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Information Technology (IT) Knowledge and Skills of Accounting Graduates: Does an Expectation Gap Exist?

(Pengetahuan dan Kemahiran Teknologi Maklumat (IT) Siswazah Perakaunan: Adakah Wujud Jurang Jangkaan?)

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ABSTRACT

The present research explores the expectation gap in information technology (IT) skills development in an accounting degree course using grounded theory methodology. Data were collected using multiple qualitative approaches, including interviews; focus groups; observations; and document reviews, focusing on respondents at one traditional university in the UK and involving respondents from one of the big four accounting firms operating in the UK. The findings indicate that some of the required understanding and skills relating to accounting, tax and auditing software is lacking, suggesting an expectation gap. Different opinions concerning who should assume the responsibility for the development of the IT skills of the graduates; the understanding concerning the nature of IT skills; unclear expectations; and a lack of communication among stakeholders in accounting education are the factors perceived to cause the existence of such a gap. The findings also reveal that educators, as major players in the education process, should initiate a platform to promote communication among all stakeholders in educations, including potential employers and students, so that skills needs and expectations can be clearly identified and communicated, thus bridging the gap.

Keywords: Expectation gaps; accounting education; information technology skills; innovation and change in higher education

ABSTRAK

Kajian ini meneroka jurang jangkaan pembangunan kemahiran IT dalam kursus ijazah perakaunan menggunakan kaedah teori beralasan. Data telah dikumpulkan menggunakan pelbagai pendekatan kualitatif, termasuk temu bual, kumpulan fokus, pemerhatian dan ulasan dokumen, dengan member tumpuan kepada responden di sebuah universiti tradisional di UK dan melibatkan sebuah daripada empat firma perakaunan terbesar yang beroperasi di UK. Penemuan mencadangkan bahawa terdapat kekurangan dalam beberapa pemahaman dan kemahiran yang diperlukan berkaitan dengan perisian perakaunan, cukai dan pengauditan, yang menunjukkan wujudnya jurang jangkaan tersebut. Pendapat yang berbeza mengenai siapa yang patut bertanggungjawab terhadap pembangunan kemahiran graduan IT, pemahaman mengenai cirri kemahiran IT, jangkaan tidak jelas dan kekurangan komunikasi dalam kalangan pihak berkepentingan dalam pendidikan perakaunan adalah merupakan antara faktor-faktor yang dilihat menyebabkan kewujudan jurang tersebut. Penemuan juga menunjukkan bahawa pendidik sebagai pemain utama dalam proses pendidikan sepatutnya mengambil inisiatif sebagai landasan untuk menggalakkan komunikasi dalam kalangan semua pemegang taruh pendidikan termasuk majikan dan pelajar supaya keperluan kemahiran dan jangkaan boleh dikenal pasti dengan jelas dan disampaikan, yang akhirnya merapatkan jurang tersebut

Kata kunci: Jurang jangkaan; pendidikan perakaunan; kemahiran teknologi maklumat; inovasi dan perubahan dalam pendidikan tinggi

INTRODUCTION

Developing generic skills in combination with subject specific knowledge provides added value to the learning and teaching process (Broad et al. 2004) and increases students' employability (Arquero Montaño et al. 2004; Milner & Stoner 2006). Many higher education institutions (HEIs) have recognized the importance of skills development as indicated by the establishment of personal skills development (PSD) modules (Morgan 1997; Gammie et al. 2002). The modules cover personal skills, including team work; communications; time management; self-management; research skills; business procedures; leadership; performance appraisal; and conflict resolution

(Morgan 1997). Gammie et al. (2002) add a few more skills, such as resume writing, interviews and job search skills. Other requirements are an awareness of company culture; and health and safety.

The issues concerning learning skills development, which include information technology (IT) skills, for accounting graduates have been on national and international accounting education agendas for decades (e.g., McKeown (1976) in Salleh 2000; AAA 1986; IFAC 1995, 2003, 2006; Dearing 1997; Helliar et al. 2006; Milner & Stoner 2006). Several studies report dissatisfaction with accounting education programs and their graduates, despite the changes made to the programs (e.g., Albrecht & Sack 2000; Ahmed 2003; Howieson 2003; Chang & Hwang 2003; Lin et al. 2005; Jones & Abraham 2007). Accounting education has been criticized for not developing graduates with the skills required by employers and a growing gap exists between what accountants do or need and what accounting educators teach (AAA 1986; Heagy & McMickle 1988; Larres & Oyelere 1999; Albrecht & Sack 2000; Ahmed 2003; Chang & Hwang 2003; Marriott et al. 2003; Lin et al. 2005; Jones & Abraham 2007). Ahmed (2003), Chang and Hwang (2003), Lin et al. (2005), and Jones and Abraham (2007) find low levels of integration of IT/ IS skills/ knowledge in accounting degree programs in the UK, USA, China and Australia, respectively.

The main issues that emerge in accounting education literature are summarized as follows. Firstly, IT skills are important for accounting graduates in order to prepare them to face the challenges of an IT-based working environment. Secondly, an expectation gap exists between educators and practitioners, in terms of skills and content development in accounting programs. Thirdly, extant studies, which predominantly utilize a quantitative approach, reveal the existence of gaps between the expectations of educators and practitioners in relation skills and content development in undergraduate accounting programs. The quantitative approach is good for detecting areas in which expectation gaps exist, but it does not allow for further understanding on the reasons behind the existence of such gaps. It is believed that a qualitative methodology helps to discover issues and enrich understanding concerning issues normally overlooked in quantitative studies.

The issues identified above motivate the present research, which aims to explore the issue of expectation gaps in accounting education by focusing on the effort of developing IT skills, which is one of the required skills for graduates to prepare them for a digital-based working environment (IFAC 1995, 2003, 2006). This research involves the broad perspectives of three main stakeholders in accounting education: students, educators and practitioners. In order to understand the issue of expectation gaps related with IT skills development for accounting graduates, the following research questions are outlined.

