

From the Accounting Graduate's and the Employer's Perspectives: Exploring the Key Roles in Making Skill Acquisition and Transfer Happen

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Abstract While extant research has discussed how a teacher's role may have to change when facilitating accounting students' learning in today's fast-moving accounting landscape, nevertheless, little is known about the roles played by the accounting graduate and the employer in a similar process. To plug this knowledge gap in the accounting education literature, this study aims to address the following research question: What are the key roles played by the accounting graduate and the employer in the process of skill acquisition and transfer from the university to the workplace? By applying Fitts and Posner's (1967) three stages of learning and adopting a role perspective, we developed a process framework that depicts the roles played by the accounting graduate and the employer during the cognitive, associative and autonomous stages of skill acquisition and transfer. Our results suggest that the accounting graduate plays the roles of a *self-directed learner*, a *resilient learner* and an *adept learner*, whereas, the employer plays the roles of a *supporter*, a *catalyst* and a *manager* during the learning transfer process. Overall, our framework makes a unique contribution to the accounting education literature and offers relevant insights to enhancing graduate skill acquisition and transfer from the university to the workplace.

Keywords: Accounting Graduate, Employer, Key Roles, Skill Acquisition and Transfer, Accounting Education

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1. Introduction

The advancement of technology and business transformation have become a driving force to be reckoned with for the accounting profession. To keep pace with digital revolution, the accounting curriculum offered in universities are being revamped to allow students who complete a bachelor's degree, to become digitally competent upon graduation [1,2]. In a survey conducted with the accounting academic department in US universities [3], the study found that 90.7 percent of accounting department chairs believe data analytics ought to be incorporated in the accounting curriculum, with 59.3 percent of them planning to launch a data analytics course in their own programs. Similarly, Ballou et al. [4] support the view that data analytics should be entrenched within the undergraduate accounting curriculum. Their study identifies a set of relevant data analytics knowledge and skills for accounting and assesses their impact on accounting jobs. Qasim and Kharbat [2] also highlight an increased interest in the accounting profession towards adoption of data analytics. They believe data analytics ought to be incorporated in the accounting curriculum so

as to prepare accounting graduates for the workplace and enhance their employability. While there is little doubt that data analytics knowledge and skills are important to an accounting education, the challenge for most accounting academic departments, however, is incorporating these data analytics subjects into an already full undergraduate curriculum. In an attempt to address this curriculum structural challenge, Dzuranin et al. [5] propose a hybrid data analytics implementation approach; whereby an accounting program may include both a stand-alone course emphasizing data analytics competencies and accounting courses with data analytics competencies ingrained.

Often, graduates' employability is determined by universities' standings and graduates' competencies [6]. According to Pool and Sewell [7], employability encompasses a graduate's technical and generic skillsets, knowledge and work experiences. There is also a tendency for employers to assume graduates hired are capable of transferring their skills to the workplace seamlessly [8]. Howieson et al. [9] also highlight employers tend to perceive universities to be most responsible for graduates' skill transfer in the workplace. Nevertheless, such assumption and perception may be unrealistic as graduate skill transfer might not always take place smoothly [8,10,11,12]. The challenges could be attributed to

inadequate data analytics knowledge and skills in accounting graduates, when managing deliverables and interpreting insights from financial data; and/or a weak capability in skill transfer at the workplace. This suggests skill acquisition and transfer from the university and to the workplace is an important topic that deserves much attention among universities and employers.

While extant research has discussed how a teacher's role may have to change when facilitating accounting students' learning in today's fast-changing accounting landscape [5,13], nevertheless, little is known about the roles played by the accounting graduate and the employer in a similar process. Accordingly, we aim to address the following research question: What are the key roles played by the accounting graduate and the employer in the process of skill acquisition and transfer from the university to the workplace? To address our research question, we interviewed 10 accounting graduates from the 2nd major in accounting data and analytics (AD&A) of the Bachelor of Accountancy program at a university in Singapore (UNIS) and another 10 employers from the accountancy profession.

By examining the data from a role perspective and applying Fitts and Posner's [14] three stages of learning, we developed a process framework that depicts the roles of the accounting graduate and the employer in skill acquisition and transfer. Fitts and Posner's [14] learning theory suggests that learning involves three distinct phases of skill acquisition and transfer: 1) the cognitive stage, 2) the associative stage and 3) the autonomous stage. During the cognitive phase, the learner attempts to cognitively understand what needs to be learned. In the associative stage, the learner transforms what to do into how to do it. During the autonomous stage, the skill is mastered by the learner and is almost automatic to produce with minimal thought [15]. Our framework indicates that the roles of the graduate and the employer could evolve during the three learning stages, and as such, understanding their roles in each stage becomes important in managing the entire skill acquisition and transfer process.

