

IT skills of academics and practising accountants in Botswana

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Abstract: Information Technology (IT) skills are important for practising accountants and accounting educators. This paper reports on a study done to evaluate the levels of IT skills of practising and accounting educators in Botswana, as well as their views on the important IT skills for practising accountants. A questionnaire was administered to 27 accounting lecturers and 250 practising accountants. Respondents were asked to indicate their IT skills levels as well as their views on the important IT skills that practising accountants should have. The results show that the self-reported IT skills of practising and accounting educators are lower than what they think practising accountants should have.

Keywords: IT skills; practising accountants; accounting educators; IT; information technology.

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1 Introduction

IT has brought profound changes in organisations. The use of the technology has evolved from the automation of structured processes to systems that are truly revolutionary in that they introduce change into fundamental business procedures (Gurbaxani and Whang, 1991). To some organisations, IT has been used as a competitive tool, but to most organisations IT is of competitive necessity. The need to improve efficiency and effectiveness in service and product delivery has forced many organisations to use IT. External forces such as customer and supplier demands have also forced many organisations to use state-of-the-art technology.

Computers have taken over the laborious work of data capture, processing, storage and transmission of financial information. Widespread use of IT has forced employees in key functions such as accounting to be proficient in the use of IT. The computer is a productivity tool that forms an integral part of the accountant's working environment (Larres and Oyelere, 1999). In order to survive in the accounting profession, there are many types of IT tools that an accountant must be able to use to raise his/her productivity.

Given the constant changes in Information and Communication Technologies (ICTs) cutting edge, IT skills are important for long-service accountants, as well as for those who are joining the profession. This paper reports on a study that was done in Botswana to assess the level of knowledge that academic and practising accountants have in using some IT tools. The objectives of the study were two. The first objective was to assess the IT skills of both practising and academic accountants in Botswana. Knowing the levels of IT skills competence of practising accountants gives an indication of the type and level of IT skills that need to be taught in accounting colleges. According to Borthick (1996), one test of course content appropriateness is to ask whether professionals perform the task. If they do, it may be an appropriate subject matter for students too. Accounting educators were included in the study, because their work is to produce graduates who join the accounting profession. Some researchers have suggested that IT skills should be integrated in every accounting course in tertiary institutions (Bromson et al., 1993; Larres and Oyelere, 1999; Raval, 1989; Albin and Crockett, 1991). This can be achieved only if accounting educators have the requisite skills. The second objective of this study was to get an opinion from academic and practising accountants on the level of proficiency that all practising accountants should have in using IT tools. Such knowledge can help academic institutions in designing the IT skills curricula. Based on the two objectives, the researchers wanted to find out if the academic and practising accountants' opinions on the required level of proficiency in using IT tools for practising accountants would be a reflection of their own levels of proficiency in using those tools.

2 Literature review

2.1 The impact of organisational and technological change on the accountant's role

Accounting is the nerve centre of any organisation. In order to increase efficiency and effectiveness, accounting was the first business function to be computerised.

Although computers started processing accounting data in the 1950s, their initial impact on the accounting profession was minimal. The technology was not very sophisticated. The general ledger and financial packages that came to the market were mirror images of manual systems – journals, trial balances, adjusted trial balances and financial statements (Doost, 1999). Auditors initially treated the computer as a black box. They did not need to know how the computer is programmed, as they could demand and get an audit trail for all transactions processed by the computer.

Major advances in IT came up with the introduction of online real-time systems, database management systems, computer networks, the internet, Electronic Data Interchange (EDI), distributed processing, expert systems and Enterprise Resource Planning (ERP) systems. Currently, the technology that is expected to have the greatest impact in financial reporting in the very near future is Extensible Business Reporting Language (XBRL) (Bovee et al., 2002; Jones and Willis, 2003).

The use of sophisticated IT in organisations requires auditors to obtain and evaluate evidence electronically. Auditors can no longer ignore how the computer works and audit around it, as some transactions are entered without any documentation and databases are automatically updated from transactions that originate from far-away countries. IT has made accounting data accurate to the minute, thus making periodic reports irrelevant. Traditional auditing is under threat as well, because it relies on annual printed financial statements based on historical data. In today's fast-paced society, historical figures quickly become outdated. Investors, banks and other users of audited accounts are pressing for a new concept called continuous audit (Rezaee et al., 2001).

