Professional certifications and global PAOs on the accounting discipline: empirical evaluation in Saudi Arabia

Francisco Bastida, Professor, Prince Sultan University, fbastida@psu.edu.sa

Mohammad Nurunnabi, Professor, Prince Sultan University, mnurunnabi@psu.edu.sa

Zahirul Hoque, Professor, Prince Sultan University, zhoque@psu.edu.sa

Owolabi Bakre Professor, Prince Sultan University, obakre@psu.edu.sa

Ahmad Diab, Associate Professor, Prince Sultan University, adiab@psu.edu.sa

Basiem Al-Shattarat, bshattarat@psu.edu.sa

Abstract

Through a holistic research approach (theoretical framework, survey and focus groups interviews), this article, for the first time, seeks to disentangle the relationships between accounting graduates curricula, global PAOs and accounting certifications. The field study was carried out in Saudi Arabia. Surveyed employers listed many points that should be considered by universities and policy makers to increase the employability of accounting graduates: professional certifications, especially SOCPA certification (the official Saudi professional accounting certification), and lifelong learning in enhancing accounting graduates' professional skills. The two skills that respondents mostly consider missing in the accounting curriculum are financial statement analysis and big data/AI. Therefore, certification could be a way to bridge these two gaps in the accounting curricula. All employers operating in the accounting sector recommend some accounting certificate. Certification and long-life learning through enrolment in PAOs definitely shape the future of accountants. Finally, our empirical findings confirm both the *Human Capital* theory and the *Occupational Regulation* theory.

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1. Introduction

Every economy requires the expertise of chartered accountants. As the number of businesses raise, changing financial laws, increased corporate governance regulations, and increased accountability for protecting organizations' stakeholders will drive accounting jobs growth (Coe 2016). However, in some countries there is already a shortage of accounting graduates. In this respect, Sugahara et al. (2009) believe that disentangling the factors that shape students' career choices would help accountancy PAOs to reverse the current trend of global shortage in professional accountants.

Owing to the key role that accountants play in the development of a country, shortages of certified professional accountants in many parts of the world raise concerns. Entry into the accounting profession arguably begins by successfully passing one certification of the profession's examinations. Passing the Certified Internal Auditor (CIA) exam, Certified Management Accountant (CMA) exam or Certified Public Accounting (CPA) exam helps demonstrate professional competency in the major areas of accounting, and it is considered a significant professional accounting milestone (Geiger and Higgins 1997). Simkim et al. (2011) acknowledge that employers, employees, and the accounting profession itself all value professional certifications.

Complementary research developed by the Association of International Certified Professional Accountants (AICPA) has found that accounting programs that stress the importance of CPA and that have on-campus employer recruiting procedures increase students' interest in becoming a CPA. Once students graduate, the single greatest influence on whether they sit for the CPA exam is support from their employer to pursue their license, including time off to study and financial compensation (Vien 2015). This employers' financial support reduces the marginal cost of getting certified (*Human Capital* theory, as explained below), which helps the marginal benefit of the additional education exceed the marginal cost of sitting for the certification exam.

The remainder of this article is organized as follows. Section 2 reviews the theoretical underpinnings of accounting certification and professional accountancy organizations (PAO). Section 3 reviews the relevant literature. Then, the article provides a summary of the field study, both focus groups meetings and empirical survey. Last section summarizes conclusions.

2. Theoretical framework

Jackson (2006) claims two microeconomic theories to explain requirements when pursuing CPA certification: *Human Capital* and *Occupational Regulation*. Regarding the former, the effect of education is generally modeled as the acquisition of skills that employers likely find useful in employees obtaining a specific level of education. Candidates will pursue a certificate provided that the marginal benefit of the additional education exceeds the marginal cost of getting certified (Becker 1964). As Becker points out, the amount invested in education (certification in our case) is a function of the rate of return expected, i.e., higher salaries for certified accountants as compared to their non-certified peers. This explains why PAOs publish salary survey reports, which detail increased salaries achieved through certification. Since this incremental income represents the return on the investment on the certification, it is a smart policy to attract more potential certification candidates.

According to the *Occupational Regulation* theory, restrictions on the ability of professionals to enter markets are a means of reducing the supply of accounting services. In the case of professional services such as accounting, occupational licensing is a barrier to entry. As the economic theory shows, occupational licensing restricts the supply of labor to the occupation and thereby drives up the price of labor (Kleiner 2000). This entry barrier widens the salary gap of certified accountants, which has a twofold effect. First, it supports the PAOs' policy of publishing salary surveys. Second, it raises the return on the certification investment, which will increase the likelihood of pursuing an accounting certification (*Human Capital* theory).