1. What are the IT skills required for accountants from the perspectives of practitioners, educators and students?
2. What are the perceptions of the respondents concerning the expectation gap?

The remainder of the paper is organized as follows. The next section briefly summarizes human capital theory and reviews existing literature on knowledge and skills development in accounting education. The following section justifies the research methodology and explains the data sources. Findings are presented in the subsequent section and the last section concludes and presents the implications of the present research.

LITERATURE REVIEW

The employability issue has been debated based upon the concept of 'knowledge-driven economy' inhuman capital theory (Quiggin 1999; Baptiste 2001; Knight 2011; Zula & Chermack 2007). The theory argues that individuals are benefiting from tertiary study; and promoting and expanding educational levels within the population will have an effect on the economic progression and development of any country. The argument on the effect of education expansion on economic development has led to the establishment of HEIs, which provides a greater number of places for students in HEIs and increases the amount of graduates every year. As a result of viewing tertiary education as a key tool in economic development, the most important consumer has been identified as the prospective employers of recent graduates. The focus on the outcomes of higher education within the work force gained more attention as greater numbers of employers found that not enough graduates were ready for employment.

The following review of literature focuses upon the development of accounting related knowledge and skills in tertiary accounting education, which includes the development of subject content, such as auditing and taxation; and other learning skills, such as communication, self-awareness, interpersonal, critical analysis and IT. Some extant research focuses on whether an expectation gap exists between the knowledge or skills acquired by graduates in university programs and those expected and preferred by employers (Zaid & Abraham 1994; Francis & Minchington 1999; Morgan 1997; Albrecht & Sack 2000; Arquero Montano et al. 2001; Zaid & Martin 2001; McCartney et al. 2002; Miller & Woods 2000; Chang & Hwang 2003; Ahmed 2003; Arquero Montano et al. 2004; Hassall et al. 2003).

In regards to the knowledge of subject content, McCartney et al. (2002) examine the expectation gap in the area of internal auditing; Miller and Woods (2000) investigate gaps in knowledge of taxation; and Francis and Minchington (1999) examine gaps in training quantitative methods of management accounting. Furthermore, some studies focus on content coverage in accounting

information systems courses (e.g., Heagy & McMickle 1988; Theuri & Gunn 1998). Generally, agreement exists concerning the relative importance of the topics covered. However, employers perceive inadequacy in several areas of important knowledge (Francis & Minchington 1999; Arquero Montano et al. 2001, 2004; McCartney et al. 2002; Miller &Woods 2000). Both employers and educators believe that it would be advantageous to equip graduates with skills beyond those required on a daily basis in the workplace (Francis & Minchington 1999).

Interestingly, Miller and Woods (2000) find that although employers perceive that graduates from traditional universities have a stronger knowledge on the subject of taxation compared to those from new universities, employers generally prefer the type of taxation knowledge of new university graduates. This implies that while traditional universities cover subject knowledge extensively, it may not be what is most required by employers.

In terms of skills development, Morgan (1997) discusses important aspects of communication skills that are deficient in accounting programs, such as the preparation of working documents, attentive listening skills and oral communication program. Arquero Montano et al. (2001) study the perceived importance of various skills from the point of view of employers, including communication, teamwork, problem solving, pressure management, time management and IT for management accountants. Besides indicating deficiencies in some skills, employers also indicate that vocational skills should be developed through an integrated approach.

Milner and Stoner (2006) report on a project to embed the employability skills required for long life learning and a successful career in the undergraduate accounting course using small group teaching materials for two first year courses: management accounting and business statistics. Among the skills these courses attempt to develop are communication, self-awareness, interpersonal, inquiry, critical analysis, IT, numeracy, problem solving, creativity and organisational skills.

Some factors contribute to the complexity of skills development in educational programs. One of the factors is the dependency of students on 'instrumental and shallow learning strategies' (Milner & Stoner 2006), which are acquired at school, but not suitable for dealing with the challenging environment of accountancy. Another factor is that the students are unclear about the work domain, causing them to undervalue some of the content of the program. Furthermore, the students show a lack of confidence and inexperience in autonomous work; and do not recognise the importance of learning for skills development and employability profile. However, albeit later, the students start to acknowledge responsibility for their learning.

Senik and Broad (2011) examine factors perceived to influence the development of IT skills in accounting programs. The findings suggest the main external factors that influence the development of IT skills are university policy; employers' expectation; other universities' IT skills development; quality assurance reviews; and professional examination exemption. More to the point, internal factors, such as educators' personal motivation and interest, are perceived to be more influential in the decision to include and develop IT skills in the teaching process. Meanwhile, the major factors perceived to negatively influence the IT skills development initiatives are academic staff-based issues, including the interests, knowledge, skills and age of the educators; environmental-based factors, such as the traditional type university, the priority of research-related tasks, time constraints to complete the academic-orientated syllabus, the cost allocation issue and the students' low interest; involvement in IT-based activities; and educators' perception of the IT skills already possessed by students (Senik et al. 2008). Furthermore, Senik and Broad (2008) develop a substantive theory, which proposes that IT skills development in teaching is driven by the perceptions of educators on issues primarily relevant to themselves; institutional values; responsibilities for skills development; support; learning; technology; and students. The substantive theory also suggests that educators with a positive 'private theory', particularly on educator-related issues, have demonstrated effort in developing the IT skills of students by integrating the skills into their teaching practices. A suggestion has been made that both employers and academics need to collaborate closely to bridge the gaps in content and practical skill development (Theuri & Gunn 1998; Chang & Hwang 2003; Ahmed 2003).

Most extant research concerning expectation gaps in accounting education is informed by studies utilizing a quantitative approach and verifies that gaps exist between the expectations of accounting employers (practitioners) and accounting educators in areas, such as subject content; and generic or transferable skills. Some studies call for a qualitative approach in order to enhance the understanding of the phenomena (Baker & Bettner 1997; Kelly et al. 1999; Marriott et al. 1999; Marriott et al. 2003). The present study is significant since it attempts to understand the issues from a different perspective. Instead of testing hypotheses, the present research focuses on generating theory from data that reflects practice and can be relevant in policy-making.