Apart from having an impact on the accounting profession, advances in IT have an impact on business operations as a whole. Almost all businesses are taking advantage of the new facilities offered by IT. Using IT, some businesses have decided to centralise or decentralise their operations. Information technology has also made it possible for businesses to link their operations with customers, suppliers, banks and other strategic partners. These changes naturally lead to changes in organisational structures and roles of personnel, including accountants.

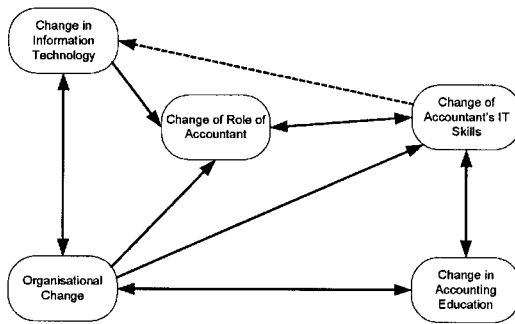
Computers have taken away the arduous work of data collection, processing, storage and dissemination of financial information. Because technology can produce information very cheaply, businesses need more from accountants. They expect accountants to have a comprehensive knowledge of the business world and be financial advisors to management. To be able to advise management, they need to be experts not only in their own field but also in IT as well. It is apparent that it is increasingly becoming critical for accountants to possess advanced skills to make business judgements based on analysis of information in the future (Albrecht and Sack, 2000). Accountants must be able to extract information stored in computers and use a variety of tools to process and present the results.

Education and training play an important role in all the changes that take place in the accounting profession and the business world. In the area of IT, practising accountants need to keep abreast of changes that constantly occur in IT. This can be achieved by attending indoor and external training programmes. Newly recruited accountants are expected to have the requisite IT skills before joining the profession. Accountancy training colleges are expected to impart these skills to would-be accountants.

Figure 1 summarises the interactions between change of IT, organisational change, change of role of accountant, change of accountant's IT skills and change in accounting

education. There are more variables that impact on the accounting profession, but, in this paper, only the impact of IT and organisational change are addressed.

Figure 1 Impact of change in IT and organisational change on the accounting profession



Source: Adapted from Williams et al. (1997)

In the figure, changes in IT cause organisations to undergo internal changes. These organisational changes, together with the changes in IT, make it necessary for the role of the accountant in organisations to be re-defined. This leads to a re-definition of relevant IT skills required by the accountant, which is also necessary due to the changed organisational environment. The need for new IT skills implies changes in accounting education. The latter may also be necessitated by the changed organisational environment. Any change in accounting education will need to be assessed in terms of its impact on the accountant's IT skills, the changed organisational environment, the changed role of the accountant and the changes in IT itself.

2.2 Essential IT skills for accountants

The demand for increasing levels of IT competence by accountants is stronger than ever before. According to Johnson and Johnson (1995), the increase in demand for accountants with computer skills in the 20 years up to 1995 was dramatic: Only 1% of the employers in 1973 and 6% in 1983 mentioned computer skills as one of the required skills/competencies in their advertisements, whereas, in 1993, over half of the employer's advertisements mentioned that computer skills were necessary. It is unthinkable today for an accountant to be computer illiterate. Professional accountants are now required to possess the skills and knowledge to use various ICTs and IT is regarded as a core competence of a professional accountant (Larres et al., 2003).

Over the years, studies have been carried out to determine IT skills that are important for accountants. Most of these studies have focused on asking accounting educators, employers and practising accountants about the important IT skills for entry-level accountants (Davis and Leitch, 1988; Bain et al., 2002; Burnett, 2003; Coy and O'Grady, 1992; Theuri and Gunn, 1998). The outcome of these studies has been a list of IT tools that accounting students must be proficient in. The list includes skills in using spreadsheets, word processors, windows operating environment, accounting packages, communications software and web browsers. The opinions of employers, practising accountants and educators have a direct bearing on the IT skills that need to be taught in accounting colleges.

Most employers and practising accountants ranked proficiency in using spreadsheets as the most important IT skill for entry-level accountants (Davis and Leitch, 1988; Coy and O'Grady, 1992; Edmonds, 1988; Bain et al., 2002; Meer and Adams, 1996; Burnett, 2003). Only in few studies, academics ranked proficiency in spreadsheets as the topmost IT skill for accountants (Meer and Adams, 1996). This disparity could be a reflection of a general belief among some academics that IT should be taught at a conceptual level rather than focus on the narrow domain of technical training (Bromson et al., 1993). Other IT skills that have been identified as important for accountants include use of word-processing software, accounting application packages and databases.