The remainder of the paper is organised as follows. The next section reviews graduate skill acquisition and transfer, and the perspective of roles in the education literature. This is followed by a discussion of the research methodology. The following section summarizes the analysis of the results and discusses major findings of our study. The conclusion section highlights the research and education implications, the limitation of the current study and future research directions.

2. Literature Review

Graduate Skill Acquisition and Transfer

Increasingly, skill transfer is becoming critical in the ever-changing and fast-paced corporate world. Therefore, universities will have to update their curriculum regularly so as to keep up with the requirements of the workplace. Generally, skill transfer is said to have occurred when learned behavior is generalized to the job context and maintained over a period of time on the job [17,18]. According to Wexley and Latham [19], transfer of skill takes place when trainees effectively apply their

knowledge and skill to the job itself. Studies have emphasized the importance of skill acquisition and transfer from the university to the workplace [11,20].

The concern of whether university graduates are equipped with work-readiness skills has gained much traction in university graduate capabilities design [13,21]. This is due to persistent industry's criticism of inadequate university efforts in producing work-ready graduates and evidence of poor execution of certain employability skills [20]. Such underperformance could be attributed to graduates' inability to transfer acquired skills and knowledge to contexts beyond the classroom [18]. Tomlinson [22] suggests this could be due to universities "focusing too rigidly on academically oriented provision and pedagogy, and lacking applied learning and functional skills." Other evidence suggests that the reason why well-learned skills might not be applied on the job [6] is due to a lack of motivation and supervisory support at the workplace [11].

Fitts and Posner's [14] three stages of skill acquisition has made an important impact in the education literature. Several research studies have applied their learning theory to examine the process of skill acquisition in various contexts. For instance, Tenison and Anderson [23] use hidden Markov modeling to identify transitions in the learning process. They find that as participants practice solving math problems they transition through 3 distinct learning states similar to the three phases of skill acquisition proposed by Fitts and Posner [24]: a cognitive, an associative, and an autonomous phase. Sadideen and Kneebone [25] highlight the importance of understanding Fitts' and Posner's theory when teaching practical skills in surgical education. In another study to improve procedural knowledge learning, Hwang et al. [26] carried out three consecutive learning activities following Fitts and Posner's model. They conclude that these learning activities play an important role in procedural knowledge learning. Salehi et al. [27] examine Fitts and Posner's model for motor skill learning based on the learner's cognitive state during the learning continuum and offer specific guidelines and actions for instructors and practitioners along the learning continuum.

Beyond the learning stages, Jackson [18] suggests that three personality characteristics relating to openness to experience, extraversion and conscientiousness, together with personal work experience in the related work field, are significantly related to skill acquisition and transfer. This is further supported by Celestin and Yunfei [28], Banerjee et al. [29] and Renta-Davids et al. [12], who find that individual's personal characteristics and their motivation towards learning, and the transference of their skillsets and knowledge, would moderate skill acquisition and transfer. Studies have also shown that for the learner to effectively acquire knowledge and transfer her skill, the learning program has to be relevant and effective in teaching the competencies required for the learner's job role and satisfying the industry's needs [20,30]. In addition, research has shown that organizational and supervisory support, and the workplace climate may significantly affect the learner's ability to transfer the skills and knowledge acquired in the learning program to her job role at the workplace [31,32]. According to the model proposed by Jackson [18], the characteristics of the

learner, the learning program and the workplace, may influence learners in the transference of skillsets and knowledge to their job roles. According to Baldwin and Ford [17], learner characteristics include ability, skill, motivation and personality. Learning program design factors include the training objectives and methods, and the incorporation of learning principles such as multiple training techniques and opportunities for practice. Workplace factors include the transfer climate, social support from supervisors and peers, and the constraints on opportunities for performing learned behaviors on the job.

The accounting profession shares similar concern for skill acquisition and transfer from the university to the workplace. Pan and Perera [33] highlight that existing accounting programs at universities may not always be in line with the market's expectations due to some inconsistencies of program structure and emphasis, which include skill application and transfer. Similarly, Reginato et al. [34] concur that effective knowledge acquired with the ability to transfer skill would better prepare accounting graduates in the real world. Asonitou and Hassall [35] also highlight the necessity to advance critical thinking of accounting students with new teaching approaches and through the development of a curriculum that supports graduates' employability and skill transfer.

Role Perspective in Skill Acquisition and Transfer

Extant research has discussed the need for the changing roles of a teacher when facilitating student learning [5]. Besides teacher, it is also important to understand the roles played by the graduate and the employer during the skill acquisition and transfer process. To play an effective role in a learning process, knowing its context is important. Rivière et al. [36] discuss the importance of context in learning by applying the frameworks of analogical transfer and situated cognition. In addition, individual differences matter in the skill acquisition and transfer process. For example, conscientiousness, emotional stability, and openness to experience could influence the role effectiveness during skill acquisition and transfer [37,38,39]. Also, Velada and Caetano [40] identify the effectiveness of roles in managing occupational satisfaction, affective and utility reactions which may influence knowledge acquisition and skill transfer. According to Gubacs [41], learners ought to be capable of assessing their own learning, evaluating their own work and offering constructive feedbacks to peers. Such self-directedness may help learners to become more effective in their role of managing the skill transfer process.