RESEARCH METHODOLOGY AND DATA COLLECTION

The present study adopts an interpretive and grounded theory approach to investigate a process phenomenon: IT skills development. The nature of the enquiry benefits from the grounded theory approach, which allows insights into the research area. Another reason is that the present study does not aim to test hypotheses (as is the case with most extant existing research), but seeks to understand the phenomena and be able to explain them from the data gathered. In addition, the present study seeks to observe

and understand the issues from a perspective that differs from existing quantitative perspectives.

Consistent with the grounded theory approach of Strauss and Corbin (1998), an area to be studied is defined and an appropriate research site identified. The area is IT skills development in undergraduate accounting programs and a UK higher institution (in the category of traditional civic university) serves as the site. The selection of traditional civic university is mainly because of the implementation of a more positive integration policy for post-1992 (former Polytechnic) institutions or 'new' universities compared to traditional universities (Davies & Warman 1995). Graduates from new universities have more exposure to IT and are expected to be better prepared to enter the modern-day workplace (Marriott et al.1999). On this basis, the accounting and finance degree program offered by the School of Management of a particular University (the name of which kept anonymous for confidentiality purposes), henceforth known as UUI was selected. Later, other schools from UUI were selected for additional data collection and comparison purposes. However, only the School of Education and the School of Engineering Science gave permission for access.

In respect of practitioners, all big four accounting firms were approached because of their excellent establishment and perceived popularity as employers. However, only one of the big four accounting firms, henceforth referred to as the Accounting Firm for confidentiality purposes, agreed to provide access to a few members ofstaff, ranging from accountant trainees to certified accountants for the purpose of interview sessions, but did not permit document review or observation. The primary data collection methods were focus groups; personal interviews; document reviews; and observations. Table 1 summarizes the data collected throughout the study.

Data collection began with document reviews, which were followed by focus groups sessions held to gather data from current students of the accounting and finance degree programs. A few methods were utilized to approach the students. First, the researchers asked for volunteers through announcements in classes when new terms started. Unfortunately, few students were willing to be volunteers, which led researchers to undertake a second approach. The second approach involved identifying some students and contacting them by e-mail. In both approaches, only general information was disseminated to avoid bias about IT knowledge and interests. Thus, selection bias was acknowledged and avoided as much as possible. Finally, after some correspondence with students, six to ten students in each study year were sent a formal letter requesting them to attend focus group sessions at a particular date and time. Three separate focus groups were formed to represent each year of study. Two focus group sessions lasting on average of one hour were conducted for each group, with three to five students per session. The second session was conducted six month later for the purpose of validating the data from the first session and seeking further information. There were six focus group sessions involving 20 students in total. The preparation for the focus group and the techniques used during the session were guided by McNamara (1999) and Kruger (1998a, 1998b, 1998c, 2000).

For the interview method, the first few sessions began with accounting educators who taught core accounting subjects. This approach of respondent selection was based on 'judgemental sampling', which allows researchers to use their own judgement in selecting data sources to help them gain good understanding on a particular phenomenon under investigation (Patton 2002). As the emerging concepts and issues became apparent, the data collection process was carried out using 'theoretical sampling' techniques, which led the researchers to focus and gather information, make theoretical comparisons; and discover the evolving theory (Strauss & Corbin 1998). The theoretical sampling technique led to the extension of data from accounting educators to non-accounting educators who are involved in teaching the accounting degree program, as well as other officers involved in undergraduate teaching. Data sources were also extended from the currently enrolled students to alumni of the accounting and finance degree program of the University. For a more general understanding and comparison, a few attempts were made to gather further data from other schools within the same University.

TABLE 1. Summary of data collection

Document Reviewed	Focus Group	Interviews	Observations
Undergraduate Student Handbook I	3 focus groups (one group for each year)	18 academic staff	Lectures
Undergraduate Student Handbook II	6 focus group sessions	3 support staff	Class-room based tutorials
Course outline for Accounting and Finance Degree Program and some programs offered by S.Edu and S.Eng. Sc.	3-5 attendances per session	5 practitioners	IT-based lab tutorial
Minutes of meetings of the Undergraduate Education Committee (UGEC)	20 students	7 alumni	Meeting of UGEC
Job application forms	7 Informal Interviews	Total number of formal interviews = 33	

Note: S. Edu. Stands for School of Education and S. Eng. Sc. Stands for School of Engineering Science.

Finally, a total of 40 interviews, including seven informal interviews, were conducted with 39 respondents. Eighteen of them were academic staff; 15 were involved in teaching in the accounting and finance degree program in the School of Management; 2 were from the School of Education; and 1was from the School of Engineering Science. Only one person was interviewed from School of Engineering Science and that person was chosen during the school meeting to represent the school for the interview. He was perceived to be the best representative of the school due to his position as the coordinator of the program; and his involvement in both the program involving the school and the Accounting Firm.

The other respondents were three support staff: one was a teaching and learning coordinator for the School of Management; one was an educational technologist from the Centre of Learning and Teaching (CLT); and one was from the Information System Support (ISS) department. The remaining 12 respondents were practitioners: 5 were working with the Accounting Firm; 2 were involved in graduate recruitment; and 7 were alumni of the accounting and finance degree program from the University. The alumni were working in a variety of companies, ranging from local government agencies and small to medium private firms to big four companies, which automatically offset the small number of respondents interviewed in the Accounting Firm; and helped to understand the phenomena from the perspective of a wide range of employers. The alumni also consist of accountant trainees and certified accountants. Seven informal interviews were conducted with six students to further clarify some issues in a less formal way, which helped the researchers to gain a better understanding of the phenomena. Respondents actively shared their experience and opinions in depth on certain issues in casual conversations.

FINDINGS

Based on the qualitative data analysis, several major categories of theoretical findings emerged. The categories, sub-categories and the concepts explaining them are summarized in Table 2. The categories became building blocks for explaining the existence and nature of the expectation gaps discovered during the present research.