3 Methodology and research design

3.1 *Sample and measures*

The population for this research was made up of two major groups: academic and practising accountants. In Botswana, there are three tertiary institutions: University of Botswana (UB), Botswana Institute of Accountancy and Commerce (BIAC) and Botswana Accountancy College (BAC). There are 27 accounting lecturers in these institutions. Additionally, a list of 250 practising accountants from various organisations in Botswana was obtained from the Botswana Institute of Accountants (BIA), which is the professional body for accountants in Botswana. The questionnaire was administered to all lecturers and the practising accountants who were in the list obtained from BIA. All questionnaires were hand delivered and collected.

3.2 *Questionnaire design*

A single questionnaire was administered to practising and academic accountants. The questionnaire was made up of two parts. The first part of the questionnaire was designed to collect general information about the respondents and their organisations.

The second part of the questionnaire was made up of four questions. In the first question, respondents were asked to indicate the importance of computer use in their daily work. Importance was measured by using five items ranging from (1) extremely important to (5) not important at all. The second question wanted to know the approximate number of hours each of the respondents uses a computer in a typical working day.

In the third question, respondents were asked to indicate their own levels of competence in using 14 types of software packages shown in Table 1. The list was compiled from earlier studies (Meer and Adams, 1996; Jackson and Cherrington, 2001; Wessels, 2005). The five levels of competence ranging from (1) none to (5) expert were defined as follows.

1	None	You do not know how to use the package
2	Basic	You can use the basic features of the package with little assistance
3	Intermediate	You can use the package effortlessly but not its advanced features such as macros in spreadsheets
4	Advanced	You can use the package's advanced features but with some assistance
5	Expert	You know a lot about the package and can use the package to solve very complicated problems without any assistance

Table 1 Lit of software packages

1	Spreadsheets
2	Accounting application packages
3	Word processing software
4	Databases
5	Auditing package
6	Communication software e.g., outlook
7	Web browsers e.g., netscape
8	Business graphics e.g., harvard graphics, adobe, etc.
9	Presentation software e.g. powerpoint
10	Windows operating environment (microsoft windows XP)
11	Statistical analysis software e.g., SPSS
12	Antivirus software
13	Tax preparation software
14	Decision Support Software (DSS)

In the last question, respondents were asked to suggest the level of competence a practising accountant should have in using the packages shown in Table 1. Levels of competence were also defined using five items ranging from (1) none to (5) expert, as defined above. Respondents were further asked to add other application packages to the list. No additional application packages were added by the respondents.

4 Research findings

Out of 277 questionnaires that were distributed, 85 were correctly completed, representing a 30.7% response rate. Of these, about 19% were from accounting educators and 81% were from practising accountants.

4.1 Demographics of respondents

Most of the respondents were males (58.2%) and young, with 51.7% of them not being older than 35 years of age. The survey, however, revealed that accounting educators are generally older than practising accountants. The majority of the respondents had at least a Bachelor's degree (72.9%), with 27.1% having higher academic qualifications. Table 2 gives a summary of the demographic data.

Table 2 Demographics of respondents

	<i>Accounting educators</i>	<i>Practicing accountants</i>	<i>Total and percentage</i>
Sample (N)	27	250	277
Number of respondents	16 (18.8%)	69 (81.2%)	85 (100%)
Percentage responded	59.3%	27.6%	30.7%
<i>Gender of respondents</i>			
Female	2 (12.5%)	33 (47.8%)	35 (41.2%)
Male	14 (87.5%)	36 (52.2%)	50 (58.2%)

Table 2 Demographics of respondents (continued)

	<i>Accounting educators</i>	<i>Practicing accountants</i>	<i>Total and percentage</i>
<i>Age of respondents</i>			
<25	0	3	3 (3.5%)
26–35	0	41	41 (48.2%)
36–45	4	19	23 (27.1%)
46–55	10	5	15 (17.6%)
>55	2	1	3 (3.5%)
<i>Highest academic qualification</i>			
High school or less	0	1	1 (1.2%)
Diploma	0	22	22 (25.9%)
Bachelors Degree	4	35	39 (45.9%)
Masters Degree	10	11	21 (24.7%)
PhD	2	0	2 (2.4%)

4.2 Computer use in daily work

Respondents were asked to indicate the importance of computer use in their daily work. Only 50% of the academic staff indicated that the computer was at least very important in their daily work, compared to 98.6% of practising accountants. These differences were significant ($F = 30.13$, $P \leq 0.001$). As shown in Table 3, only 1.4% of the practising accountants responded that it was important, against 25% of the accounting educators. A quarter of the accounting educators indicated that using computers in their daily work was 'not very important'.