Turning now to PAOs' membership, the same theoretical underpinnings apply. Here, members value not only higher monetary returns, but also reputation and status. These two factors prevented the last of the attempts to merge two PAOs in Australia, namely the Australian Society of Accountants and the Institute of Chartered Accountants in Australia. With the support of the *Social Identity Theory*, Sidhu (2020) argues that reputation and status are the key factors that explained the PAOs' members' rejection of the proposed merger.

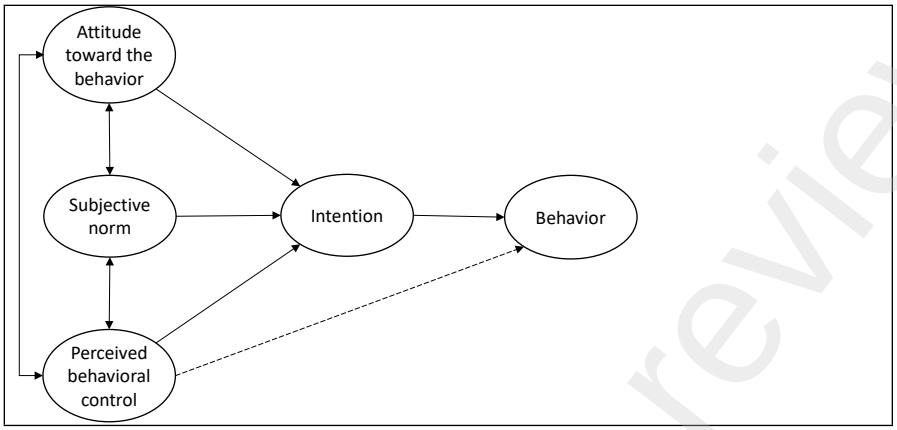
Figure 1 shows the basic model of the *Theory of the Planned Behavior* (TPB), which postulates three conceptually independent determinants of intention (Ajzen 1991). The first is the attitude toward the behavior and refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question. As stated above, accounting programs that stress the importance of CPA and allow on-campus employer recruiting increase students' interest in becoming a CPA, which enhances the attitude toward pursuing a certification.

The second predictor is a social factor termed subjective norm. It refers to the perceived social pressure to perform or not to perform the behavior. The third antecedent of intention is the degree of perceived behavioral control, which refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles. Solikhah (2014) confirms the TPB in a survey of CPA certification in Indonesia. The attitude towards CPA and CPAs Law, subjective norms and perceived behavioral control influence the intention to pursue CPA career. The Indonesian CPAs Law has created the position, rights and obligations for CPA profession to be more apparent and valuable. The implementation of the Act has led students to pursue CPA career. Therefore, clear legislation that sets the framework of certifications enhances the chances of accounting graduates to achieve a certification. However, there are significant numbers of accounting students who would choose to enter a general accounting career in industry but do not have desire to pursue any CPA designation (Solikhah 2014).

Within the TPB model, Hammour (2018) empirically finds that Emirati university students are very likely to select the accounting major when they have a positive attitude toward this profession. The positive attitudes of the students toward the accounting profession and their subjective norms were found to be statistically significant forecasters for the intentions of students to enter this profession. However, no significant difference was found to support the association between perceived behavioral controls and intent to enter the accounting profession. These findings are relevant for accounting PAOs, policy-makers and universities, to attract more students towards the accounting major. Academics and accounting professionals need to ensure that students are aware of the actual outcomes and opportunities offered by the profession. In other words, students must be clear about the return on the certification investment (marginal benefit of the additional education, *Human Capital* theory). Regarding future research on this issue, Hammour (2018) states that a more

thorough knowledge about the reasons to become an accounting graduate can support practitioners and academics in promoting the accounting major.