Partnerships have been established between universities and employers to enhance innovation and to improve educational and business outcomes for learners and employers [33]. The increased understanding of the differences, constraints and boundaries that exist between universities and employers has allowed universities to co-produce industry-oriented curricula, contextualise curriculum with industry examples and share sector specific knowledge and skills that help to enhance students' work transitions [42]. According to Flynn and Pillay [42], employers play an important role in influencing subject content taught in universities so as to better align with required industry knowledge, skills and practices. Employers may enculturate university students to professions and trade areas, through prolonged contact

(e.g., industry projects) and thereby enabling more efficient cultural transitions from the university to the workplace. In this way, employers may also serve a conduit role for recruitment of future employees. For instance, Martin and Leberman [43] investigate the impact of practicum on the practicum organization, and whether the practicum has helped graduates in learning required job skills. Their findings suggest that the graduates and the practicum organizations value linking of theory to practice through the practicum and regard it as a form of professional preparation for careers in the industry.

Overall, our literature review suggests that accounting graduate skill acquisition and transfer is an important topic for universities and employers. While there has been much discussion on the changing roles of teacher in such learning process, little is known about the roles played by the graduate and the employer in a similar process. Therefore, our study aims to plug the knowledge gap in the accounting education literature by exploring the roles played by the accounting graduate and the employer during the skill acquisition and transfer process.

3. Research Methodology

In this study, we adopted a qualitative research method with a semi-structured interview design. The qualitative approach is particularly appropriate for our exploratory study since its strength lies in its ability to explain the phenomenon based on the interpretation of data [44]. Overall, our goal was to expand and generalize theories, and not statistical generalization [45].

Altogether 20 interviews¹ were conducted between August and October 2021, with a total of 20 participants, consisting of 10 employers from the accountancy sector in Singapore and 10 accountancy graduates of the AD&A programme at UNIS. Table 1 shows a summary of the interviewees' profile. The interviews were conducted over an online video conferencing platform, with each interview lasting about 45 minutes to an hour. The interviews were audio-recorded and transcribed immediately after each meeting. The interview questions were open-ended and exploratory that allow opinions to be expressed. The questions centered on the roles played by the accounting graduate and the employer during the skill acquisition and transfer process. An interview protocol (See Appendix A) was developed as a guide for the interviews that allows flexibility in adapting the questions and deviating from the protocol, so that new insights and interesting revelation could be explored in further depth to inform our research question. Interviews were the main source of data for our study because we could grasp the interviewees' interpretations of their skill acquisition and

¹ Prior approval for the interview was obtained from UNIS's Institutional Review Board. Informed consents were obtained from the interviewees who participated voluntarily in this study. Participants were assured of data privacy and understood clearly their responses would not be reported in a manner that their identity could be identified. Participants were also assured of data confidentiality. The research data were kept securely and could be accessed only by the research team.

transfer experience, as well as their beliefs in the entire process.

Table 1. Summary of Interviewees' Profile

Interviewee	Designation
1-10	Accountancy graduate with a 2 nd major in accounting data and analytics at UNIS
11	Head of Business Controls of an entertainment company
12	Managing Partner of an audit firm
13	Director and Program Lead for Revenue Operations Data Analytics of an international financial services corporation
14	Senior Manager for International Tax of a government agency
15	Managing Director of an accounting firm
16	Senior Audit Manager of an accounting firm
17	Executive Finance Director of a marketing company
18	Group Director of a business consultancy firm
19	Data Analytics Manager of a food supplies distribution company
20	Director for Data Analytics of an accounting firm

In terms of data analysis, the transcribed interviews were first subjected to open coding by the researchers independently, where the interview data were coded into

themes (roles) found in the relevant literature. This ensures a cumulative tradition in developing the corpus of knowledge as established concepts and terminologies are adopted rather than reinvented. Table 2 shows examples of open coding. We recursively iterated between the empirical data and the education literature. The iteration helped to shape our findings. We continued with the iterative process until it is possible to comprehensively explain the findings of the phenomenon we study, and no additional data were needed to be collected to improve the interpretation of the findings. Our analysis includes reading all transcripts, sorting relevant interview comments according to various categories and developing a list of relevant themes [46]. The list contains the location of each comment on the transcript, the transcript number, the interview date, and links to other comments. During this stage, differences in the open coding among the different researchers were discussed to arrive at a common consensual understanding, hence enabling the attainment of inter-coder reliability. In order to reduce researcher bias, a senior colleague was asked to take part in early analysis of data. The role of this colleague was to bring a different and possibly more objective eye to the evidence and detect any bias in data analysis.