ATTITUDE TOWARDS IT SKILLS DEVELOPMENT

This category is about the perceptions and views of respondents concerning the importance of IT skills development in the accounting degree programs. All groups of respondents (educators, practitioners and students) strongly expressed their opinions on the importance of IT skills during the skills development of graduates. The educators perceived IT skills as ranging from important to extremely important for accounting degree students to have or improve during the course of their degree program. One respondent said:

> Well I think it's very, very important, students doing Accounting Degree have or improve IT skills during the course of the degree they study in.
>
> (Accounting Educator R0)

Another respondent said:

> …It's absolutely fundamental, I mean that everybody who does any kind of work whether it is managerial or involved in information processing, as in accounting does, needs to be able to use all the tools possible to do that, that are obviously the whole business of computing and use of software is fundamental to be able to do the job. So, clearly, it is extremely important that it is integrated.
>
> (Accounting Educator N)

One student said:

> They (IT skills) are important, because nowadays everything we have to use the computer…
>
> (Accounting Student Y3_P)

Practitioners also acknowledged the importance of IT skills in the current working environment. Some practitioners, particularly those who were involved with recruitment activities, preferred other skills development, such as leadership, teamwork and communication skills, that are perceived as crucial skills in fulfilling a role in any accountancy field. They (some practitioners particularly those who were involved with recruitment activities as mentioned in the previous sentence) were willing to accept less coverage of accounting technical knowledge and IT skills and concentrate on developing the fundamental skills in graduates. For them, IT skills could be further developed in the workplace and through training programs based on the identification of skills that are lacking. Furthermore, they perceived that graduates were considerably capable in terms of IT skills or were at least prepared to acquire the relevant skills when required. However, more senior practitioners dealing with day-to-day operations emphasized the lack of IT skills among graduates and the need for the development of IT skills to enable graduates to carry out tasks in the modern working environment.

While a few students had no idea what IT skills are required by employers and showed no interest in obtaining them, some students were looking forward to developing IT skills through their degree programs to gain a competitive advantage. Some were aware of the importance of IT skills; the advancement of IT; and the development of skills by peers in other HEIs.

RESPONSIBILITIES FOR IT SKILLS DEVELOPMENT

This category concerns views about what parties should be responsible for developing IT skills in graduates. Based on the feedback, the responsibilities of the stakeholders can be summarized as follows:

TABLE 2. List of concepts, category and subcategory

Concepts	Category	Subcategory
• Assumption on IT used in practice • Expectation on IT skilled recruit • Importance of IT skills development • IT skills expected • IT skills required in career • IT usage in job • Reason for development • Stand for IT skills development	1. Attitudes towards IT skills development	• Importance • Preferable skills • Reasons
• Develop through university's courses • Development through ISS • Industrial training • On job training • Student's initiative • Student's self-development	2. Responsibilities for IT skills development	Responsibility of • Students • employers • educators • student support center
• Approach • Assumption on IT used in practice • Balanced right • Blackboard • CBL • Expectation on IT skilled recruit • Integration experience • IT as a teaching tool • IT skill development • IT skills expected • IT skills required in career • IT usage in job	3. Respondents' understanding of 'IT skills integration'	• Educational technology • Required IT Skills development
• Assumption on IT used in practice • Expectation on IT skilled recruit • IT skills expected • IT skills questionnaire • IT skills required in career • IT usage in job	4. Expected IT skills to develop	• Financial accounting package • Auditing and tax packages • Management accounting-related applications • Excel
• All background • Competencies • Selection criteria • Working experience	5. Selection Criteria for graduates recruitment	• Academic background • Core competencies • Related working experience
• Accounting package • AIS • Arguments for and against accounting package • Arguments on accounting package • Auditing package • Components of gap • Gap • Missing skill • On job training • Perception on accounting package • Skills suggested • Tax package	6. Perception on gap	• The awareness of the existence of the gap • Arguments for the existence • Perceived area of the gap
• University preparation • 1st year integration • 2nd year integration • 3rd year integration • Approach IT in accounting unit • University preparation • Widespread	7. Widespread of Integration	• How widespread in accounting unit? • How widespread in the time span of the program?
• Adequacy • Integration experience • Lack in coverage • University preparation	8. Adequacy of Integration	Enough or not?

1. Responsibilities of Students

Some educators and employers assumed that students were responsible for developing their IT skills since the skills are required as part of their courses. The way that a student developed these skills was totally dependent upon the student. Some educators required students to give presentations using presentation software without formal training on how to use the software. Some educators assigned work involving calculation and assumed that students would use a spreadsheet to complete the assignment. They assumed that students would make an effort to develop the required skills to complete the course assignments. A few students spoke of their experience in developing some IT skills, such as using PowerPoint and more advanced uses of Excel, because the skills were required to complete their coursework. Some students developed their IT skills due toapersonal interest in developing such skills. Many of the students expressed their preparedness to learn and develop skills on their own on the condition that the software and related facilities were provided by the University in the library or departments.

2. Responsibilities of Employers

Many respondents opined that employers should be responsible for developing IT skills as part of job training. Educators relied on employers to develop such skills because educators focused primarily upon conceptual subject matter. Furthermore, educators seemed to believe that individual firms use specific IT systems that are tailored and uniquely applicable to the firm. They believed that many different applications were used by different organizations and it was impossible to cover all of them. Furthermore, it was difficult to choose a particular system since the students might join companies using different systems. Thus, many educators cited the above reasons as a strong argument for not including any accounting or auditing packages in the related units that were taught. They, as well as some students, expected that job-related skills should be developed during job training instead of in the HEIs. As stated by one of the educators:

> I would say that they would get it [skill on using the accounting package] on job. Not only that. There can be a lot of different packages on the job. Thus, I suppose employer will train them.
>
> (Accounting Educator T)

Employers guaranteed appropriate IT skills training for their employees at recruitment and when needed. Most of the accountant trainees and alumni said that they did not have a problem developing the IT skills required since they were able to learn and develop through a formal training program or through mentors.

