, Rhodes University, University of Cape Town, University of Fort Hare, University of Free State, University of Johannesburg, University of KwaZulu-Natal, University of Limpopo, University of South Africa (UNISA), University of Stellenbosch, University of Pretoria, University of the Western Cape and University of the Witwatersrand (SAICA, 2014b).

A questionnaire was developed and administered for the quantitative section of the mixed-method approach (Creswell *et al.*, 2010:158-168). The main themes of the questionnaire, as deduced from the literature, were divided into five main categories, i.e. 1) demographic information: questions relating to the participant's

home language, year of study/employment, ethnic group, curriculum enrolled for and employment level; 2) exposure to and use of IT: questions relating to the technology devices participants own and have access to and how often they are used; 3) perception of IT competencies: questions relating to the participants' own perceived level of IT knowledge based on different software applications; 4) actual IT competencies: following on Section C, participants were tested on their actual IT competencies by means of short questions having to be answered; and 5) IT integration and gap analysis: questions relating to the IT preparedness of accountancy trainees, how IT should be taught at university level and employers' views regarding the competency levels of accountancy trainees entering the workplace. All the close-ended questions included in the different sections were based on a Likert scale of four as proposed by Creswell *et al.* (2010:168). The questionnaire was administered on SurveyMonkey®, with the guidelines of Creswell *et al.* (2010:167) and Welman *et al.* (2012:174) in mind. The data gathered from the questionnaires were *priori* coded organising the different concepts into logical categories to encapsulate and bring meaning to those concepts, based on the views of Creswell *et al.* (2010:105-109), Henning (2014:104-114) and Welman *et al.* (2012:214). This coding method was used as the codes were identified through the codes from previous studies similar to this study already performed before the data was analysed (Creswell *et al.*, 2010:107; Mouton, 2011:174).

3. ANALYSIS AND INTERPRETATION OF DATA

As the questionnaire was sent out to four participant groups, the data gathered were *priori* coded by the Statistical Package of the Social Sciences (SPSS©) software based on the codebook that had to be prepared before any data could be entered into the SPSS© system. Each question was assigned a unique variable name and numeric values were assigned to the different response types to simplify the data. The different sections of the questionnaire were dealt with separately to ensure meaningful information was reported on. The final codebook, as generated by the SPSS© system, was exported to MS Excel from which the data was compared and further analysed.

3.1 Data analysis

As with any voluntary questionnaire, the number of responses could not be controlled, because the willingness of participants to complete the questionnaire rested solely on the participants themselves. The composition of the responses

comprises 18 percent students, 4 percent lecturers, 60 percent accountancy trainees and 18 percent employers.

Because the method of teaching at universities is evolving with the inclusion of different IT platforms, we need to identify whether universities have the necessary facilities available to enable students' exposure to IT and ultimately displaying their view on the importance of IT. Participants had to select all their access locations to technology from the following list: at home, at work/school/university, at the gym, at an Internet café or at other locations. Linking to the access locations, participants also had to select all the device(s) they own or have access to from the following list: laptop/netbook, desktop computer, tablet, smart phone or e-reader.

Table 2: Summary on IT availability to students

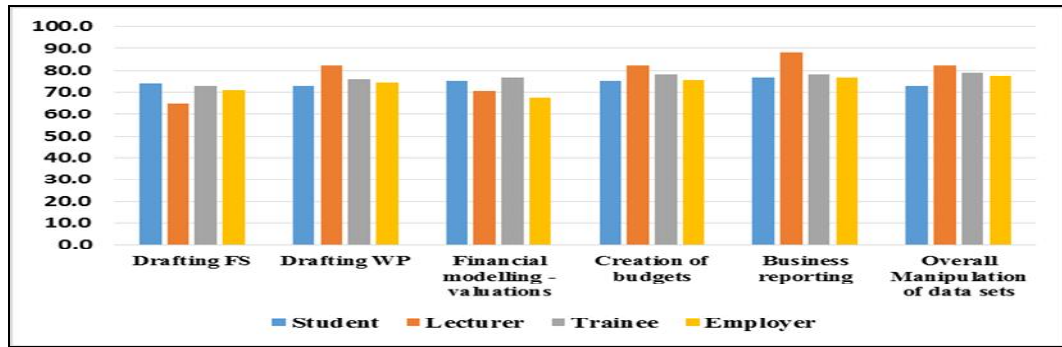
	1	2	3	4 and more
Places of access to technology	69%	4.8%	13.8%	12.4%
Number of devices owned/have access to	17.9%	35.7%	35.7%	10.7%

Source: Stumke: 2014:95-96.

Table 2 shows that 69 percent of students partaking in this study have access to technology in only one location and 82.1 percent have access to more than one technology device. This leads to the concern that if students are perhaps not on campus, they may not be able to effectively utilise IT resources for their required tasks. Although there are IT facilities available at universities, due to reasons outside the control of universities, such as limited computer access times, lack of devices available to students and malfunctioning of equipment, students may not have the necessary access thereto. This may hamper students in their studies and workplace development.