Table 2. Examples of Open Coding

Theme (Role)	Stakeholder	Quote
Self-directed learner	Accountancy graduate	<i>It is important for students to have the ability to take initiative, to be aggressive in seeking out answers because there are a lot of things to be learned. So, in terms of the effectiveness of how a learner could pick up a skill, if the learner is trained to be more independent, and aggressive in knowledge acquisition by herself, then it will be a positive learning experience.</i>
Resilient learner		<i>Through the AD&A internship, I have improved my adaptability skill and become more resilient when facing challenges.</i>
Adept learner		<i>There was more than one way of solving the client's problem and we had to sieve through all possible solutions and consider what data representation could be most useful to our client. For instance, some of the information we found from our research were irrelevant to our client. I have learned what to ask and how to ask the right question. I have also learned how to research for a best possible solution and develop contingency plans, if my initial solution is not what the client wants.</i>
Supporter	Employer	<i>I was impressed by the level of professionalism, the quality of work and the concerted efforts shown by AD&A students. By using a real-world scenario, the accounting analytics capstone project had resulted in a positive and purposeful educational experience. It also strengthened the partnership between UNIS and my organization.</i>
Catalyst		<i>Hands-on application is valued positively by students, because a lot of times when it's just theory... you may get lost immediately after the session. When you have a practical session, where students are asked to do something, the takeaways are better. Rather than teaching them to solve every problem, we should 'teach them how to fish'... The AD&A program offers good opportunity for students to carry out unstructured problem-solving.</i>
Manager		<i>Every checkpoint analysis requires an objective examination of the work completed. This could be a difficult task for the manager and the employees who have so much invested in the work. In the end, checkpoints could provide a much-needed safety net to prevent any unnecessary waste of company resources.</i>

4. Results and Discussion

In this section, our analysis identifies the key roles played by the accounting graduate and the employer in skill acquisition and transfer across the cognitive, associative and autonomous phases. The roles in each learning stage are discussed below and relevant literature is enfolded in the discussion where applicable.

Cognitive Stage

The cognitive stage involves the learner having a good understanding of what to learn and what related information to process. In the case of UNIS, all accountancy students in the 2nd major in accounting data and analytics have to complete eight AD&A courses in the curriculum and achieve their learning goals. The AD&A curriculum consists of three pillars: (1) data technology, (2) accounting application, and (3) capstone project. AD&A students have to study the four compulsory courses under the data technology pillar to equip themselves with data

and analytics skillsets. These four courses include accounting information systems, business data management, data modelling and visualisation, and statistical programming. Under the accounting application pillar, AD&A students have to apply data analytics skills in specific accounting contexts by studying three electives. The list of electives includes forecasting and forensic analytics, analytics for value investing, analytics for financial instruments, audit analytics, auditing information systems etc.

A key pedagogical innovation of the AD&A 2nd major is the mandatory accounting analytics capstone course under the third pillar, that employs an experiential project-based learning pedagogy. In this capstone course, AD&A students are required to apply the skills learned in the first two pillars and work on a real-world accounting analytics project sponsored by an employer. The accounting analytics capstone project allows AD&A students to translate classroom knowledge into practical solutions for their project sponsors. Typically, the capstone projects focus on developing automation of accounting processes and applying data-driven analytics to obtain deeper business insights. Through the accounting analytics capstone project, students learn to solve complex accounting and business issues from problem definition to final solution delivery in a real-world setting.

Role of the Student as a Self-Directed Learner

One of the most fundamental learning attitudes is having the confidence of a competent and effective learner [47]. Closely related to this learning attitude is two others [48]: accepting responsibility for one's own learning and viewing problems as challenges rather than obstacles. A good self-directed learner believes that the primary responsibility for learning belongs to the learner herself. The learner is the one who recognizes her own learning needs and accepts the responsibility for making it happen. Hilvonen and Ovaska [49] suggest that a self-directed learner is more motivated to bring out and test her ideas, and increase her level of understanding if she sees the completion of an activity or project as her learning goal. It is also important to let students know the purpose of what they are learning through the activity or project. It makes that "why" obvious by connecting academic concepts to real-world context [50]. In the case of UNIS, the AD&A graduates demonstrate good examples of self-directed learners. According to one of the employer interviewees:

"It is important for students to have the ability to take initiative, to be aggressive in seeking out answers because there are a lot of things to be learned. So, in terms of the effectiveness of how a learner could pick up a skill, if the learner is trained to be more independent, and aggressive in knowledge acquisition by herself, then it would be a positive learning experience." – Employer interviewee 13 (Finance Director).

Similarly, a graduate interviewee commented:

"Thinking independently was the most important skill I learned through my accounting analytics capstone course. As our team was not given a direction to approach the project problem, we had to think what would best work for our project sponsor given the set of data we had on hand. We went through a couple of iterations and only managed to come up with a solution after refining our prototype a few times. Throughout the entire process, I had developed

creative problem-solving skill which is also an important skillset to possess." – Graduate interviewee 5.