3. Responsibilities of Educators

Employers, students and educators agreed that some IT skills could be developed through courses in higher education programs and that it is the responsibility of educators to provide a framework that helps to develop certain IT skills. A manager stated:

> I think yes, you can [develop IT skills in higher education]. It is absolutely a very teachable subject. And, you know, that is absolutely the way. I would expect the people to come to us with, who are very computer literate.
>
> (HR Senior Manager)

While some educators assumed the responsibility by directly or indirectly exposing the students to IT, many of them viewed it as being beyond their obligations and did not exert any effort to include IT skills development in the courses that they thought.

4. Responsibility of Student Support Centers

Some respondents, particularly educators, believed that graduates could develop IT skills in HEIs through student support centers and without depending on formal IT skills integration by educators. Some educators opined that there should be student support centers that could provide courses on IT skills development to the students. Some students also expressed their expectations concerning the support provided by the University through the use of library resources or computer centers to help them develop skills.

Generally, it is obvious that all parties are responsible for the development of skills in graduates. Educators provide a context, students take their own initiative to identify and acquire the required skills and employers train new recruits, particularly in those skills that are specifically applicable to the company. Student support centres in HEIs also have responsibilities in developing IT skills in students, either by providing the facilities, such as software and hardware, or conducting the relevant skill training required by the students.

RESPONDENTS' UNDERSTANDING OF 'IT SKILLS INTEGRATION'

This category relates to the perceptions of respondents concerning IT skill integration across a range of issues, from using IT as educational technology to the issue of developing the IT skills required by the accounting profession. However, the respondents always referred to these two main issues when giving opinions on the integration of IT skills.

1. Using IT in education

Most of the educators referred to IT in teaching, especially the use of the Blackboard, regardless of whether or not they used it in their lessons. The Blackboard is a web-based service supported by Information System Services and used as an electronic educational platform to provide facilities for educators to deliver course materials. It can be accessed on the Internet by students at any time. It has interactive features, such as online tests and discussion boards. Although some educators did not utilize it, increasing numbers were starting to use it, at least for posting course materials. Some educators used other

Blackboard functions, including online tests, discussion boards or forums. Educators found the discussion boards useful to manage issues raised by students from which other students would also benefit. Educators were able to schedule the time to read and answer the questions. Some students took advantage of this and posed questions related to assignments. They also appreciated the availability of the course materials and other related information or announcements on the Blackboard.

Despite these positive responses, some educators still doubted the benefits of the Blackboard. They expressed their disappointment about students not participating enough. On some courses, students did not really use it or participate in discussion. They did not even access important materials provided on the Blackboard. Some students also expressed disappointment that some of the courses provided little or no material pertinent to the subject matter.

Another issue raised by one educator relating to the use of the Blackboard was that of transferring the costs to the students, in that the students had to print out the materials at their own costs instead of receiving free hand-outs from educators. Furthermore, one educator also thought that having everything on the Blackboard was an excuse for students to skip classes. However, the majority of educators and students acknowledged the benefit of using the Blackboard as a platform for communicating and distributing course materials (not as a replacement for conventional lectures). Although they did not see the Blackboard as a direct way of developing IT skills required by employers, it exposed the students to some IT skills, such as using the Internet, online discussion and forum participation. Furthermore, when the educators used the Blackboard in their teaching, students realized the importance of exposure to technology and it encouraged them to familiarise themselves with it.

Another use of IT as a tool in teaching and learning was the use of Computer Assisted Learning (CAL), such as EQL. Again, although the educators admitted that it does not directly provide the IT skills development required by employers, they believed that it did expose the students to some applications of IT and indirectly developed some generic IT skills important for students in starting new careers. Some educators had already adopted a CAL, but others still questioned the benefits of such a tool. The first issue was whether it was really effective in developing students' understanding of accounting concepts and principles. Another issue was financial feasibility and whether the benefits gained justified the cost of acquiring the software. Experience showed that students were not using the software optimally and those who were using it constituted only a small number. This perception was supported through the responses given by the students concerning their experience on their course with CAL. The software was not widely used as the students failed to see its importance and it was provided solely as an optional type of reference.

2. Developing IT related skills required by the profession

Some respondents referred to 'IT skills integration' as an issue relating to developing the IT skills required by the accounting profession. Students and employers focused more on this issue than educators, who emphasized IT integration as a tool in teaching and learning. However, all groups of respondents were aware of the importance of IT for their careers and the need to develop the skills before entering the profession. The students believed that having generic IT skills and some exposure to accounting-related packages would give value added and competitive advantage for them in securing jobs. Thus, IT skills were of real interest.

The feedback from respondents showed that all were aware of the importance of IT skills to their working careers, but none were clear about the specific IT skills that were required and should be or could be developed in higher education. Generally, all were of the view that graduates should have some transferable skills and generic IT skills. The generic skills could be developed through teaching units (courses) in accounting degree programs, while specific IT skills should be developed by employers through job training. The data shows that all of the respondents had a positive attitude towards the development of IT skills of students because of the changing working atmosphere, which is rapidly moving towards an IT-based environment.

However, the respondents had different opinions regarding who, where and how the skills could or should be acquired. Based upon these differing opinions, the responsibility could fall on the students themselves, the educators, employers or student support centres. In general, they viewed basic IT skills, including a general understanding of accounting packages, as skills that can be developed in higher institutions, while specific skills can be developed through on-the-job training. However, there was no indication of the need to expose students to the basic or general use of accounting, tax or audit-related packages. Another disagreement was related to the nature of IT skills. While students and practitioners were more focused on job related IT skills, many educators emphasised using IT as a teaching tool, such as the Blackboard and PowerPoint presentation. These factors were perceived as contributing towards the existence of the expectation gap.