Table 3 Importance of use of computer in daily work

	<i>Accounting educators</i>		<i>Practicing accountants</i>	
	<i>N</i>	<i>Percentage</i>	<i>N</i>	<i>Percentage</i>
Extremely important	2	12.5	40	58.0
Very important	6	37.5	28	40.6
Important	4	25.0	1	1.4
Not very important	4	25.0	0	0.0
Not important at all	0	0.0	0	0.0

Although about 83% of practising accountants indicated that they spend at least 5 hours using a computer on any typical day, only 31% of accounting educators spend that amount of time in a day using a computer. Indeed, close to 70% of the accounting educators spend at most 3 hours a day using a computer. A *t*-test to test the differences in the average number of hours the two groups use a computer on a typical day found the differences to be significant ($F = 6.84$, $P \leq 0.001$).

These data show that use of computer is indispensable for almost all practising accountants. It is also an indication of the extent to which the profession is now dependent on IT. As evident in Table 4, only 1.45% of practising accountants spend 1 hour or less using a computer on a typical day.

Table 4 Number of hours spent using a computer on a typical day

	<i>Accounting educators</i>		<i>Practicing accountants</i>	
	<i>N</i>	<i>Percentage</i>	<i>N</i>	<i>Percentage</i>
Up to 1 hour	4	25.0	1	1.45
Up to 3 hours	7	43.75	11	15.94
Up to 5 hours	1	6.25	9	13.04
More than 5 hours	4	25.0	48	69.57

4.3 Self-reported knowledge of software packages

Academic and practising accountants were asked to rate their own proficiency in using the accounting packages in Table 1. The level of knowledge of these tools ranged from (1) none to (5) expert. Summary of the results are shown in Table 5.

Table 5 Self-reported knowledge of software application packages by academic and practising accountants

	<i>Accounting educators</i>		<i>Practising accountants</i>		<i>t-value</i>	<i>p-value</i>
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>		
Word processing	3.31	0.79	3.24	0.90	-0.300	0.765
Spreadsheets	3.25	1.18	3.43	0.85	-0.563	0.575
Presentation software	2.81	0.91	2.16	0.98	0.263	0.793
Windows operating environment	2.75	1.13	3.03	0.79	0.784	0.436
Web browsers	2.69	1.20	2.58	1.06	0.719	0.474
Antivirus software	2.40	0.91	1.69	0.82	1.342	0.183
Accounting packages	2.31	0.87	3.19	1.03	0.828	0.410
Communication software	2.31	1.08	2.90	1.09	-0.778	0.439
Databases	2.19	1.33	2.25	0.97	0.545	0.587
Statistical analysis software	1.71	0.83	1.32	0.72	0.950	0.345
Business graphics	1.69	1.01	1.72	0.90	0.954	0.343
Tax preparation software	1.44	0.81	1.25	0.53	1.227	0.223
Auditing package	1.38	0.81	1.59	0.92	1.771	0.080
Decision support software	1.38	0.72	1.31	0.63	-0.827	0.411

The top five IT skills that accounting educators are proficient in are word processing, spreadsheets, presentation software, windows operating environment and web browsers, of which only word processing and spreadsheets are mastered at above intermediate level (average score of 3). Practising accountants' top five skills include spreadsheets, word processing, accounting packages, windows operating environment and communications software, of which four are mastered at above intermediate level. Three out of the five top software packages are common to both groups. Accounting packages and communications software appear among the top five skills for practising accountants but

not for the educators. Accounting educators, on the other hand, have got better knowledge of presentation software and web browsers than practising accountants.

Four out of five of the less known packages by both practising and academic accountants are common. These include auditing packages, statistical analysis software, decision support software and tax preparation software. The fifth less known software package for practising accountants was antivirus software. Business graphics was the fifth less known software for accounting educators. There are some surprises from the list of less well-known software packages from each group. It is not clear, for example, why the academics are not well versed in the use of statistical analysis software. Auditing software is also not well known by practising accountants. This could be explained by the fact that most accountants are employed to do financial accounting and not audit work.

An independent *t*-test conducted to evaluate the differences in knowledge level of practising and academic accountants for each of the software packages found that they are not significant at 95% confidence level. This is an indication that practising accountants and accounting educators have comparable levels of IT skills.