Figure 1. *Theory of the Planned Behavior* (TPB)



Owusu et al. (2018) note that a CPA qualification requires some financial investment from the candidate. Depending on the financial position of the individual, the cost involved may affect a person's decision to pursue the CPA qualification. We must bear in mind that students will pursue a certificate provided that its marginal benefit exceeds the marginal cost of getting certified (*Human Capital Theory*). In a developing country, resource constraints may likely affect an individual's decision to achieve CPA certification. Accordingly, these authors, specifically for low income countries, extend previous empirical works on career choice by examining the influence of some external constraints (time and cost involved in completing the certification, flexibility in becoming a member of PAOs, difficulty in maintaining membership and perceived quality of certification) on students' decision to pursue accountancy career. Thus, starting from the TPB, they develop the *Belief, Preference and Constraint* model (BPC) (see Figure 2).

Figure 2. *Belief, Preference and Constraint* model (BPC)

Owusu et al. (2018) assess the factors that influence students' intention to pursue a CPA certification in Ghana, building on the BPC model. They find that students' beliefs, their preference for CPA qualification, their GPA and the type of academic major they are pursuing have a positive and significant association with their intentions to pursue a CPA.

3. Review of literature

Financial reporting is fundamental to optimal investment decision-making and capital markets operation, and to allow economic growth and job creation. Global PAOs are a core part of this framework, as they are necessary to build sustainable financial reporting capacity. One of the advantages of globalization of PAOs is the ability to learn from each other's experience (Borgonobo et al. 2018). Such benchmarking enables more rapid implementation of the changes needed for global PAOs to move to competency-based accounting education.

PAOs influence both on practitioners and practice (Tsamenyi et al. 2006). Besides, most of the literature has focused on the role of PAOs by bringing academic research to practitioners. Moreover, as representative bodies, they play a central role in constructing and influencing policy initiative. In this sense, they represent a "voice" of the profession in view of their frequent contact with both academics and practitioners (Tucker and Schaltegger 2016). However, the roles global PAOs play in both linking fresh graduates with industry and shaping future accounting graduates' curricula have not been properly researched so far. This article will discuss feedback from global PAOs in terms of a market-driven curricula for future accounting graduates.

Owusu et al. (2018) find that students' confidence should be enhanced, as students with strong self-belief have greater motivations to pursue CPA. Thus, there is the need for more emphasis on capability enhancing techniques in the teaching and learning of accounting to attract more students to pursue a CPA qualification. In addition, students prefer to be affiliated with ACCA because they consider ACCA's certification to be globally recognized and as such, has better job prospects both locally and internationally. Therefore, global dimension is acknowledged by candidates when pursuing a certification.

As Tucker and Schaltegger (2016) point out, there is a gap, since academics do not sufficiently know what the real problems in practice are. In turn, an Australian general manager of a PAO considered that academics and practitioners speak different languages. This is a major reason why universities and industry are so far apart. The Australian national president of a PAO argued that PAOs could act as a halfway house between academy and industry. We aim to add to the literature in terms of bridging the gap between accounting curricula and the demands of the industry. As we will show later, practitioners are concerned about fresh accounting graduates' skills.

Some universities align their accounting curricula with the specifications of PAOs. For example, management accounting is a core compulsory area of study within the accounting undergraduate degree programs in the majority of Australian Universities to meet the educational requirements of the main PAOs, such as Institute of Chartered Accountants in Australia and CPA Australia (Tucker and Schaltegger 2016). In this respect, there is an alignment between universities' curricula and PAOs' requirements.

In an exploratory study, Cory and Huttenhoff (2011) find that critical thinking skills are of utmost importance for non-public accountants. Communication (written, interpersonal and oral) skills are ranked as the top skill, above next skill (ethics). This requires thoughtful class preparation and promotion of activities, both inside and outside the classroom, fostering improvement in writing, oral communication and interpersonal skills, and allowing students to think critically rather than simply memorizing accounting rules. This approach to accounting education may be time-consuming and difficult to implement in some instances. The results of Cory and Huttenhoff study encourage accounting educators to help students sit for the CPA exam and also to alter or add specific courses to meet the needs of other professional certifications.

Accounting education is viewed as one potential remedy to address the profession's ethical crisis. In particular, there is scope to identify the role of PAOs in providing pre-qualification education on ethics, as well as ongoing professional development (Jackling et al. 2007). These authors focus their empirical analysis on one of the most important global PAOs included in IFAC (66 member bodies responded). PAOs believe that they have a significant role in the professional ethics development of their members as they rated "agree" to "strongly agree" (mean =3.8) regarding their role in ethics development. The findings of Jackling et al. (2007) support the view of the PricewaterhouseCoopers (2003) study that recommended that universities and PAOs should work together to be efficient and create credibility with learners. As we said above, the connection between universities and PAOs should be reinforced.

