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Research paper

The Enhancement of Spreadsheet Skills among Practitioners within Small Medium Accounting Firms

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Abstract

This study identifies electronic spreadsheet skills enhancement approaches among accounting practitioners in Malaysian small and medium accounting firms. Spreadsheet plays an important role for accounting practitioners and has also penetrated almost all accounting-related processes such as planning, budgeting, forecasting as well as decision-making responsibilities. This study uses a case study design with a qualitative approach as a strategy to identify skills development approaches. The findings conclude that formal education, experiential learning and job rotation and knowledge sharing among peers are the three main skills enhancement approaches which have emerged from utilising spreadsheet within the small and medium accounting firms. This study, thus makes significant contribution to the academic and professional bodies as well as to the industry, by providing theoretical base to develop skills related to spreadsheet as well as soft skills, indirectly, i.e. critical thinking and decision making skills for knowledge workers in general and accounting practitioners in particular.

Keywords: *Spreadsheet; Skills; Accounting; Practitioner; Education*.

1. Introduction

Previous studies have suggested that the use of IT in audit fields is less extensive and sophisticated as expected (Dowling & Leech, 2007, Janvrin, Bierstaker & Lowe, 2008) which, contributed to the low level of IT utilisation by small and medium sized audit firms compared to big firms such as Big 4 (Janvrin et al., 2008). The inability to rely on technology by small and medium audit firms will reduce their potential and opportunity to perform audit more efficiently, and also can reflect significant economic barriers to entry into public accounting. In relation to this issue, easy-to-use, low-cost, and caliber based-technology tools, such as spreadsheet is an option to simplify audit work through technology applications.

Spreadsheet such as MS Excel is widely accepted as critical technology in IT audit work, and has a profound impact on the audit process (Pongpattrachai, Cragg, & Fisher, 2014). This technology tool is used to manage business process data, support decisions and strategic planning which significantly has impacted the financial statement values (Walters & Pergola, 2012; Bradbard, Alvis, & Morris, 2014). Although there is a study that states accountants need to switch to more sophisticated technology in performing their tasks (Ali Mona, 2018), it is believed spreadsheet is still said to be relevant, especially in auditing practice (Perdrosa, Costa & Laureano, 2015). Spreadsheet is constantly updating its features periodically to meet the needs of contemporary professionals (Sciglar, 2017) to accommodate the digital economy era.

The literature states that spreadsheet is extensively supporting audit tasks in audit firms (e.g. Pongpattrachai, Cragg, & Fisher, 2014; Ragland & Ramachandran, 2014) including small and medium sized audit firms. In fact, it was reported that spreadsheet has been used to measure firm performance at high levels of decision-making (Panko & Port, 2012). Small and medium accounting firms seemed less likely to invest in IT due to lack of capital/fund and facility support (Pongpattrachai et al., 2014; Janvrin et al., 2008), utilising spreadsheet in their audit and business activities is one of the best alternatives to gain benefits of technology. In terms of skills of utilising spreadsheet, the American Institute of Certified Public Accountants (AICPA) and the International Accounting Education Standards Board (IAESB) have recognised skills in spreadsheet as part of IT competency for accounting professionals (AICPA 1999, IAESB 2007). The International Federation of Accountants (IFAC) in 2003 also suggested that skills in this tool are very important for accountants before qualifying as accounting professionals. However, little is known about how the skills in spreadsheet are developed among accounting professionals. Moreover, there is no specific guidance regarding these skills and proficiencies for professional accountants to possess (see AICPA 1999, IAESB 2007).

The Higher Education Institutions (HEIs) have also incorporated spreadsheet related courses in the accounting curriculum in preparing accounting graduates to meet their work skills (Bahador & Haider, 2017). However, spreadsheet skills are often taught as part of a technology course providing students only cursory coverage of the most basic of spreadsheet skills (Boon, 2005).

This issue triggers the question "How spreadsheet skills can be enhanced among accounting practitioners for better use of spreadsheet in their profession?"