EXPECTED SKILLS TO DEVELOP

This category represents the respondents' views on what IT skills could be developed through an accounting program in an HEI. During the interviews, the students, educators and employers did not know exactly what skills should be developed and how the development process should be undertaken. However, they expected accounting graduates to have some familiarity with IT applications. Among the applications suggested by the respondents are:

1. Financial Accounting Package

Most students expected that they would be given a sample of an accounting-related package. Almost all of the students expected to learn and use IT-based accounting applications, particularly in recording accounting information in financial accounting units, which was taught during the first and second years of their studies. Although most of them did not have any idea of the appropriate application, they were aware that most firms perform tasks using computer-based systems. Furthermore, some of the students were convinced that their counterparts in other universities had been introduced to and used IT-based applications. Thus, they expected the same from their program at the University. Despite the expectation of being exposed on using IT-based accounting package, they agreed to the need to have a strong conceptual understanding of accounting principles and admitted that the course had provided them with enough training through paper and pen based exercises. However, they suggested substituting some exercises with computer-based applications to expose them to the actual practice. They also argued that although there were different systems available and different systems were used by different organizations, they believed that being exposed to one system would help them to use other systems since the systems were similar in relation fundamental principles and concepts.

Educators had different views about integrating an accounting package into accounting programs. Some educators expressed similar thoughts to the students in regards to the use of an accounting package in the financial accounting units. Some educators assumed that responsible educators would and even had already included the packages in the current program, as in other universities. They argued for the introduction of accounting packages to expose the students to actual working environment practices and believed that the benefits included the students' understanding of accounting concepts and principles.

Despite the favourable thoughts regarding the inclusion of an accounting package in financial accounting courses, some educators felt it was not necessary to integrate it into the syllabus, since the students would be trained later on the job. Some were still doubtful about integrating any accounting package in the courses for reasons including tight syllabus content; conceptual understanding emphasis rather than technical skills; and the availability of various systems on the market.

Some educators agreed with the students regarding the systems used by different organisations. They argued that systems were not different in relation to basic and general concepts, allowing the students to quickly familiarize themselves with any system. Some of the accountant trainees and certified accountants from both groups of practitioners (alumni and practitioners of the selected firm) expressed their expectations and suggested including an accounting package in the degree program. They believed an accounting package would provide a good exposure to accounting software for students as they would use it in real practice. Although some of the alumni and the practitioners worked in a big 4 companies, they were also very keen to the views of exposing accounting students to a simple, commonly used commercial accounting software for small company such as SAGE, as they were very much exposed to such systems since the systems had been widely used by their clients.

> It might be nice to being introduced to an accounting package that the client might use to record transaction and so on, just to have some exposure, because I assume they are all working roughly the same way, so it would be nice to have experience of one. To have a little bit of more general knowledge of how they use them.
>
> (Accounting Trainee V)

2. Auditing and Tax Packages

In addition to the software that helps to record business transactions and produce information for annual reports, some educators and students saw the potential for introducing auditing and tax packages in relevant courses. Some alumni also shared the view that it was appropriate to complement the conceptual learning in auditing and tax units with some introduction to the related software. Thus, in addition to knowing the theoretical parts of auditing and the availability of auditing packages, students would also have some experience of undertaking audits using the software.

A few current accounting students also expected that they would use both an auditing and a tax package in a fashion similar to their counterparts at other universities. It was their personal opinion that it was feasible to learn auditing through diverse theoretical and conceptual approaches as well as through practical approaches.

Some educators saw the possibility of using the same packages used in financial accounting modules in financial and auditing units as some of the accounting packages had more advanced features that include the tools necessary for undertaking an audit trail. Thus, such a package could be used in both the financial accounting courses and the auditing course; and it would be justifiable in terms of cost. Although some universities had developed their own packages, some educators suggested that it would be better to use packages that are readily available on the market instead of developing new ones.

3. Management Accounting-Related Applications

Some educators suggested more exposure to IT-related applications dealing with management accounting issues. They were aware that students had been introduced to some IT applications in management accounting courses and felt that the initiatives were manageable and successful. In other words, the applications were well integrated without reducing other important content to the syllabus. However, they felt that the use of IT applications was still low and felt that there was potential for introducing more IT applications into the syllabus,

such as applications for performance measurement that included balanced score card systems and simulations concerning decision-making relating to management accounting. They believed that there should be packages suitable for educational training available on the market that could be used in management accounting courses. They were also aware of the cost implications, but believed that arrangements could be made with suppliers for better offers for educational institutions.

4. Excel

Most of the respondents stated that there was some integration of Excel in the current syllabus. However, both educators and students thought it could be spread out over more courses to enable the students to use it in a variety of contexts. Some students thought that they were quite proficient in Excel, but observations showed that some of them still needed training to use the program more efficiently. For example, many students were inserting their own formulae to calculate internal rate of return (IRR) and net present value (NPV) because they did not know that the functions for the formulae were readily available as one of the software features. Many of them did not even know how to insert formulae, format or update the spreadsheet. Some students had no previous experience with Excel. Thus, in terms of coverage, some students suggested that the introduction to Excel should begin with its basic functions, including formatting and inserting formulae. In addition, a student who had undergone industrial training thought that some of the coverage of Excel was too advanced compared to what they were actually using at work.

However, some students felt that the lessons in Excel were not new to them since they already had the skills. This group of students was looking for other new skills. As a result, educators were faced with difficulty in developing a program to meet the diverse levels of student skills. Some students expressed unwillingness to spend time on skills that they already possessed. One suggestion raised by students and educators was to have regular reviews, such as an assessment conducted at the beginning of the university session to identify students' levels of skill so that they could be assigned to the right group and trained to the right level. In addition, a foundation level course in using Excel could be provided to cater for those whom it was deemed necessary.

Regardless of skill level, most students and educators saw the need to have more opportunities to use the applications throughout their studies since they believed that one of the ways to develop skills is through continuous use of the applications. They also placed emphasis on developing the skills relating to the accounting field rather than general IT applications.