Hammami and Hossain (2010) in an empirical survey on Qatar show that students rank accounting first in terms of the professionalism dimension, the ethical dimension was ranked second, followed by leadership (their sample comprised 300 business students and 100 business professionals). Social recognition of a profession primarily bypasses the social recognition of its actors. Accountants should be interested in how others perceive their profession. The survival of it depends on attracting highly skilled students. Working to create and maintain a reputable image of accountants should be one of the key targets of global PAOs. Jobvite (2012) finds that 80% of recruiters find it positive that job seekers have a membership in a professional organization. Accountants with professional certifications have a collective perspective on the development of a single set of global accounting standards, as shown by Joshi et al., (2008) in an empirical article on a sample of 52 accountants working in Bahrain.

Trede et al. (2012) analyze the pre-professional identity, which Jackson (2016) defines as "an understanding of, and connection with, the skills, qualities, conduct, culture and ideology of a student's intended profession". These authors show that, since universities predominantly are seen by students as learning and teaching institutions and not as employers, much professional identity development may occur post-graduation. However, we argue that universities need to claim their role in professional identity development to prepare graduates for future practice.

Mistry (2021) provides empirical evidence on the benefits of joining a PAO (ACCA) as a student member. Students' quotes prove what they learnt through the student membership. Mistry (2021) seeks to find a solution to the problem raised by Trede et al. (2012), and explained above, i.e., universities' curricula do not enhance students' pre-professional identity. Professional Statutory Regulatory Body (PSRB) student membership provides accounting students a platform for acquisition of technical knowledge, and an opportunity for them to be aware and to learn from other professionals on how to be adaptable, accountable lifelong-learning global citizens.

Sugahara et al. (2009) show that the primary motivational factor of students to choose a CPA pathway is "Career Prospects with good long-term earnings". Accordingly, informing non-accounting students about the opportunities available in a CPA career would be the best promotion tool to attract them to a CPA career pathway. The additional attribute of good long-term earnings in this factor may imply that career prospects includes the emphasis of economic factors for non-accounting students because this factor sometimes connects to materialistic benefits from the position. This benefit is the return on the investment on additional education predicted by the *Human Capital* theory (Becker 1964). To retain accounting students on a CPA pathway, accounting educators and PAOs should emphasize intrinsic values when trying to motivate students. For instance, the AICPA publishes case studies of accounting professionals, which enables students to develop their own ideas about intrinsic values of CPA careers.

Montaño et al. (2001), through an opinion survey of CIMA employers in UK-based organizations, find that CIMA employers give high importance to communication and stress management skills, and suggest that those topics should be integrated in the accounting curriculum. They should also be a concern for PAOs. These authors conclude that the integrated development of skills within accounting courses is the preferred way forward. As we see, it is a recurrent claim by scholars that cooperation between universities and PAOs should be wide and sincere. It is a win-win strategy involving universities, accounting graduates and PAOs.

According to Hutchison and Fleischman (2003), professional accounting certifications add two benefits that are aligned with the theoretical framework discussed in this section. On the one hand, certification indicates competency and enhances one's reputation among colleagues and potential clients (*Occupational Regulation* theory). On the other, certification may permit accountants to charge higher consulting fees or to introduce new revenue sources (*Human Capital* theory).

Professional certification is valued by employees, employers, and professional organizations (Simkim et al. 2011). As Simkim et al. (2011) point out, one of the oldest and most respected certifications, the certified public accountant (CPA) credential, has such recognition that many university accounting programs prepare their graduates for this exam. Even accounting programs are sometimes judged on the basis of the CPA pass rates of their students.

As a final comment, we would like to mention that certifications split accounting graduates into two groups, those with some recognized certification and those who do not have it. As Jackson (2006) points out, the accounting profession is comprised of two major sectors, a regulated sector of certified public accountants (CPAs), and an unregulated sector that includes all other accountants (*Occupational Regulation* theory).

4. Field study

4.1. Focus groups

One of the steps of this research project focused on meetings with groups of stakeholders. In this regard, Hammami and Hossain (2010) implemented a quantitative survey, but they point out that, to capture human perceptions, a qualitative approach such as interviews would be helpful. We held several interviews with focus groups concerned with accounting certifications and global PAOs. Mistry (2021) also used these focus groups meetings in their research.