The objective of this paper is to examine the approaches or methods that have contributed to the development of spreadsheet skills among accounting professionals in small and medium audit firms. Previous studies from audit literature mostly focused on demonstrating practical application of spreadsheet to specific audit tasks and considering audit-related issues using spreadsheet (Coleman,

Phillip & Blankenship, 2017; Perdrosa et. al, 2015; Bradbard et. al. 2014; Galbreath, Booker, & Adams, 1998;). However, these studies seemed to lack focus on how the spreadsheet skills are developed for accounting professionals, especially auditors. In addition to our knowledge, no current research has considered the elements of what might help or enhance auditors' skills to better use of spreadsheets.

This paper is organised as follows. The first part provides the literature related to electronic spreadsheet and skills development approaches. The second part consists of the research method carried out in this study. The main focal point is in the third part, which presents the findings and discussion on how spreadsheet skills have been developed in accounting firms. Finally the paper draws conclusions from the case study and future research for this study.

2. Literature Review

2.1. Spreadsheet Skills in Accounting Practices

Spreadsheets have had a significant impact on accounting practices since 1974. Accounting practitioners are the early adopters of spreadsheet and this technology has been considered as the most widely used software in financial jobs (Walters & Pergola, 2012; Pongpattrachai et al., 2014; Bradbury, 2012). The importance of spreadsheet in accounting has been recognised by many parties such as the AICPA and the IAESB, which identified that this technology is a key of IT competency for accounting professionals to perform their tasks. In fact, these professional bodies have agreed that skills in using spreadsheet should be acquired by practitioners to carry out their duties in the context of accounting and business (IAESB, 2007; AICPA, 1999).

Many researchers have indicated that spreadsheet helps practitioners in supporting business processes, making decision and preparing financial reporting (Barnes et al., 2009; Holtzman & Kraft, 2010; Walters & Pergola, 2012). Accounting practitioners such as accountants and auditors use spreadsheet not only to capture, analyse and present data (Willis, 2016; Galbreath et al., 1998), but also to assist them in administrative tasks such as planning, budgeting, forecasting, controlling and monitoring statistical data for analysis (Manson, McCartney, Sherer, & Wallace, 1998). This demonstrates that spreadsheet skills can assist accountants/practitioners to analyse complex financial issues from different perspectives to provide business stakeholders with useful information for decisions (Convery & Swaney, 2012; Ramachandran Rackliffe & Ragland, 2016).

Spreadsheet is composed of three (3) categories in terms of utilisation in accounting practices, namely, (1) operational management, (2) financial and (3) analytical/management information. These categories are used to track and monitor business processes (operational management), to determine the balance/amount of financial statements (financial) and support management decision making (analytical information) (PWC, 2004). In the accounting services, spreadsheet is commonly regarded as a supporting tool for audit software. For example, to improve the effectiveness use of computer-assisted audit tools (CAATs), spreadsheet is used to assist CAATs facilitation in terms of data sampling, data verification, data analysis and fraud detection (Pongpattrachai et al., 2014). It can be said that spreadsheet is used to simplify the process of data analysis and to generate alternative solutions for business decision making. However, to facilitate spreadsheet for audit purposes, it requires critical thinking skills among accounting practitioners to provide quality accounting-related services to their clients. This is evident in the literature, stating that apart from skills in spreadsheet per se, accountants also need to enhance their critical thinking skills, which are considered complementary to spreadsheet skills to execute their duties (Bahador & Haider, 2014). This opinion is also agreed by Ramachandran Rackliffe & Ragland (2016), which state that, accountants must develop strong analytical and critical thinking skills that include using technological tools such as spreadsheet to be able to sort, manipulate and/or perform analytical functions.

2.2 How Skills Developed

Skills of using spreadsheet are considered necessary to perform accounting tasks. Many professional accounting organisations such as AICPA and IAESB believe that spreadsheet technology has potential implications for future career development in the accounting profession. Thus, the development of skills in this technology needs to be identified and prioritised. This section will discuss several ways of skills development derived from the literature.

2.2.1 Training and Education

To develop skills for professional accountants, IFAC (2008) issued a continuing professional development (CPD) information paper used by the United Kingdom professional bodies. This education program, defined as the systematic maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities necessary for execution of professional and technical duties throughout the individual's working life (IFAC, 2008), has helped accountants to stay up to date with developments in their field. This statement has been proven correct by the growth of the CPD education industry since it was introduced. For example, Rowden (1996) claims that 'employers spend over $50 billion per year on formal employee training and education and approximately, $180 billion per year is spent on informal on-the-job training' (p. 3). DeRue & Wellman (2009) cite statistics showing the majority of organisations allocate funds for employees to learning and development through education, training, and mentoring programs. This is verified by the data showing that up to 70% of true leadership development occurs through formal training on-the-job, compared with less than 10% through training and other official programs (DeRue & Wellman, 2009).