4.4 Views on what software packages accountants should know

Respondents were asked to indicate the levels of competence that practising accountants should have in using software packages shown in Table 1. The levels of competence ranged from (1) none to (5) expert. Table 6 presents the findings. From the responses, accounting educators indicated that accountants should have at least an intermediate level of competence in using all the software packages (mean score ≥ 3.0). Out of the 14 packages, practising accountants were of the view that accountants should have at least an intermediate level of competence in 13 of them. The top five software packages that accounting educators thought practising accountants should be proficient in include accounting packages, auditing packages, spreadsheets, tax preparation software and databases. Practising accountants chose the same packages but dropped tax preparation software in favour of word processing. Accounting educators thought that practising accountants should know accounting packages, auditing packages and spreadsheets at above advanced level (mean score ≥ 4.0), while practising accountants indicated that only accounting packages and spreadsheets should be mastered at above advanced level.

The five software packages that were deemed less important by accounting educators include DSS, statistical analysis software, web browser, communication software and business graphics. Practising accountants agreed with the accounting educators in four of the packages. While accounting educators had put communications software in the 11th position, practising accountants put it at sixth position. This is an indication that computers are heavily used for business communications.

For each software package, an independent *t*-test was conducted to evaluate if there are significant differences in opinion between accounting educators and practising accountants on the software packages practising accountants should know. The results summarised in Table 6 show that the differences in opinion were significant for accounting application packages, presentation software and antivirus software.

Table 6 Opinion by academic and practising accountants on level of IT skills practising accountants should have

	<i>Accounting educators</i>		<i>Practising accountants</i>		<i>t-value</i>	<i>p-value</i>
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>		
Accounting packages	4.63	0.72	4.46	0.70	-3.763	0.002**
Auditing package	4.31	0.79	3.81	1.07	-0.854	0.396
Spreadsheets	4.25	0.68	4.36	0.73	-0.725	0.470
Tax preparation software	3.81	1.11	3.40	1.22	1.141	0.257
Databases	3.75	1.00	3.60	0.96	-0.216	0.830
Word processing	3.69	0.70	3.75	0.81	0.241	0.810
Presentation software	3.63	1.26	3.54	1.07	2.433	0.017*
Windows operating environment	3.63	1.02	3.39	1.10	-1.173	0.244
Antivirus software	3.56	0.89	3.16	1.12	2.985	0.004*
Business graphics	3.44	0.81	3.15	1.15	-0.113	0.911
Communication software	3.38	0.81	3.58	0.98	-1.927	0.057
Web browsers	3.31	0.87	3.12	1.01	0.348	0.728
Statistical analysis software	3.25	0.93	2.96	1.15	1.801	0.076
Decision support software	3.06	1.00	3.34	1.24	0.368	0.713

*Indicates significant at $p < 0.05$.

**Indicates significant at $p < 0.01$.

4.5 *What accounting educators and practising accountants know and what they think practising accountants should know*

In this study, practising and accounting educators were asked to indicate their level of competence in using IT tools, as well as the level of knowledge they think practising accountants should have in using those tools. When comparing responses from the two questions, three scenarios can emerge. One scenario is that respondents may indicate that practising accountants should have the same level of knowledge as themselves. Alternatively, respondents may indicate that they know too much and is unnecessary for practising accountants to know to the same level. Finally, they may indicate that they know less and practising accountants should know more. Table 7 presents the findings from accounting educators and Table 8 from practising accountants.

Results from the study show that on average, for each of the software packages, academic and practising accountants know less than what they think practising accountants should know (Tables 7 and 8). A paired samples *t*-test was conducted for each software package to evaluate if the differences between what accounting educators and practising accountants know and what they think practising accountants should know are significant. The results in Table 7 show that, with the exception of presentation software, the differences between what accounting educators know and what they think

practising accountants should know are significant. The results in Table 8 show that the differences between what practising accountants know and what they think practising accountants should know are significant for all software packages.