4.1.1. Accounting and auditing firms

The first meeting was held on August 19, 2021 with the big four and local firms. Interpersonal skills, such as communication and team working were perceived by many participants as one of the most important skills that fresh graduates should have before joining the accounting profession. In addition, the rapid advancement of technology has derived employers to look for candidates with information technologies (IT) skills to be able to deal with the new accounting systems. Participants provided examples of IT needed: Microsoft Office, Power BI, ERP systems, data analytics tools and cybersecurity tools. Participants also highlighted critical thinking, the ability to analyze and solve problems and the ability to seek out the information on their own. Participants pointed out that accounting graduates should be aware of accounting and auditing standards and some specific topics such as valuation, bankruptcy, Saudi tax system (zakat and tax), etc. Professional certifications were regarded by many participants as a way that can provide accountants with a competitive edge in the job market.

4.1.2. Global PAOs (ACCA, AICPA, ICAEW, IFAC, and IMA)

The second group was the global PAOs (ACCA, AICPA, ICAEW, IFAC, and IMA). This meeting was held on August 19, 2021. Interviewing global PAOs has already been used as a way of gathering insights (Tucker and Schaltegger 2016). The participants from these global PAOs recommended that, when it comes to identifying the certifications universities are focusing, universities' accounting departments should look at what employers are really looking for. Besides, they also suggested that PAOs could join accounting departments' advisory boards to assess the curricula and give their recommendations.

As far as the opinion of PAOs about certifications, these questions were raised in the meeting: Question 1: **To what extent professional certifications can enhance the employability of graduates? Which professional certifications would you recommend to accounting graduates?**

The representative of IFAC stated that it is very important to integrate professional designations that are most attractive in the Saudi market. Certifications are important from the standpoint of preparing graduates, but also in increasing the numbers and likelihood that graduates will pursue professional up skilling and postgraduate degrees. Graduates who obtain a certification increase their earning potential (*Human Capital* theory) and enhance their career development. Some academic courses may be offered as electives or as opportunities to put professionals on the accounting track. Some aspects or sectors within the industry that should potentially include are sustainability reporting, technology, digital audit, coding and sophisticated financial sector reporting.

According to the ICAEW participant, PAOs and universities share a similar goal, which is to prepare graduates for workplace. The best certifications are those that cover a solid body of technical knowledge, but also they are dynamic enough to respond to changes in business, technology and regulatory landscape. They may be qualifications globally recognized but also local qualifications as well, because many of these changes will be local. There are qualifications that can give that graduates a solid base of professional skills: team working, problem solving, and increasingly those technology skills as well such data analytics where they will be able to tell the story behind the data.

According to the representative of ACCA, it is quite interesting that universities now have started aligning and working very closely with professional qualifications bodies, showcasing the approach of shaping what we are going to call the future of accounting and finance professionals. Professional certifications should prepare graduates for the future work force and ACCA is cooperating with employers as ACCA already does with universities across the globe and the feedback received from employers is that they need to hire students who are pretty much work ready. In this respect, professional qualifications help build in the technical skills. Alongside the technical skills, professional skills are critical and should be further developed and enhanced throughout assessments, in terms of enhancing curricula, for example.

Question 2 sought to get insights from the global PAOs about **how the curricula should be reorganized to incorporate professional certification competencies**.

The representative from ACCA stated that embedding shorter qualifications within the curriculum is the right approach. Professional qualification bodies are updating the curriculum and bringing in the most relevant topics and the most important technical skills into the curriculum. These badges will appear on graduates' CVs that can help them qualify in relevant skills. For example, ACCA implemented a certificate in digital innovation and finance that covers artificial intelligence (AI), machine learning, robotic process automation, etc. This kind of certificates embedded into the curriculum not just give accounting graduates an opportunity to have a detailed insight into what they can expect when going forward, but also give them good teaser in terms of being able to really select how they want to develop their future skills.

The IMA member considered that students build on that kind of body of knowledge they can use in the workplace. Students are technically competent, but they also need to put that knowledge into practice. This could be through internships as well. Countries like UK, US or Australia are a very mature market when it comes to internships.

Question 3 is about the main accounting topics that should be incorporated in the accounting curricula, from the point of view of the global PAOs.

