

## **INTEGRATION OF TECHNOLOGY INTO ACCOUNTING EDUCATION**

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### **Abstract**

This paper provides an investigation on the integration of technology into Australian accounting education curriculum which improves and alters business requirements and practices for public practitioners. It examines whether the design of current accounting curricula sufficiently equips accounting students with the concepts of technology necessary to fulfil their duties as practising accountants. Employers, academics, and current students identify the need for adequate preparation of students in technology in order to gain skills applicable in the workforce and therefore become successful public accounting practitioners. This can be accomplished by making certain that higher education curriculum in accounting includes learning methods, teaching practices, ethical considerations, social and environmental awareness, and software offering that would be appropriate for public practice. This paper also deals with a pioneering subject in, which students are provided with an overview and knowledge of the role of the public accounting practitioner, and it prepares them to manage important technological aspects of public practice.

### **BACKGROUND**

Accountants' training and experience should equip them with the skills to provide professional advice. The Australian accounting education system has been criticised both for the alleged weakness in the generic skills of its graduates (Courtis & Zaid, 2002) and for the emphasis on professional skill training at the expense of a general education (Henderson, 2001).

The new generation accountants are faced with major challenges, and the globalisation trend has enormous implications for the accounting profession. The accountant of the future faces a challenging, exciting and fast-paced career, with enormous diversity and opportunities (Drever, Stanton, & McGowan, 2007). The demands on the new generation of accountants are immense, so accounting students should possess in addition to their tertiary education, leadership qualities and working knowledge of the latest technology used in accounting practices. To facilitate the challenging career of the new generation accountant "The Practising Accountant and Technology" (TPAT) subject has adopted an inclusive perspective to combine elements of knowledge learned in other subjects of the accounting degree ranging from basic accounting subjects to social and environmental accounting, governance and ethics, forensic accounting, auditing, corporation law, taxation and technology

together with incorporating technology and other demands on the new generation of accountants. One of the main objectives of this subject is to provide accounting students with greater knowledge and skills such as insight and good professional judgment as well as project management; integrity and ethics.

## **Issues Arising from Preliminary Research**

The literature review found that in most accounting degrees integrating technology into accounting education is optional. In most accounting degrees technology subjects are offered as an elective. Education providers have not learned to change and rapidly adjust their operations in order to make them current and up to date. However, applying the theory to practice is indeed far more difficult. One needs guidelines and rules to avoid problems arising from implementing technology practices in accounting education. It is also important to note that attempts have never been made to identify the technology requirements by public practitioners in accounting, and taxation and regulation that can work together in assisting public practice firms to operate more efficiently. The key issue is the determination of factors that contribute to the success or failure of accounting graduates to be employed by a public accounting firm.

## **Research Questions**

In analysing the integration of technology in accounting education and the employability of graduate accountants in public practice firms in Australia, the null and alternate hypotheses can be stated as follows:

- RQ1: Does the knowledge of technology have an effect on the employability of the graduate accountant in public practice?
- RQ2: Does the knowledge of technology affect the employability of the graduate accountant in public practice?

In investigating the skills that a graduate accountant should acquire by accounting education, a further research question was developed:

- RQ3: Are there specific skills that a graduate accountant should possess in order to gain employment in public practice?

There is a connection between the research questions and the criteria in using technology in public practice. The link is based on the following logic: certain knowledge in technology in accounting including taxation influence users to follow or not follow certain choice of software in public practice. Public practice firms are technology users operating under a particular level of manpower, and a certain constitution in management. Therefore, the firm's manpower as well as the position of the employee making the decisions has an impact on the choice of accounting software to be used in public practice. Hence, it follows that there are

interrelationships between the above variables, which are the focal point of examination of this paper via the research questions.

## Research Methodology

In order to understand the main research questions, technology in accounting education is defined as the use of comprehensive accounting packages that incorporate amongst others modules for taxation returns preparation and corporate compliance. The specific technology accounting education methods that assist in the tertiary education of accountants in public practice were generated from the relevant literature review, phone interviews with academics and employers in public practice, as well as university students and university graduates in Australia. It is the writer's opinion that the technology taught to accounting students at tertiary level would have an effect on the successful employability of graduate accountants as well as on the particular operations of those firms.