Our data suggest that putting students through an authentic capstone project experience that requires creative problem-solving skill may cultivate independent learning. It is therefore key to establish a learning environment where innovation and creativity are typically observed in the learner's behavior. The accounting analytics capstone project experience allows the learner to think creatively and adapt her knowledge and skill to a novel project situation [50].

"The AD&A programme offered an opportunity to apply our knowledge directly onto a real-world project sponsored by an employer. The project experience we obtained was very relevant and offered a glimpse of what we could expect when we enter the workforce – exactly how real-world projects are run, and what approach we might take when handling such projects." – Graduate interviewee 1.

Having a conducive and supportive learning environment is important in enhancing self-directedness within a learner. According to Bell [51], the success of promoting learner autonomy depends on having an institutional policy that shapes how the learning process is facilitated. If the education institution could entrust responsibility and offer support to the learner, this may develop a sense of agency and improve the learner's motivation.

Role of the Employer as a Supporter

For any collaboration to work effectively, goals have to be established clearly and agreed by all partners. For UNIS, the accounting analytics capstone project sponsored by employers set out to create a meaningful hands-on learning experience for its students. In their collaboration, it is clear that employers saw value in supporting students in such project setting that brings an alternative perspective on solving issues and problems the employer was facing.

When universities and employers work together to create a meaningful learning experience, students and businesses would all benefit [52]. As businesses are involved in creating and implementing meaningful project work, they become an important supporter of student learning. In addition, employers have a vested interest in making sure students produce good quality work so that the student-developed solutions are implementable within their organizations.

Extant literature has suggested knowledge creation and exchange are important for a successful collaboration between two partners [53]. Partnerships have been established between universities and industry to enhance innovation and improve social and educational outcomes for learners and employers [43]. To establish deep collaboration, universities must show employers the value of support and create opportunities for businesses to "have skin in the game" and work with educators as partners in developing worthwhile and meaningful project work [54]. According to an employer interviewee:

"I was impressed by the level of professionalism, the quality of work and the concerted efforts shown by AD&A students. By using a real-world scenario, the accounting analytics capstone project had resulted in a positive and purposeful educational experience. It also strengthened

the partnership between UNIS and my organization.” – Employer interviewee 11 (Head of Business Controls).

In addition, it is important to inspire, encourage and stimulate students' interest in learning. Pan et al. [33] highlight the importance of getting students engaged so as to ensure the richness of learning is achieved. Stimulating students' motivation is a crucial issue that should be tackled by the education institution to ensure that students are able to successfully attain the intended learning outcomes [51]. According to a graduate interviewee:

“We realized that delivering a real prototype was very different from just conceptualizing an idea. Our project mentor from the project sponsor constantly encouraged us to explore new ideas, conduct more research and most importantly, not to be discouraged during the project. We believe we learned the most by working something out, through getting our hands on that thing or even a simple act of talking to someone who does not have the idea beforehand might give us a new perspective and let us know what was actually required on top of what we might already think of.” – Graduate interviewee 1.

Associative Stage

In the associative stage, the learner is learning how to perform the skill well. This is the stage which the learner starts to improve her performance after much learning and practice [24]. The learner shifts her focus from what to do to how to do it and is making constructive attempts to transform declarative information into procedural knowledge [14]. A learner will revisit the cognitive stage and the associative stage of learning, as it is an essential part of the relearning process. Here, learning agility is especially relevant to accounting graduates. As the accounting industry is rapidly changing, accounting graduates need to learn and relearn, and keep up with it. In our case, learning agility is demonstrated in the AD&A programme through internship and work-study programme (WSP).

Through the internship, AD&A students are able to gain first-hand work experience and exposure to real-world business issues. Besides having the opportunity to apply accounting data and analytics knowledge learned in class, the internship experience could expose them to what their future job entails. An internship would equip the learners with technical, communication, social and critical thinking skills, which are the key enablers to their success in the workplace. Typically, an internship may require the intern to perform rigorous functions and juggle multiple projects at the same time. It takes grit and determination for interns to complete their assignments. It also presents an opportunity for students to relearn their knowledge and skills through the internship stint. For graduates who are set to embark on their career in the accounting industry, an internship provides ample networking opportunities for them. Through the interactions with the employers and the peers, accounting graduates are able to gain valuable insights to the best accounting practices. In addition, graduates are able to establish their own networks for career advancement in the future.

Besides internship, UNIS's AD&A WSP was launched in 2021. Students enrolled in this program would undergo a 20-week extended internship at Ernst & Young (EY) Singapore to better interlace institution-based learning with structured on-the-job training. Through the AD&A

WSP, UNIS and EY engage students in developing data analytics knowledge in the accounting domain, so as to help them stay relevant in the fast-evolving job market. The purpose of launching WSP is to cultivate accounting graduates with hands-on work experience using both data analytics and accounting knowledge and skill.