Different types of computer software are used by different stakeholders, but at a minimum they agree on the importance of basic spreadsheets and word processing software within the Accountancy curricula. The basics within the mentioned software were considered to identify the preferences of all participants with regard to what the basics should include or how the basics should be taught.

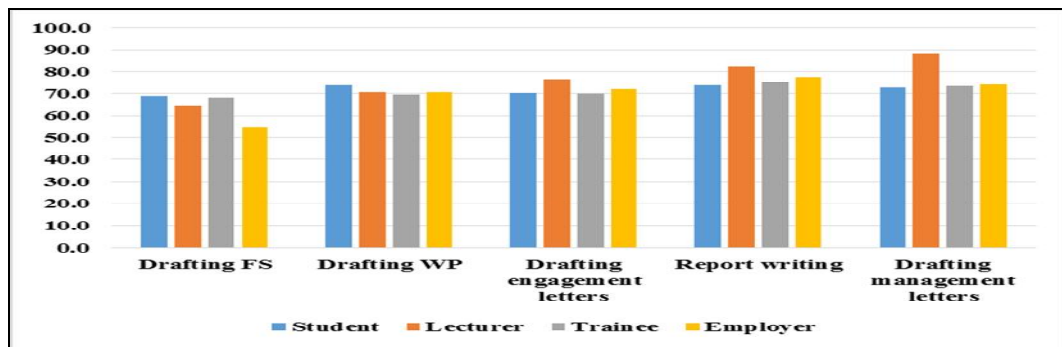
Figure 1: Inclusion in curricula of specific spreadsheet software



Source: Stumke: 2014:102-103

Figure 1 illustrates that students, accountancy trainees and employers agree to the same extent on the importance of the specific spreadsheet competencies that students should be taught. Contrary to this, the lecturers who agree both to a lesser and in two cases to a greater degree on the importance of specific spreadsheet competencies leads to the ‘teachers’ having a different view as to what should be taught to students being in direct contrast with what employers expect.

Figure 2: Inclusion in curricula of specific word processing software



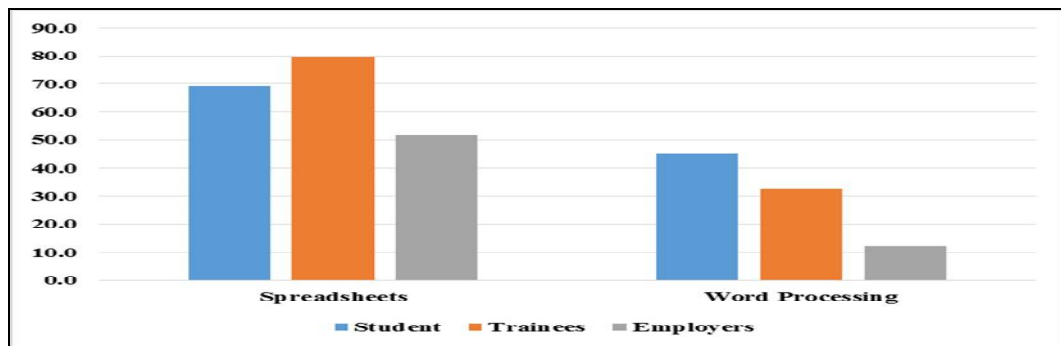
Source: Stumke: 2014:104-105

Figure 2 illustrates the agreement between students, accountancy trainees and employers, with the exception of one competency, on the degree of importance of inclusion of specific word processing software. Lecturers ranked the different

competencies from a lesser to a greater degree of importance, again, leading to a discrepancy between the ‘teachers’ and what is expected by employers.

Based on the perception of students and accountancy trainees in comparison to the perceptions of employers and then considering the actual knowledge of the students and accountancy trainees who participated in this study, it can be identified what the current levels of competencies are for different basic computer competencies and where employers feel that students and ultimately accountancy trainees are not adhering to their requirements. Students and accountancy trainees rated their own perceived knowledge where employers rated that of their accountancy trainees, based on the SAICA requirements, and this was then compared to a test of their actual knowledge in these areas. The questions included in the questionnaire tested the basic skills one would expect a student and accountancy trainee to have mastered.