The representative of AICPA considers that 25% of current primary school students will be looking for jobs that we do not even know they exist today, thus flexibility is the key for success in this changing environment. The CPA exam is changing in the US in 2023 towards an important shift to understanding data. In order to compete in the biggest markets in the world, you need to learn how to read and apply data. That is definitely a core component. Encrypted currencies and sustainability are also key subjects. Some materials that could be incorporated is the use of digital technologies, because professional accountants start using sophisticated and smart technologies, therefore, the inclusion of these digital technologies such as machine learning, AI and data analytics is essential (ACCA representative). Another important point is globalization and its relevant effect on regulation.

The ICAEW member stated that other important issues are sustainability reporting and assurance. There is a significant discussion at the moment going on in the UK on how the area of assurance expands beyond traditional assurance to serve wider group of stakeholders.

Question 4. Artificial intelligence, block chain and data analytics are very important in today's business environment. However, accounting students sometimes raise concerns regarding the

difficulty of these technologies, especially that most of accounting students lack programming background.

The AICPA representative considered that this is a very important point. For example, in the USA there are 6.3 million graduates of computer science unemployed and 6 million vacancies for computer science graduates. The reason why this disconnection is that companies need professionals who do not just know the history of computer science, but also who can code. Since having the practical competency is the key piece, professional qualification bodies can provide valid solutions. When it comes to data, there is no need to be a data scientist. It is a completely different type of data. Therefore, universities have to make sure that data courses taught deal with data relevant for finance and accounting. Accordingly, at AICPA, we have five different data courses, and recently launched a brand-new one and the one we launched now is actually a very basic fundamental foundation of the data course. Our research inside never told us that we must assume that everybody holds a certain standard. Thus, it is a very basic level of data, awareness to the subject, definitions and terms. Candidates can find it easy to learn modules, getting the digital badges and certificate.

From the point of view of ICAEW, the level of data skills will depend on the role the individual is going to be doing in a company. When ICAEW prepares chartered accountants, the point is not teaching candidates to be technology expert, the key is to show how different technologies are relevant in actual business and to teach what risks exists, so that students can have conversations with technology experts. Currently, in ICAEW exams, students use a data analytics software that is used by many accounting firms in order to actually analyze data. This way, candidates can learn, develop and demonstrate those skills. ICAEW also has a data analytics certificate, which would teach them how to code in python. Therefore, this is the spectrum of level of data capability professionals will have. It is about tailoring to the specific needs of companies in terms of data management and analytics.

Question 5 inquires how PAOs can help universities in making learning more effective.

The good thing of working with universities is the long-term learning partner relationship established from university to post-graduate to alumni (AICPA). PAOs can bring in their members who are employers and their recruitment offices and run engagement sessions, recruitment sessions, competitions and life practice simulations. Some schools might focus several sessions on data analytics with the support of PAOs. Therefore, these bodies can help mapping the syllabus of accounting degrees.

ACCA has been working for a number of years on many similar initiatives with universities to train accounting and finance students. Leveraging on the partnership to a next level where PAOs engage in potential relationships to bring in further opportunities for universities would be positive. PAOs can also be bring employers to the classroom, to support with different sort of initiatives in terms of providing students first-hand experiences like a day in the life of an auditor, professional accountant or finance professional. Using resources like simulation would also be interesting. The real working environment should be the focus, and practical knowledge and experience should be an important part of the curriculum. Students need to have that kind of practical experience that

they will apply in real life. Therefore, leveraging on those relationships will definitely be one point PAOs can help universities in enhancing their student expedience and overall employability.

Question 6 seeks to shed light about ethics. The point is whether ethics should stand as a separate course or it should be incorporated in every course.

ICAEW member thinks it can be a mix of both. Ethics is absolutely fundamental, and it is becoming even more crucial. What is going on in the world, as well in the profession, is a real crisis of trust and ethics. ICAEW is dealing with ethics training in a twofold way. It is embedded across all the modules, and it is also taught as a separate online ethics learning program. The AICPA representative considers that universities will teach their own ethics syllabus. However, employers do not necessarily identify with people's own standards of ethics, and they would prefer to see an independent third parties ethics stamp on students' learning. Regarding recent topics to be covered by ethics courses, the AICPA member mentions encrypted currency type errors and cyber forensics. Employers tend to value independently recognized body when it comes to ethics.

Question 7 asks the role of PAOs to make universities market driven curricula.