The purpose of the first part of this research was to become familiar with the existing literature on technology in accounting education and the specific factors that are affecting it, as well as achieving greater understanding of the concepts involved. This literature review identified and explored problems found. Secondly, a sample of interviewees was randomly selected from the listed population of public practitioners on the CPA Australia website. A letter to the chosen public practices to explain the purpose of the research and to arrange an interview with the relevant practitioner. A copy of the outline of TPAT subject was also enclosed and sent prior to the interviews. The third part of this research investigated the integration of technology in accounting education by students through phone interviewing of current students and accounting graduates who studied TPAT subject in the years 2007–2009.

## Interview Questionnaire

### Structure

The phone interview questionnaire called for a range of responses and comprised the following issues:

#### *a) Phone interview academics and public practitioners*

Section I contained questions about the firms' preferred skill for graduate accountants and how they are thought to assist the public practitioners in making decisions that would employ/promote them in their public practice. Section II contained questions about the current and/or preferred accounting technology skills and software knowledge used by graduate accountants that would assist management in the successful running of their practice. Section III comprised questions that were aimed at evaluating the TPAT subject.

*b) Phone interview current students and accounting graduates who undertook “The Practising Accountant and Technology” subject*

Section I contained questions evaluating the objectives of the above subject. Section II comprised questions that are aimed at the usefulness of the subject to attain a successful career as a public accountant

### **Questionnaire Confidentiality**

To maximise participation during the research there was the need to communicate the confidential nature of the questionnaire in the letter requesting the phone interview. The respondents were assured of the confidentiality of the information provided by them as well as the fact that all information gathered by the research would be used only in aggregate and no individual information would be made public.

### **Questionnaire Cover Letter**

Apart from assuring the firms of the confidentiality and security of the information provided and the use of the information in aggregate, the cover letter also provided an explanation of the research project and the need for the respondent's participation.

### **Phone Interview Analysis**

First, 10 academics were approached and sent a preliminary letter. All of these academics were involved either in the process of introducing the TPAT subject or were accounting academics that were involved in accounting education or accounting education and technology integration. All 10 agreed to be interviewed over the phone. Second, from the total of 100 firms, 26 firms agreed to the phone interview. This provided a response rate of 26%.

### **Questionnaire Data Processing**

The data from the questionnaire were then processed into tables with special attention being given to secure maximum accuracy. Percentages tables were produced, printing variables one by one. The entire questionnaire was reproduced with all listed in order to determine the main trend in the responses. These tables are reproduced in Appendixes 1 and 2 to record the actual responses and consequently to be used for information purposes.

## **Survey Findings and Analysis**

The phone questionnaire was based on the findings in Sofocleous and Wise (2005), a literature research review of theoretical views on accounting education, and student evaluation comments.

The first part of the research findings is summarised in Appendix 1 in which the variation of the opinions of the academics and public practitioners in comparison to the majority percentages can be seen. These variations reinforce the justification of the chosen path of analysis. Appendix 1 shows the percentages of those opinions.

In questioning whether there is any weakness in the generic skills of graduates (Courtis & Zaid, 2002; Henderson, 2001) the accounting academics' preferences are in most cases immensely different from the preferences of public practitioners. Of the

accounting academics 80% agreed that graduates have weakness in their generic skills, whereas only 20% agreed that there might be weakness in the generic skills of their graduates. However, these percentages were contrary to the findings of the public practitioners. From the public practitioners 84.61% agreed that there is a weakness in the generic skills of accounting graduates. Further, the respondents representing the public practitioners generally agreed (76.92%) that at tertiary level there is an emphasis on professional skills training at the expense of a general education (Henderson, 2001). However, accounting academics expressed the strongest level of disagreement with 70% of the respondents in disagreement with the notion.

The respondents representing the majority of public practitioners (80.77%) disagreed that the acquisition of professional skills, in an undergraduate degree program, prepares graduate accountants for their survival in the professional workplace. However, 90% of respondents representing accounting academics were much more enthusiastic.

There is no evidence to suggest that the variation in attitudes towards the preparedness to acquire life-long learning rather than skills in technology prepares accountants for survival in the professional workplace has any other reason but the different timing point of employment. The academics prepare the accountants and the public practitioners employ them after their graduation from tertiary institutions. The majority of respondents from public practitioners (84.61%) disagreed that life-long learning rather than skills in technology equips accountants for survival in the professional workplace. On the contrary, accounting academics surveyed agreed by 80% this was the case. Further, 90% of respondents representing accounting academics disagreed with the assertion that graduating accountants are neither well-educated nor adequately prepared to enter the profession (Mathews, 2001). Their opinion was not shared by the public practitioners who appear to believe the opposite.