SKILLS POSSESSED

This category is about the IT skills possessed by students from their previous learning experience, as perceived by students and assumed by educators. All educators expected students to have some basic IT skills when entering an HEI. Educators had a high expectation that UK students would have basic skills in using common software, including word processing and spreadsheet software. Furthermore, they believed that the skills base of current students should be much higher compared to the skills of students several years ago because of the exposure they had at school, college, home and elsewhere in their environment. This perception had influenced them to integrate IT skills into their teaching. Some students admitted and showed that they possessed some IT skills and expected their peers to also have them.

The relevant issue was whether the students really possessed the IT skills that they were assumed to have by the educators. In other words, did educators overestimate or underestimate students' skills? Some educators found that sometimes students did not have the IT skills that they were expected to have. For example, there were students who were not at all familiar with spreadsheet packages. Thus, some educators felt the need to evaluate students' skills to ensure they really had them, and, if not, provide them accordingly. Some educators had designed the integration in a way that quickly covered lower-level skills before gradually proceeding to higher-level skills. They thought that this was a good approach that could address the differing abilities. This would provide an opportunity to those who did not yet have the skills to start developing them, while allowing those who already had the skills could treat the class as revision or an enhancement opportunity. Some educators and students thought it was unfair to ignore the integration of IT skills because it was wrong to assume that students already possessed the skills.

SELECTION AND RECRUITMENT CRITERIA

This category is about respondents' views concerning criteria considered during the selection and recruitment process for employment. The criteria were assessed via a written form and face-to-face interviews with candidates. The criteria revealed in the interviews were academic degree; UCAS points; experience; and the quality of the applicants.

An academic degree is one of the main criteria that employers take into account in the selection and recruitment process. Employers revealed that they would consider any academic background, including sciences, arts, geography, history, and engineering, regardless of which university awarded the degree. However, applicants must have a minimum of a 2.1 cumulative grade point average (CGPA) to ensure the academic ability for them to cope with professional training and examinations. This means that applicants did not have to be graduates of an accounting and finance program and those who had a degree in accounting and finance were not given priority in the selection process. However, accounting and finance students normally had an advantage in terms of their interest and understanding about business and industry compared to applicants from other academic backgrounds,

such as geography and history. Employers felt that this was because of the nature of the accounting and finance degree itself, which is closely related to business and industry.

Employers also found that accounting and finance degree graduates did not normally perform the best in their professional training and examinations. Some of them performed well in the first few papers, which covered the material taught during their studies, but were at par with other academic background trainees for the rest of the professional training modules. This was evident in 2004 and 2005, when the best trainees for the ICAS professional training program conducted by the firm came from geography and oceanography, respectively. Thus, any academic background would be considered, as long as the applicants met other important criteria, including UCAS points of 350, work experience and other personal qualities, as discussed in the next section.

In terms of work experience, this matched with the job searching experience revealed by some of the interviewees who were accountant trainees and alumni that had completed the accounting and finance program. They also confirmed that work experience was important since those individuals that had no working experience had difficulty in securing jobs, especially in the big four companies, despite performing well academically. Many of the alumni who worked with the big four firms had actually done an internship program with the firms during the summer term. Other interviewees with non-accounting related backgrounds also had previous working experience with the firm. For example, an accountant trainee who had graduated with a degree in management had completed an internship program with the firm during the summer.

Another important criterion was the quality of the applicants. Employers were looking for candidates who appeared to have communication, leadership and teamwork skills. Employers found communication skills to be an important criterion, since the job involves contact with different people inside and outside of the organisation. Candidates should demonstrate an ability to prepare documents, such as reports, and to communicate verbally with others. Leadership skills were important since the job required them to take on leadership responsibilities. As accountants regularly work in teams, candidates must show experience with group work and the ability to tolerate others, among other attributes. In addition, the candidates must also show interest in, and understanding of, the business and accountancy industry. Furthermore, another requirement is that they should perform well during the professional examinations. Last, but not least, candidates must appear motivated and enthusiastic.

Based on the interviews, employers emphasised that the combination of the above criteria was important in the selection and recruitment process. Employers did not see IT skills as important and no assessment of those skills was attempted, either prior to or during the interviews. This was because, based upon their experience, they found that candidates were normally equipped with basic IT skills and demonstrated that they could quickly adapt to the use of IT-based applications used in the firm. Employers were also willing to provide IT training since they perceived such training as being feasible practically. However, they preferred higher education programs to focus more on developing other skills since they found it hard to find candidates with the skills needed when they joined the firm. The accountant trainees also believed that employers looked into other criteria in selecting and recruiting new recruits. They thought that IT skills were not a priority since some of them did not have the skills when they joined in the firm. The accountant trainees faced no difficulty relating to IT skills as they were trained to use the IT systems employed in the firm as soon as they were recruited. Moreover, they could request training for skills that they lacked. However, they perceived it was also good to have the skills to be able to quickly cope with the systems.

The discussion above illustrates the skills expected by each group of respondents. While educators and students were more focused on IT skills expectations, practitioners were looking for other personal and learning skills. This issue is perceived to contribute to the existence of the expectation gap.

PERCEPTION ON GAP

'Perception on gap' is represented by the views concerning the widespread integration of IT skills into the program and whether such integration was sufficient, which demonstrated whether a gap exists between the expectations of the three main groups of respondents. The category also identifies the areas in which the gap is perceived to occur. A detailed explanation of the category is presented below.

1. Widespread and Adequacy of Integration

The syllabus showed some degree of integration of IT skills in the accounting related courses, including EQL, a computer tuition package to be used in Financial Accounting 1 as an optional reference; and the use of PowerPoint for group presentations required in Financial Accounting 3 and Management Accounting 2. Since 2002, there were more IT integration initiatives in Management Accounting courses. In Management Accounting 1, a computer-based assessment was conducted and a three-week modules consisting of one hour IT-based lab sessions for Excel was introduced. In the first week, students revised the basic functions of Excel, such as formatting and using formula, through the preparation of a cash budget. In the second and third week, students were exposed to macro functions, plotting graphs and the use of IRR and NPV functions through an investment appraisal assignment. In Management Accounting 3, Excel was further introduced with Excel Solver. Students were given the opportunity to work through simplex linear programming exercises. Students also started to use the @Risk software to run simulations that model the uncertainty of the NPV method in investment appraisal

topics. The use of the Internet for information searching was demonstrated in the Tax Policy course. There was no IT integration in Financial Accounting 2, Auditing and Corporate Governance courses.