Table 7 What accounting educators know and what they think practising accountants should know

	<i>What educators know</i>	<i>What practicing accountants should know</i>	<i>t-value</i>	<i>p-value</i>
Spreadsheets	3.25	4.25	-3.038	0.008**
Accounting packages	2.31	4.63	-7.400	0.000**
Word processing	3.31	3.69	-2.423	0.029*
Databases	2.19	3.75	-3.738	0.002**
Auditing package	1.38	4.31	-8.182	0.000**
Communication software	2.31	3.38	-3.597	0.003**
Web browsers	2.69	3.31	-2.611	0.020*
Business graphics	1.69	3.44	-5.422	0.000**
Presentation software	2.81	3.63	-1.847	0.085
Windows operating environment	2.75	3.63	-2.671	0.017*
Statistical analysis software	1.71	3.43	-5.064	0.000**
Antivirus software	2.4	3.53	-3.012	0.009**
Tax preparation software	1.44	3.81	-6.985	0.000**
Decision support software	1.38	3.06	-5.646	0.000**

*Indicates significant at $p < 0.05$.

**Indicates significant at $p < 0.01$.

Table 8 What practising accountants know and what they think practising accountants should know

	<i>What practicing accountants know</i>	<i>What practicing accountants should know</i>	<i>t-value</i>	<i>p-value</i>
Spreadsheets	3.43	4.36	-7.903	000**
Accounting packages	3.19	4.46	-9.037	000**
Word processing	3.25	3.75	-3.517	0.001**
Databases	2.25	3.6	-8.474	000**
Auditing package	1.57	3.81	-13.812	000**
Communication software	2.9	3.57	-4.459	000**
Web browsers	2.58	3.12	-3.493	0.001**
Business graphics	1.71	3.15	-7.743	000**
Presentation software	2.16	3.54	-8.516	000**
Windows operating environment	3.03	3.39	-2.365	0.021*
Statistical analysis software	1.32	2.96	-10.066	000**
Antivirus software	1.69	3.15	-8.865	000**
Tax preparation software	1.26	3.38	-13.429	000**
Decision support software	1.31	3.34	-12.673	000**

*Indicates significant at $p < 0.05$.

**Indicates significant at $p < 0.01$.

5 Discussion of findings and recommendations

Practising accountants have indicated that computers are extremely important in their daily work, while academics rated them as being important. This is also supported by the revelation that on average, on a typical day, accountants spend more than 4 hours using a computer, while educators spend between 1 hour and 3 hours with a standard deviation of 1.3. This means that IT has become more indispensable in business than in academics. Several factors may account for this disparity. Firstly, computers entered business before they entered education outside the computer science departments. For some time, many academic institutions have been starved of funding for IT, while most businesses do not face the problem at the same level.

There is a general agreement among academics and practising accountants in Botswana about the most important IT skills for practising accountants. Consistent with earlier results reported in literature, spreadsheets have come up as the most important tool for accountants. However, contrary to existing literature, in this study, proficiency in accounting and auditing software has come up prominently. This is also reflected in what we now commonly read in job advertisements that insist on applicants having a working knowledge of an accounting package.

The results of the study also suggest the type of IT tools that need to be taught in accounting colleges. While spreadsheets are common and there should be no problem in teaching them, as they are normally easily available to students and lecturers, the same may not be the case for accounting and auditing packages. Accounting colleges should strive to buy and expose their students to these packages. The results show that students should also be taught how to use auditing packages.

It has also been revealed that academic and practising accountants' IT skills fall short of desired levels. Respondents have shown that they know less than what a practising accountant should know. There might be several reasons for this situation. One possible explanation is that the majority of practising accountants did not have adequate training in IT skills while at college. A second explanation for the disparity could be that perhaps accountants are finding it difficult to keep pace with the rate at which technology is changing. In that case, the gap needs to be closed. Accountants can keep their knowledge current by attending intermediate and advanced courses that target use of specific IT tools. Lastly, the Pareto Principle can be used to explain the disparity between the actual level of IT skills and levels that should be known. Vilfredo Pareto, an Italian economist and sociologist, demonstrated that 80% of the wealth of the nation was distributed among 20% of the population and the remaining 20% was distributed among the other 80% of the population (LaRooy, 1999). Pareto's economic model has been linked to the '80/20' rule, which states that 20% of the variables will account for 80% of the results (Basile, 1996). Most of the software packages used today are very sophisticated and bulky, because they tend to take into account every type of eventuality. The consequence is that only a small percent of the software package's facilities are used to accomplish most of the work that an accountant needs to do. Most users, therefore, would need to know only a small percent of the package to satisfactorily perform their duties.

Future research should seek to determine aspects of IT skills that accountants do not know in the packages that have been identified as being very important. Such a research will help in designing upgrade courses, as well as revising the IT curricula in accounting colleges.

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