The ACCA representative confirms that ACCA shares a lot of knowledge, as for example white papers on professional research, capitalizing the expertise obtained from the large number of employers that partner with ACCA. There is also a lot of work happening around the understanding of regulations and tax regimes. ACCA is doing a lot of work with a number of employers, which can be leveraged through sharing research pieces that may help universities and hence their curriculum and making them more aligned with global and local approaches.

Another opportunity is that PAOs, through their members, may help universities to provide them with equipment, such as Bloomberg terminals, to help their learners experience on trading, adjusting and involving financial information (AICPA). Therefore, PAOs can help in bringing real life, tangible, additional forms of learning that will sit very well with accounting faculty in enhancing the teaching learning experience.

4.1.3. Accounting graduates in Saudi Arabia

Fourteen accounting students from nine Saudi universities participated in a focus group held on October 20, 2021. We asked participants about which professional certifications could enhance the employability of graduates. Participants highlighted the importance of professional certifications (Geiger and Higgins 1997, Simkim et al. 2011), especially IFRS, Saudi Organization for Chartered and Professional Accountants (SOCPA) certification, and tax specialist certificate. These certificates can prepare accountants for the future and help promote career advancement. In this respect, students answered in agreement with the *Human Capital* theory, which posits that the amount invested in education (certification) depends on the rate of return expected, i.e., career advancement (higher salaries for certified accountants).

Regarding the extent to which universities prepare students for job market focusing on market-driven curricula, participants raised concern that some universities fail to keep pace with the rapid

developments in accounting profession and technological advancements. This gap affects the quality of their graduates.

Students generally believe that universities should pay more attention to technology and skills to prepare their students for the job market. In this vein, a student said that future accounting graduates should be equipped with knowledge in accounting application such as oracle or ERP.

4.2. Survey

4.2.1. Sample description

A survey of employers in Saudi Arabia was developed from 18 November 2021 until 12 December 2021. An online questionnaire was administered to 432 Saudi companies. 27.57% of the employers surveyed think that the number of accounting department graduates is not compatible with the current demand for accountants in the Saudi labor market. These employers are raising concern about the shortage of accounting graduates already claimed by Coe (2016) and Sugahara et al. (2009). Table 1 provides description of the main statistics of the sample used in the empirical analysis.