In general, most of the respondents viewed that integration was less widespread over the three years of the program and was insufficient. Some students felt that there was more room for the integration of IT skills in the first and second years, as their workload was considered light. In addition, some IT skills were expected in the courses in the first two years of the program, particularly the use of an accounting package in the Financial Accounting units. The students felt that they were quite busy in the third year due to completing their dissertations while taking advanced level units. Thus, they did not expect an additional workload relating to IT skills. However, they would prefer to have some introduction to, and experience with, accounting, tax and auditing packages in the relevant units.

Some educators felt that they were able to integrate IT skills within the second and third years. They also felt that there was no continuity in the development of IT skills across the years, which affected the learning process. In other words, the students learned the skills at one particular time and no further enhancement occurred later in the program. As a result, students tended to forget the skills developed in the early years of their studies.

Educators also found that integration occurred less in the core courses in the program. It occurred rigorously in one course, but not in the others. For example, efforts at integration of many IT skills were made in management accounting units, particularly during the third year, while there was no direct integration of relevant IT skills in the financial accounting courses. They also believed there was a potential area for development throughout the three years of the program, particularly in accounting-related packages, such as spreadsheets.

Only a few items specifically targeting IT skills were formally integrated in the syllabus. Students were assumed to acquire the remaining skills indirectly while performing other activities using PowerPoint to prepare presentation assignments. In addition, the integration seemed to focus on basic IT skills instead of skills relating to accountancy. Furthermore, only a certain group of educators made an effort to integrate IT skills. As a result, the integration initiatives occurred mainly in certain courses (i.e., the courses taught by those educators who were interested in IT). Some educators viewed the integration as being unsatisfactory compared to other universities offering similar programs, especially those in the new university category. Many educators believed that they could do more to integrate IT skills in the program as represented in the following quotation.

> For accounting there is also an issue of teaching IT as the skills that are asked for in professions such as accountancy and they are much more convinced and we are probably not doing enough.
>
> (Accounting Educator D)

2. Views on Gap

There were several views as to whether a gap exists between the IT skills developed by graduates and the IT skills required for a career in accountancy. Some of the respondents, particularly educators and, surprisingly, some employers and students, seemed unaware of the issue at all, since it was not an area of concern. The educators were more concerned about developing communication and analytical skills. Similarly, employers were looking for other learning skills, such as leadership, communication and team spirit. However, some educators perceived the gaps as being unavoidable based upon the different expectations of the different parties. They felt that educators were concerned with conceptual understanding and academic excellence, while students expected to be prepared for employment and employers were looking for both. Thus, they perceived that some gaps would necessarily exist. Some educators and students perceived that there might be a gap due to skills or materials were insufficiently developed or ignored in the program, such as accounting packages.

Quite a number of the respondents from all the groups had no idea as to whether or not the gap existed, because they did not have a clear idea regarding IT expectations in other groups. Educators had no idea what employers wanted in terms of the IT skills of graduates and employers did not know what skills had been developed in higher education. Educators also expressed that there was never a meeting with employers concerning such matters. This problem was not an issue in the programs under the School of Engineering Science since there were some representatives from the relevant industries on the advisory board. Furthermore, the majority of students did not know the specific IT skills required by employers or what was expected to be developed in higher education. The students simply vaguely demanded more IT skills development in the accounting program.

3. Areas of Gap

Although the respondents assumed some degree of expectation gap, they had no clear idea of what was missing. From the data, it seemed that educators perceived the gap as existing in relation to understanding the application of IT-based systems in business organizations. Another perceived gap was in the area of accounting packages, such financial accounting-related packages, auditing-related packages and computer-based systems for decision making, in terms of both the conceptual knowledge of the packages and the hands-on experience of using the packages, which the educators expected and believed could be developed in higher education. Some of the students and alumni concurred with this viewpoint. The following quotation summarizes the issues discussed above.

> I would say that we could do a lot more at (School of Management), in developing IT skills. Clearly what we don't do is SAGE. We could do a lot more with various databases and other financial related IT packages. So, we could improve

the IT skills based on the accounting educational context for our students."

(Accounting Educator B)

CONCLUSION

The present research investigates the issue of expectation gaps among educators, students and employers in relation tothe development of IT skills during an accounting program. Different views on who should take responsibility for the skills development of graduates; different understandings of the term 'IT skills' that lead to the different approaches and emphasis during the integration process; and different skills expectations are perceived to contribute to the insufficient initiative and low intensity of IT skills development in relation to the number of accounting courses and number of years of the program. This also suggests that an expectation gap exists relating to IT skills in respect of the understanding of the organizational use of IT; the use of accounting-related packages, including tax and auditing packages; and the hands-on skills training with the packages.

The findings of the present study add to the body of knowledge in improving the teaching and learning process of accounting education, particularly in equipping graduates with IT skills required by the profession. The emergent grounded theory also acknowledges the same issues as discussed in the extant literature. Above all, good communication between all stakeholders is required to convey the expectations and needs of each party. Proper communication is perceived as being the key resolving issues relating to IT skills expectations among the stakeholders. Educators believe that employers could provide potential support in terms of incentives to motivate educators to integrate IT and appropriate IT skill-based training for both educators and students. An appropriate learning context in the classroom and internship training were viewed as good approaches to develop IT skills. In addition, students should also prepare themselves and take the initiative to develop the appropriate skills on their own. All respondents were in agreement concerning the importance of developing IT skills beyond the ones required in the work place to ensure life-long learning. Generally, all parties are responsible for the development of skills in graduates. However, the first initiative should come from the educator as the key player with the authority to design and mold the learning and teaching process towards achieving the learning outcomes.

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