Students are expected to complete the data modelling and visualisation course and business data management course before embarking on the 20-week AD&A internship in the WSP. The data modelling and visualisation course equips students with modelling and visualisation capabilities to analyse, model and present complex data through interactive dashboards. The business data management course equips students with data management concepts such as database design and implementation in accounting information systems. Under this program, EY would offer AD&A internship places across all its service lines in Assurance, Tax, Strategy and Transactions, and Consulting.

Role of the Student as a Resilient Learner

According to Pan et al. [52], students that are working on a real-world assignment and task need to be capable of coping with ambiguity and the unknown. Students should strive to possess sufficient adaptive capacity and resilience to handle the level of environmental complexity found in such assignments. In the case of UNIS, the accounting internship and WSP experience also helped to cultivate the emotional skill to create buy-in and provide orientation even in complex, unknown and uncertain environments. Thus, students would need to learn and practise how to lead change into an unknown future. Furthermore, it created a learning environment that fosters critical reflection on theory while students engaged in practice on an ongoing basis and within networks of self-managing teams that continuously empowering each other [54]. According to two graduate interviewees:

“Through the AD&A internship, I have improved my adaptability skill and become more resilient when facing challenges.” – Graduate interviewee 7.

“The internship's task requirements were not always clearly set right from the start, which is understandable given that it was driven by clients' evolving requirements. Hence, we needed to be adaptable to the additional information provided along the way. When faced with new concepts, we needed to discuss within our team to improve our understanding as well as to do additional research so as to bridge the gaps before we proceeded with the assigned tasks.” – Graduate interviewee 10.

In addition, the student's attitude and behavior towards learning is crucial in knowledge acquisition and skill transfer. An important learner's trait is resilience. This is consistent with Holdsworth et al.'s [54] study which suggests that resilience positively contributes towards an individual's ability to learn and grow. One of our employer interviewees also stressed that accounting graduates need to be more resilient in their professional work so as to facilitate effective skill transfer.

“I believe fresh accounting graduates today, need a lot of grit... because you need to put in a lot of hard work, a lot of grit... I think it's very important for graduates to be capable enough to handle errors on their own... if they do not have enough grit, they will give up easily.” – Employer interviewee 12 (Managing Partner).

Role of the Employer as a Catalyst

Knowledge creation and exchange are important for a successful collaboration between two partners [53]. This holds true for knowledge-intensive organizations such as a university [55]. In our study, knowledge creation was enhanced by the mentors assigned by the employers to guide and advise the graduates during their internships. According to a graduate interviewee:

“Initially, we did not know how to apply our knowledge in a client project scenario. After that, we had a few discussions with our mentors, conducted online research and looked at various ways of how other people were carrying out such kind of projects. We took initiative to learn things apart from what was taught in class and applied that to a project and developed solution for the client.” – Graduate interviewee 9.

Two of our interviewees stressed the need for the AD&A program to be applied in nature and relevant to the industry demands.

“Hands-on application is valued positively by students, because a lot of times when it’s just theory... you may get lost immediately after the session. When you have a practical session, where students are asked to do something, the takeaways are better. Rather than teaching them to solve every problem, we should ‘teach them how to fish’... The AD&A program offers good opportunities for students to carry out unstructured problem-solving.” – Employer Interviewee 20 (Director of Data Analytics).

“For WSP, the key thing is learning how to deliver a solution that is useful to clients, and that was not taught in school... So I think it’s the whole aspect of client knowledge understanding that I felt that it’s very helpful... Other than internship, maybe a project work to help a particular client would be beneficial because you’re encountering a real client, so you would be able to generalise it to the actual workplace.” – Graduate interviewee 5.

Autonomous Stage

In the autonomous stage, the skill is almost automatic to produce and requires minimal thought. The learner is capable of attending and processing information at the same time. This is the stage where thinking is less, and response is automatic. Self-learning plays an integral part in the autonomous stage as learners can identify errors and make adjustments by themselves.

In the case of UNIS, on-the-job coaching and mentorship by experienced managers were common practices of employers. Having a mentor at work could be seen as a senior with more experienced employees giving advice and support to younger employees earlier on in their careers. The mentor would help her mentee identify and learn the skills and knowledge required for a successful career. Feedback would allow the mentee to acknowledge her strengths and to motivate the mentee to work on areas of weakness. This is congruent with past studies, where it has been shown that the learner’s commitment to learn significantly affects the ability to transfer her competencies to the workplace [21,56,57].