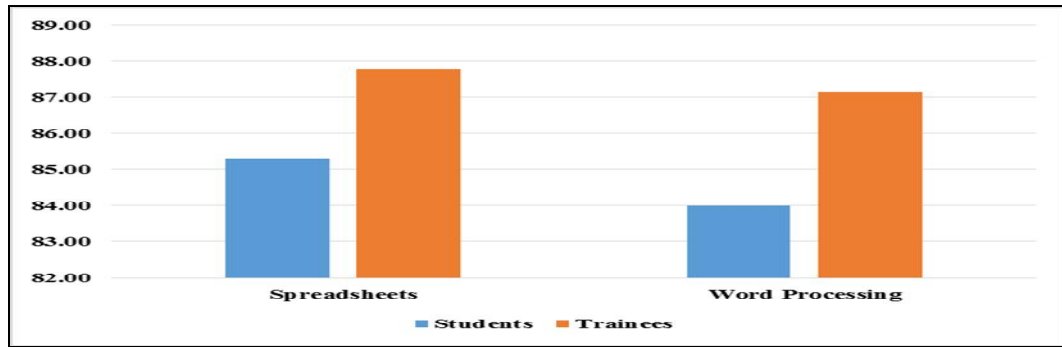
Figure 3: Perceived knowledge



Source: Stumke: 2014:117,120

Figure 3 assesses that, overall, employers perceive students and their accountancy trainees’ knowledge to be much lower than what they perceive their own knowledge levels to be. The clear discrepancy is where accountancy trainees perceive their spreadsheet knowledge more than 25 percent higher than their employers do. The results indicated that the accountancy trainees feel that they are up to par with their knowledge, whereas employers tend to disagree. In order to test the perceptions of the students and accountancy trainees and to bring it into perspective with their actual knowledge, they were evaluated with a quiz based on a basic spreadsheet and word processing.

Figure 4: Actual knowledge test (answered questions correctly)

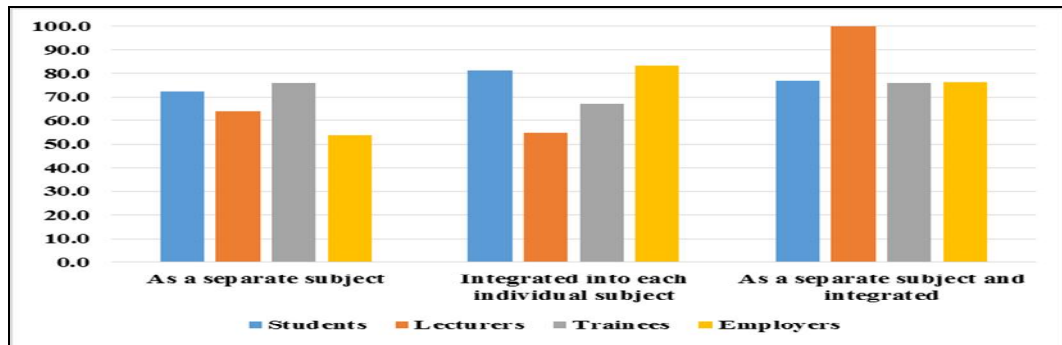


Source: Stumke: 2014:122-129

Figure 4 illustrates that students and accountancy trainees are knowledgeable on the basic spreadsheet and word processing competencies. When this is viewed with the perception of employers as indicated in Figure 3, it serves as a further indication that the Accountancy curricula, specifically IT competencies, are possibly not designed with employers’ needs in mind.

The method of inclusion of IT in the Accountancy curricula, which is already overloaded, should be considered. There are three options for the effective inclusion of IT in a curriculum. Firstly, as a separate subject; secondly, being integrated into modules already presented; and thirdly, being a separate subject as well as integrated into each module.

Figure 5: Preferred method of including IT in an Accountancy curricula



Source: Stumke: 2014: 131-132

It can be concluded from Figure 5 that all participant groups have different views on how IT competencies should be taught at university level. The views of employers should be considered in curriculum design to ensure that students and ultimately accountancy trainees are produced who are perceived by employers as workplace ready.

4. FINDINGS

SAICA and previous research emphasise that basic competencies and skills should be mastered by students and accountancy trainees. If students are not taught these basic IT skills at a university level, the chances of them utilising such skills as accountancy trainees and continuing with life-long learning in their careers become questionable. It is also suggested that the inclusion of IT in Accountancy curricula would most probably be more effective if it is integrated into already developed accountancy modules due to the already overloaded Accountancy curricula at universities. The difficulty of measuring the inclusion of IT in an Accountancy curriculum is perpetuated by the freedom given to universities to develop their own curricula.

It is evident from the research results that the availability of IT at universities may not be sufficient to equip students to utilise IT to their advantage. Some problem areas identified are limited IT resources, as well as the differences in perceptions between the lecturers and employers on the importance of certain competencies. This may lead to the sentiment that universities may not be placing sufficient emphasis on the importance of IT. Employers' perceptions are that students and trainees do not possess the appropriate IT competencies. The lack of appropriate IT competencies may be due to the current overload of technical competencies of the Accountancy curricula. As universities are preparing students for the workplace, the inclusion of IT in the Accountancy curricula can therefore not only be an afterthought, but should be well planned taking into consideration the views and needs of all stakeholders. This study may highlight to Accountancy curricula developers the need to revise the method of inclusion of IT in the curricula to ensure the proper IT training of students for the workplace through the establishment of an advice committee comprising representatives of universities and employers, supported by SAICA. When and how IT should and could be integrated into an Accountancy curriculum should be considered.

5. LIMITATIONS

The limited availability of local and recent literature on the specific IT competencies of accountancy trainees and the voluntary completion of the questionnaires, which resulted in a small representation of the four participant groups, were the main limitations to this study.

6. AREAS OF FURTHER RESEARCH

Further research should be conducted on how SAICA-accredited universities are teaching IT to their students. At what level and when the different IT competencies are taught should also be investigated. This could lead to a better understanding of where the gap and/or necessity lies within universities on the inclusion of IT in their Accountancy curricula.

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