HEIs prepare graduates by providing pre-employment education and additional education, training programs or periodic workshops. Many workshops and seminars have proven highly effective in practice even though many academic institution leaders criticise workshops and seminars as an ineffective developmental approach because the development of special different competencies is a much longer and more complex process (Guskey, 2003; Savaneviciene, Stukaite, & Violeta, 2008).

2.2.2 Work Experience and Job Rotation

Ho & Frampton (2010) state that work experience has huge potential, since it develops strategic individual competencies effectively. Learning points for the realisation of specific tasks, participation in special projects, special traineeship and temporal tasks, are the key elements in development in the workplace (Savaneviciene et al., 2008). Therefore, encouragement and inspiration should be established within an organisation to realise the above-mentioned elements. This can be demonstrated by the findings of the studies conducted by Savaneviciene et al. (2008), who indicate that encouragement to take risks and to disseminate knowledge positively encourages all learning processes in organisations—indicating that this is a formal learning environment.

Another method of gaining work experience is through job rotation. This method can be implemented at the lowest level by moving employees across various tasks or functions or rotating them between accounting sections in order to establish an awareness of the different tasks within an organisation (Drejer & Riis, 1999; Mossa, Boenzi, Digiesi, Mummolo & Romano, 2016). This helps in analysing the training and development needs of employees so that they can produce more quality output.

2.2.3 Self-Studying

Redshaw (2012) points out that self-study appeared as a means to maintain or refresh competencies rather than develop competencies. The author also provides examples derived from Drejer (2001), where an online survey on specific fields of practitioners revealed that self-study is one of the most preferred forms of continuing education and competencies maintenance. Professional fields such as accounting require on-going documentation of professional development activities to maintain professional certification. For example, standards and regulations for financial reporting, taxation and auditing keep changing every year—updating knowledge and skills must be performed by accountants to produce financial reports based on a set of current standards and regulations. Drejer and Riis in 1999 have encouraged this method since it does not require large expenditure on the part of the organisation.

2.2.4 Couching

DeRue & Wellman (2009) define coaching as the process of individual and team improvement of skills, instruments, knowledge and possibilities increasing work productivity and efficiency. This method is considered as a simple and inexpensive way to improve employee competencies since it provides constructive feedback and assistance to improve current methods and skills (IFAC, 2008). Coaching is the most effective method for strategic competence development (Rowden, 1996). The author also points out that coaching is considered as the method most likely to stimulate an increase in efficiency, improvement and achievement. In other words, coaching helps employees to develop their creative skills in problem solving and improve their self-confidence. This allows employees to perform to the best of their ability, opening the door for more learning opportunities once they have a solid foundation.

3. Research Method

The current study uses a case study design with a qualitative approach as a strategy to identify how the skills of using spreadsheet are developed in Malaysian accounting firms. Conducting a case study enables researchers to collect data at the real site where participants (accounting practitioners) experience the issue understudy, and to enable researchers to understand the context and settings in which the issue is addressed (Creswell & Clark, 2007). A case study is an ideal methodology when a holistic, in-depth investigation is needed (Feagin, Orum & Sjoberg 1991). Three accounting firms were selected in and around the Klang Valley for this study. The rationale and justification for selecting these firms is that they provide a variety of accounting-related businesses that involved significant use of spreadsheets. Thus, the skills required to facilitate spreadsheet can be considered critical to the firms' business operations.

A semi-structured interview method is used to obtain information from the respondents. Using semi-structured interviews not only allow the identification of elements that influence spreadsheet skills development of accounting practitioners, but also to explore how and why it occurs (Marshall, 2006). A total of thirteen (about three to six respondents from each firm), representing business partners, managers, senior accountants/auditors and junior accountants/auditors of the case organisations/firms were interviewed.