When respondents were asked if accountants do not have a grasp of how the accounts are put together and do not have a good understanding of double entry bookkeeping, accounting academics in their majority disagreed. Only 23.08% of the public practitioners with agreed the accounting academics. In contrast, public practitioners representing the 76.92% of the respondents agreed that accountants do not have a good understanding of double entry system.

There is evidence to suggest that there are no major variations in attitude of the respondents towards accountants' requirements to acquire the following skills (Drever et al., 2007):

- increased 'soft skills'.
- an understanding of business ethics.
- skills to face the challenges and opportunities in the future.
- knowledge on all type of electronic communications.

Accounting academics agreed that these skills are necessary to be acquired by the accounting students during their tertiary studies. The public practitioners also agreed with the need for increased 'soft skills' and knowledge of all type of electronic communications.

There is an agreement between the majority of respondents representing both the accounting academics and public practitioners that there are new areas of the accounting profession that accountants should be educated at tertiary level. These are: a) risk management skills; b) increased 'nontraditional accounting', i.e. the triple bottom line; c) understand of information; d) certification of more information as being correct; e) focus on resource exploitation; and f) analysing financial and other information to develop total business solutions (Drever et al., 2007). There is evidence to suggest that accountants need to be taught communication skills. Both type of respondents, academics and practitioners, agreed that this is an absolute necessity.

The final group of questions were related to the TPAT subject. Accounting academics provided a 50% agreement on the primary objectives of the above subject which provides students with an overview and understanding of the role of the public accounting practitioner as well as on the subject's ability to prepare students to manage technological aspects of public practice. These results show that there is an immense variation in the opinions of the public practitioners. In contrast, the majority of practitioners agreed that this subject assists the understanding of the role of the public accountant and prepares students to manage technological aspects of public practice. They prefer to employ graduate accountants on the basis of their theory and technology knowledge taught in TPAT.

The second part of the research findings is summarised in Appendix 2 in which the similarities of the opinions of current students and graduate students who undertook this subject are presented. Appendix 2 represents the percentages of those opinions.

From results it is evident that TPAT's main objectives satisfied 96.37% of current accounting students. Of accounting graduates who undertook this subject in 2000–2009, 90.91% agreed that they had developed an understanding of the legal, professional and conceptual requirements associated with managing a public practice.

Another objective of the subject was to develop an understanding of how to best manage statutory information and compliance requirements. Of current accounting students 90.32% agreed that this objective was achieved. Correspondingly, from the accounting graduates 90.91% agreed. All type of respondents were of the opinion that this subject provided them with the conceptual and practical foundation to explore and learn about different issues concerning employment in, and management of a public accounting practice.

87.10% agreed that the orientation of the subject provided a realistic setting for many of the issues covered such as preparing and lodging taxation returns on behalf of clients. It is remarkable to note that graduate accountants appreciated the technological offering of the curriculum. The similarities in the opinion of the current students and the graduate accountants who undertook this subject extends to the relevance of this subject to their degree studies. Both categories of respondents agreed 100%.

All respondents agreed the subject achieved its inclusive nature of dealing with other subjects in the accounting degree namely, financial accounting, taxation, auditing, forensic accounting, and corporation law. TPAT has assisted 80.65% of current students and 100% of graduated students to find employment or better terms in

employed positions. Further, 100% of current students and graduate accountants that undertook this subject believe that it should be compulsory to all students who wished to have a public accounting career.

## Recommendations

The results of this research study provide some scope for the following recommendations to be made. Accounting education should include:

- a) The integration of technology as part of the core curriculum including accounting, taxation, and corporation software, as well as all types of electronic communications.
- b) Generic skills of graduates together with life-long learning skills to adapt to changing real-world circumstances, together with communication skills and business ethics.

## Further Research

Further research arising from this investigation would include the possibility of introducing a requirement for the compulsory integration of technology into accounting education. Second, to investigate the opinions of students who have not taken this subject as an elective and their reason for that decision. Third, to analyse the opinions of public practitioners who have employed graduates who were taught this subject and graduates who were not.