Role of the Student as an Adept Learner

Correspondingly, most of the graduate interviewees expressed similar opinions that “organizations need to be more receptive, have supportive work culture, provide mentorships, training and learning opportunities for

professional and personal growth.” Some also voiced frustrations that “organizations need to be more open and willing to adopt changes at work in order for them to apply the competencies learnt in school, which also meets their career expectations.” An effective adept learner uses all the tools available, then invents those that are not. Individuals who are reluctant to “show their ignorance” may refuse to ask questions, seek clarification, or seek out expert advice which in turn, handicap themselves in their learning progress. As graduates enter the workforce, they would be judged not only on their performance outcomes, but also on their ability to collaborate, negotiate, plan and organize.

“There was more than one way of solving the employer’s problem and we had to sieve through all possible solutions and consider what data representation could be most useful to our project sponsor. For instance, some of these information we found from our research were irrelevant to our client. I have learned what to ask and how to ask the right question. I have also learned how to research for a best possible solution and develop contingency plans, if my initial solution is not what the client wants.” – Graduate interviewee 4.

Both employer and graduate interviewees have stressed that organizations need to be receptive towards new methods of working to keep up with the changing demands of the professional industries, and providing adequate support and resource for fresh graduates. Moreover, based on Howieson et al. [9], current employers demonstrate an increased awareness that organizations need to provide on-boarding training, mentorships for fresh graduates to learn skills that may not have been covered in the university education and assist them to adapt to the organization culture. Similarly, one of the graduate interviewees acknowledged that in order to remain relevant, graduates have to become proactive in their learning and take up training opportunities for their professional and personal growth.

“Organization as a whole need to value analytics and maybe artificial intelligence, machine learning, whatever area that it is tapping on. While the organization may be talking about it, but in reality, maybe it is not working on it, or it’s not a priority in its work when you actually go in... Therefore, the way the organisation is structured is very critical because if it’s more rigid, then you don’t have that opportunity to put those competencies of yours to use.” – Graduate interviewee 8.

Role of the Employer as a Manager

The employer plays the role of a manager who is engaged in the training process and work tasks, dealing with fresh graduates as well as coping with a variety of stakeholders in and out of the organization [58]. According to Pollard [59], the focus of a manager is on team building, managing group dynamics, planning, allocating resources, managing work changes and managing the employees throughout the training and work process. According to one of the employer employees:

“Every checkpoint analysis requires an objective examination of the work completed. This can be a difficult task for the manager and the employees who have so much invested in the work. In the end, checkpoints could provide a much-needed safety net to prevent any

unnecessary waste of company resources.” – Employer interviewee 19 (Data Analytics Manager).

According to Oakley et al. [60], the most common causes of team conflicts are members refusing to do their share of the work, a domineering team member tries to coerce the others into doing everything in a specific way or a team member refuses to participate or even tries to sabotage the work. Chan and Chen [61] identify reasons behind conflict in teamwork in an undergraduate college program which include poor communication, poor task management, unfair work allocation, unequal treatment, being egocentric, having different values and a lack of sense of responsibility and initiative. According to an employer interviewee:

“A manager must have the willingness to trust and openly listen to alternative ideas and views. Being close-minded could create and prolong conflict in a team setting.” – Employer interviewee 17 (Executive Finance Director).

For skill transfer to be effective, it is critical for mentors to provide constructive feedback during work [62]. In our case, one of the graduate interviewees commented “with frequent guidance and feedback from the employer, she had a good understanding of the business practice and the company’s expectation of her job performance. This allows the graduate to better shape her ideas and options she could go about approaching her task.” By having a mentor who is supportive and someone who the mentee could always check with, it allows the mentee to be more independent and confident in completing her task. Another graduate interviewee also raised the point “regular feedback from the employer made a significant difference in her new job. In particular, the guidance and feedback shaped the student’s thinking and allowed her to apply her new understanding or idea.” The feedback loop is completed when a graduate critically reflects on the feedback, improves her work, and as a result allows her to meet the desired learning outcomes of the work assignment [63].

The employer interviewees noted the importance of top-down communication and expectations of fresh graduates’ competencies and their job roles within the organization from the management level. Most of them mentioned that “it is important for the management to be receptive towards new ideas and technologies to adapt to industry demands and meet the career expectations of fresh graduates at the workplace.” They also noted that fresh graduates need experienced senior members to guide them in their work, career and in terms of adapting to organizational culture. Additionally, some of the employer interviewees expressed the understanding that “fresh graduates are inexperienced in the professional industry and therefore should not be placed in job roles that require them to introduce major organizational changes in the workplace.” Another crucial factor accentuated was organizational culture. An employer interviewee stressed that “collegiality and supportive culture at the workplace is crucial to promote learning transfer and increase employees’ motivation to perform better. These factors highlighted the importance of having good organizational structure in place to support fresh graduates at the workplace for effective transfer of skill.” Another employer interviewee also commented:

“Companies need to be willing to invest in their employees... Learning at universities is only one stage of lifelong learning... companies need to provide support to ensure there are training provided for their staff to pick up new skills.” – Employer interviewee 16 (Senior Manager).