All respondents have work experience of one to twenty years in the accounting services industry. Hence, they can provide an in-depth explanation of skills development approaches in facilitating spreadsheet that are essential to their business operations. All interviews have been recorded, transcribed, coded on the basis of the themes.

The data collected were transcribed and analysed to fulfil the research question and the objective of this study which is 'how accounting practitioners acquire spreadsheet skills in Malaysian small and medium-sized accounting firms?' This study is implemented within three cases and cross-cases analysis as a Thematic Analysis technique has been used for the development of elements and themes. In-depth analysis is vital for the case study research in order to gain a detailed understanding of the phenomenon and issue to be studied, and to identify the spreadsheet skills development approaches of accounting practitioners in Malaysian accounting firms.

4. Findings and Discussion

The findings in the case studies show that three main ways of skills enhancement have emerged from using spreadsheet; formal education, experiential learning and job rotation and knowledge sharing among peers.

4.1 Formal Education

The findings show that the majority of the respondents rely heavily on the knowledge they may have acquired through formal education at HEIs. As many learning activities have proven highly effective practices (Guskey 2003; Savaneviciene et al., 2008), these institutions provide a learning environment and facilities that create opportunities for students to acquire basic skills and knowledge in utilising spreadsheet before entering the workplace. A respondent in the case studies stated that spreadsheets were often used by accounting students in the process of preparing their assignments to fulfil their study's programme. It is noted that projects and assignment tasks given to students seemingly helped students familiarised with the use of spreadsheets. For example, the use of spreadsheets assist students to analyse the causes of problems, classify problems and select alternative solutions. Indirectly, learning process assisted with spreadsheets will enhance students' ability to adapt to different workplace environments, especially in dealing with issues/problems as commented by the following respondent;

…We do not study (spreadsheets) directly but specific assignments / projects require us to work with formulas, sort data that probably led us to master them…

Furthermore, it is evident that HEIs have incorporated spreadsheet skills elements within the accounting curriculum and the skills elements are imparted directly through teaching activities, and indirectly through classroom activities such as group discussions and presentations. These diverse task-based activities and assessment during formal education have an impact on accountants' ability to enhance their skills not only in facilitating spreadsheet but also in planning project work, critical thinking, problem solving and decision-making. The finding is supported by Ramachandran Rackliffe & Ragland (2016), which stated that analytical and critical thinking skills could be obtained through spreadsheets tool, which can assist individual to improve their performance and make a better decision. It can be concluded that the current needs of formal education of academic students and the involvement of spreadsheet application in the learning process seem to have a positive impact on critical thinking skills, problem solving and decision-making skills for accounting graduates. It is believed that the basic skills of using spreadsheets obtained by graduates not only help them to market themselves but also as a platform to become more proficient in using spreadsheets and other technologies.

4.2 Experiential Learning and Job Rotation

As noted in the previous studies (e.g., Pongpattrachai et al., 2014; Janvrin et al., 2008), the financial constraints faced by small and medium accounting firms have caused the organisation to rely on spreadsheets in their day-to-day business operations rather than on the sophisticated software in the market. Although there is no

established practice or framework for on-job learning found in the case studies, it is basically left to the respondents to learn new skills and knowledge while working on a project. For examples, respondents need to key-in large amounts of client data and perform data analysis to generate meaningful information by using spreadsheet. Through this process, they acquire skills while carrying out their job and gain experience dealing with the tasks and challenges they encounter during routine jobs. This perspective shows that risk-taking individuals have the opportunity to acquire new knowledge and skills, which is in line with Savaneviciene et al. (2008), which state that encouragement to take risks and to disseminate knowledge positively encourage all learning processes in organisations.

It is worth noting that employees are constantly rotated among different work profiles to give them a variety of skills associated with accounting work. In doing so, accountants are exposed to various technologies and various situations to encourage accountants to use spreadsheets with different functions and skills to achieve different task benefits. Through this learning form, employees are literally learning from their work experience and the rotation roles or tasks so they gain full range of experience associated to accounting work. This situation is agreed by one of the respondents among the three case studies commented;

Previously, when focused on accounting services, yes... it involved spreadsheets. Now. auditing services, still using spreadsheet but from different perspectives…

The above comment shows the diversity of services offered by the organisations have enabled accounting practitioners in accounting firms to gain significant experiences in different areas connected to accounting jobs. One of the respondents also posited that their skill profile is continuously evolving since they entered the workforce. This view is consistent with Drejer & Riis (1999) and Mossa et al. (2016), which state that job rotation can be implemented at the lowest level to create awareness of the different tasks within organisations.