## References

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## Appendix 1

Number of Interviewees classified according to employment

Questions Asked	Accounting Academics			Public Practitioners		
	Agree	No Opinion	Disagree	Agree	No Opinion	Disagree
Q1 Is there any weakness in the generic skills of graduates? (Courtis & Zaid, 2002)	2	-	8	22	2	2
Q2 Is there an emphasis on professional skill training at the expense of a general education?	2	1	7	20	4	2
Q3 Is the acquisition of professional skills in an undergraduate degree program appropriate preparation for survival in the professional workplace?	9	1	-	2	3	21
Q4 When the accounting graduate student has acquired life- long learning rather than skill in technology is he/she better prepared accountant for survival in the professional workplace?	10	-	-	3	1	22
Q5 Would knowledge acquired in degree studies rapidly redundant because of the rapid pace of technological change?	-	-	10	2	-	24
Q6 Would life-long learning skills facilitate adaptability to changing real-world circumstances? (Sofocleous and Wise, 200X)	8	2	-	11	3	12



Q7 Is it true that graduating accountants are neither well educated nor adequately prepared to enter the profession? (Mathews, 2001).	1	-	9	24	-	2
Q8 a) Many accounting graduates do not have a good basic grasp of how accounts are put together.	-	-	10	20	-	6
b) New accountants do not have a good understanding of double entry bookkeeping.	2	-	8	20	-	6
Q9 The future accountant should be trained at tertiary level to acquire:	10	-	-	26	-	-
a) increased 'soft skills'.	10	-	-	12	8	6
b) an understanding of business ethics.	10	-	-	24	2	-
c) skills to face the challenges and opportunities in the future.	10	-	-	26	-	-
d) knowledge on all type of electronic communications. (Drever, 2007)	10	-	-	26	-	-
Q10 New areas of the accounting profession in the future include:	10	-	-	26	-	-
a) risk management skills.	10	-	-	20	-	6
b) increased 'nontraditional accounting', i.e the triple bottom line.	10	-	-	26	-	-
c) interpreting of information.	10	-	-	26	-	-
d) certification of more information as being accurate.	10	-	-	26	-	-
e) focus on resource deployment and	10	-	-	26	-	-
f) analysing financial and other information to develop total business solutions.(Drever, 2007)	10	-	-	26	-	-
Q11 Accountants need to be taught communication skills.	10	-	-	26	-	-
Q12 Does the knowledge of technology contribute to the success or failure of accounting graduates to be employed by a public accounting firm?	5	2	3	26	-	-

Q13 Are the primary objectives of the subject 'The Practising Accountant and Technology' (TPAT) offered at Victoria University in its undergraduate accounting course providing students with an overview and understanding of the role of the public accounting practitioner?	5	5	-	26	-	-
Q14 Is TPAT subject preparing students to manage technological aspects of public practice?	5	5	-	26	-	-
Q15 Have you employed a graduate/will prefer to employ a graduate accountant on the basis of their technology knowledge taught in subjects as the "Practising Accountant and Technology"?	-	10	-	26	-	-

## Appendix 2

Student Interviewees classified according current status of employment

Questions Asked	Accounting Students			Accounting Graduates		
	Agree	No Opinion	Disagree.	Agree	No Opinion	Disagree
Q1 Has “The Practising Accountant and Technology” subject main objective of developing an understanding of the legal, professional and conceptual requirements associated with managing a public practice been achieved?	30	1	-	20	2	-
Q2 Has “The Practising Accountant and Technology” subject objective of developing an understanding of how to best manage statutory information and compliance requirements been achieved?	28	1	2	20	2	-
Q3 Does TPAT as a subject provides the conceptual and practical foundation to explore and learn about different issues concerning employment in, and management of, a public accounting practice?	31	-	-	22	-	-
Q4 Is the TPAT subject orientated towards a small business practice in order to provide a realistic setting for many of the issues covered such as preparing and lodging taxation returns on behalf of clients?	27	3	-	22	-	-
Q5 Was TPAT relevant to your degree studies?	31	-	-	22	-	-
Q6 Have you chosen to undertake TPAT on the basis of its syllabus?	20	-	11	18	-	4
Q7 Has TPAT achieved the inclusive (financial accounting, taxation, auditing and corporation law) nature of it?	31	-	-	22	-	-
Q8 Has TPAT assisted you in finding employment/promotion?	25	-	6	22	-	-
Q9 It is claimed that TPAT is “hands on” subject.	30	1	-	22	-	-
Q10 Is TPAT a subject that should be undertaken by all students who wished to have public accountant career?	31	-	-	20	-	-
Q11 Have you enjoyed this subject?	30	1	-	22	-	-