Overall, our data analysis suggests that the roles of the graduate and the employer would evolve during the learning transfer process. The framework in Figure 1 describes the accounting graduate’s and the employer’s roles in skill acquisition and transfer from the university to the workplace.

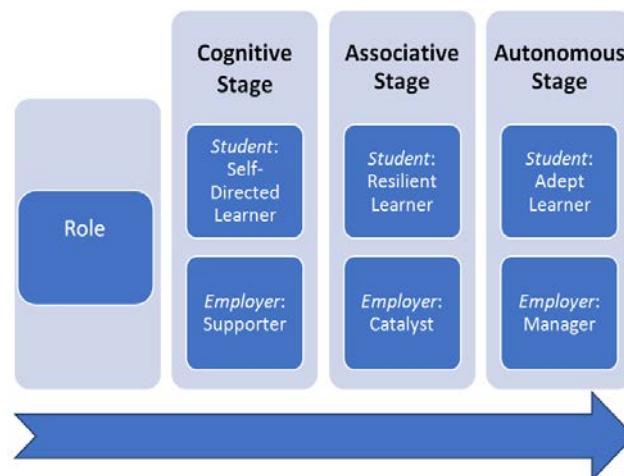


Figure 1. A Framework of the Accounting Graduate’s and the Employer’s Roles in Skill Acquisition and Transfer from the University to the Workplace

5. Implications, Conclusion and Limitations

This paper presents an empirical study on the role perspectives of the accounting graduate and the employer in a skill acquisition and transfer setting. By drawing upon a case study of UNIS, we suggest that the graduate plays the roles of a *self-directed learner*, a *resilient learner* and an *adept learner*, whereas, the employer plays the roles of a *supporter*, a *catalyst* and a *manager*. Our study has also shown that these roles would evolve during the cognitive, associative and autonomous stages of learning.

For researchers, this paper contributes to the accounting education literature by introducing a role perspective of skill acquisition and transfer. Our study offers space for graduates and employers to define their role expansively, which could in turn enhance the performance of the students in the learning process. We also highlight the importance of employers’ involvement and support in a skill acquisition and transfer process. The findings of this study should serve as a useful input for employers when designing the job training and mentorship schemes, especially to boost employees’ motivation and work performance. In addition, our study implies that a collaboration between the university and the employers is key to enhancing graduate skill acquisition and transfer [65]. With a common objective, the close collaboration could form a strong partnership between both entities. Without a strong partnership, the university and the

employer may act separately. This may increase the risks of conflict and misaligned goals, which in turn, makes it difficult for students to acquire knowledge and transfer skills smoothly. This is a major contribution to the accounting education literature, especially when there is almost no empirical study that has examined the roles played by the accounting graduate and the employer during the skill acquisition and transfer process.

For educators, this study offers useful insights to understanding how the roles ought to be played by the graduate and the employer so as to ensure smooth skill acquisition and transfer. In anticipation of the role ambiguity in the process, universities could educate students on playing their roles effectively [66]. For example, the university, in partnership with the employer, could facilitate agreed upon behaviors and actions to overcome any risk of role conflicts during the learning transfer process [67].

A limitation of this study concerns the generalizability of a single case study. While a multiple case-study design over a single case-study design for obtaining more compelling and robust data is generally preferred, it is not easy to obtain the opportunity for a multiple case-study design. Therefore, we posit that “one must follow a more opportunistic approach even if that means settling for a single case study” [64].

Future research could consider investigating the accounting graduates’ actual on-the-job performance in detail to examine learning transfer more meaningfully. Additionally, resilience has been greatly emphasized in this study by both employers and graduates. Future studies could delve deeper into identifying resilience in persons and how universities could cultivate resilience in students.

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Appendix A: Interview Protocol

For Employer and Accounting Graduate:

- What is your role in enhancing skill acquisition in the *cognitive* stage? Please provide examples.
- Using examples from the UNIS case study, can you share instances where you have effectively carried out your role as a learner or as an employer to support learners to acquire the necessary knowledge and skill in the *cognitive* stage?
- In your opinion, how may learners develop themselves in carrying out their role effectively in the *cognitive* stage?
- What is your role in enhancing skill acquisition in the *associative* stage? Please provide examples.

- Using examples from the UNIS case study, can you share instances where you have effectively carried out your role as a learner or as an employer to support learners to acquire the necessary knowledge and skill in the *associative* stage?
- In your opinion, how may learners develop themselves in carrying out their role effectively in the *associative* stage?
- What is your role in enhancing skill transfer in the *autonomous* stage? Please provide examples.
- Using examples from the UNIS case study, can you share instances where you have effectively carried out your role as a learner or as an employer to support learners to transfer the skill in the *autonomous* stage?
- In your opinion, how may learners develop themselves in carrying out their role effectively in the *autonomous* stage?
- What are some characteristics or mechanisms, learner and employer should possess or put in place to enhance the entire skill acquisition and transfer process?