4.3 Knowledge Sharing among Peers

As accounting firms offer dynamic accounting services to various types of clients, a significant amount of knowledge is identified, processed and applied using spreadsheet application/tool on a daily basis. The findings show that the flow and management of knowledge in these firms involve sharing of knowledge and experiences among employees in using technological tools (i.e. spreadsheet). Senior employees such as senior auditors that guide or coach junior employees to conduct analytical procedures on every common task related to spreadsheet. One of the respondents in Case B commented;

... We use spreadsheet templates that have been prepared by our seniors to analyse accounting data and information that are usually provided in the form of sheets. Specific formula is generated using spreadsheet to analyse information in percentages, charts, statistics and so on. We have made changes to the formula if needed. Spreadsheet is an easy-to-learn and inexpensive application that is very useful to us…

Senior employees not only guide junior employees but also act as their mentors in different projects. The guidance and mentorship include leading junior employees in facilitating data analytics, sorting data or information and managing data by using appropriate formulas to provide meaningful information for clients. This process coincides with the IFAC (2008) recommendations that coaching and mentoring approaches are a simple and inexpensive way to improve employees' skills.

This is because coaching and mentoring not only help employees to develop spreadsheet skills but also provide constructive feedback and assistance to improve current skills and competencies among individuals.

It is interesting to note that peer-to-peer knowledge sharing or coaching is not limited to how to use spreadsheet only; it is also beneficial in helping employees gain soft skills such as teamwork skills and communication skills. It can be seen that senior employees who are actively involved in helping junior employees to analyse data through spreadsheet demonstrate their increased ability to work in groups associated to important projects.

5. Conclusion and Future Research

This study provides a contribution to small and medium accounting firms by suggesting different ways and strategies to develop spreadsheet skills. Spreadsheets have been proven to assist accountants/practitioners in analysing complex financial issues from different perspectives in order to provide stakeholders with useful information for business decisions. With the benefits of spreadsheets, accounting practitioners need to develop strong skills in understanding spreadsheet to maximize the benefits of such tool for better quality of accounting work. Thus, the development of spreadsheet skills is needed. Lack of spreadsheet skills will affect the performance of small and medium accounting firms. In the event that the firms cannot master spreadsheet skills, their business will struggle, become uncompetitive and difficult for them to sustain their business in the industry. The firms will also have difficulty adapting to advanced technology requiring more complex skills. Therefore, the skills development approaches identified in this study are required to nurture as a firm's culture to ensure the skills are constantly upgraded at all times in line with technological developments.

The findings reveal that instead of heavily relying on formal education from HEIs, learning from peers, and experiential learning/job rotation can help the firms plan skills strategies for educating their employees to develop all of the required and desired characteristics, and skills to enhance organisational performance through optimised spreadsheet utilisation. For example, learning from peers allows sharing knowledge and experiences among employees, in which a significant amount of knowledge is created and applied on a daily basis. Through this process, they acquire skills while carrying out their job. However, it should be noted that the development of these skills is based on the context of participating firms considering their existing facilities and ability to provide training and education for their employees. Small and medium accounting firms differ from large accounting firms. Large firms usually have sufficient capital and good investments in technologies that can easily support employees to improve their skills for their professional endeavour.

This study also provides input on the development of IT skills that can be used as guidance by organisations to upskill their employees. It can also contribute to strengthening the accounting curriculum structure in HEIs, in terms of integration of spreadsheet skills elements. The skills development strategies identified from this study can be applied not only by accounting organisations but also to other industries. This study also adds to the literature on spreadsheet by identifying three approaches of skills enhancement in utilising spreadsheet.

In terms of future research, the brink of the Industrial Revolution 4.0 (IR 4.0) that will fundamentally alter the way all profession fields work including accounting, there is an opportunity to focus on the development of specific/specialised skills needed for the technologies involved in IR 4.0, such as cloud computing, data analytics, big data and other related technologies. Expanding spreadsheet skills will not only help accountants in their duties but also other professions to remain competitive in the environment.

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