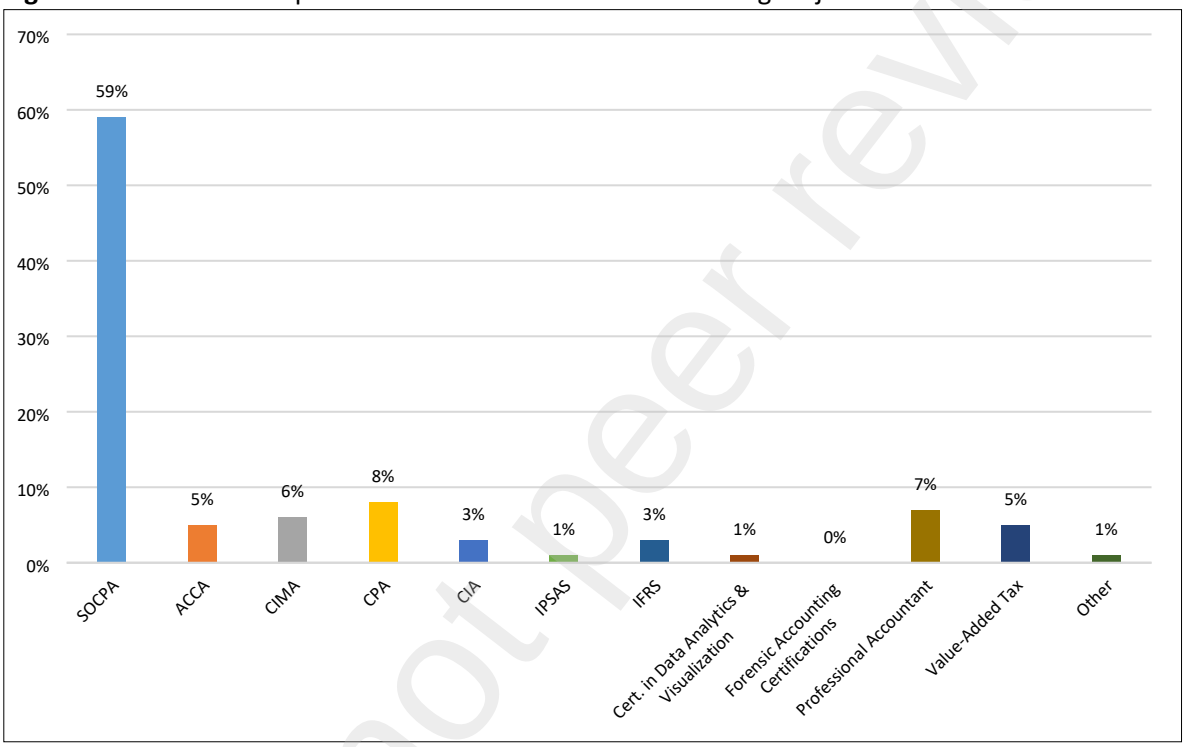
Table 1 Descriptive Statistics

	Variable	Description		Obs.	Mean	Std. Dev.
Certification and learning	*profess_certif_YN*	Do you recommend to accounting students any of the following professional certificates? SOCPA, ACCA, CIMA, CPA, CIA, IPSAS, IFRS, Cert. in Data Analytics and Visualization, Forensic Accounting, Professional Accountant, Value-Added Tax, Other. 1- Yes, 0- No		432	0.5347	0.4994
	profess_certif_SOCPA_YN	Do you recommend to accounting students the SOCPA certificate? 1- Yes, 0- No		432	0.3148	0.4650
	profess_certif_CMA_YN	Do you recommend to accounting students the CMA certificate? 1- Yes, 0- No		432	0.0324	0.1773
	lifelong_learning_YN_acc	Do you think continuing education is necessary for professional accountants? 1- Yes, 0- No		432	0.5116	0.5004
Missing skills	*missing_bigdata_AI*	From your experience with recent graduates, what topics do you think are missing from the accounting curriculum? 1- Yes, 0- No	Big data and artificial intelligence	432	0.2431	0.4294
	missing_cybersec_blockchain		Cyber security/blockchain	432	0.2037	0.4032
	missing_pubsec_acctg		Public sector accounting	432	0.1481	0.3557
	missing_finstat_analysis		Financial statements analysis	432	0.2593	0.4387
	missing_sustain		Sustainability	432	0.1435	0.3510
	missing_data_driven_decismaking		Data-driven decision-making	432	0.2153	0.4115
Hiring skills	*hiring_teamwork_YN*	What skills and competencies do companies focus on when hiring new graduates, including but not limited to (teamwork, critical thinking, problem solving, interpersonal communication, etc.)? 1- Yes, 0- No	Teamwork	432	0.3287	0.4703
	hiring_crit_think_YN		Critical thinking	432	0.1921	0.3944
	hiring_prob_solving_YN		Problem solving	432	0.2986	0.4582
	hiring_commun_YN		Communication with individuals	432	0.2569	0.4375
	hiring_data_anal_visual_YN		Data analysis and visualization	432	0.2292	0.4208
	hiring_predict_YN		Prediction models	432	0.1296	0.3363

4.2.2. Recommended professional certifications

The majority of Saudi employers (almost 60%) recommend SOCPA certification, while each other international accounting certificate is recommended by less than 10% (Figure 3). This finding highlights the crucial value of local or regional education and certificates to Saudi employers, compared to international certifications. This, in turn, reflects the peculiarity of the Saudi institutional market, which significantly affects the education and professional requirements of potential accounting graduates.

Figure 3 Recommended professional certifications to accounting major students.



Considering the whole sample, the majority of participants (231/432, 53.47%) recommend some kind of certificate. The majority of the focus groups of accounting and auditing firms and accounting students also recommended some professional certification. This result is in line with Simkim et al. (2011), who posit that employers value professional certifications and with the *Human Capital* theory. This theory posits that education provides those skills that employers find useful in employees obtaining a specific level of education. However, this percentage is below the 80% of Jobvite (2012).

Furthermore, 100.00% of companies within the accounting, auditing or zakat sector recommend some type of professional certificate, compared to only 41.23% of companies from other sectors (Pearson chi2(1) = 98.9200, Pr = 0.000). This feature indicates to what extent professional certificates are considered by accounting firms (Simkim et al. 2011), and it should drive future accounting curricula towards some kind of certification. If we focus on the SOCPA certification, 67% of companies within the accounting, auditing or Saudi tax system (zakat) sector recommend it, while

only 22% from other sectors recommend it. This high percentage confirms the *Occupational Regulation* theory, since SOCPA certification license is a compulsory legal requirement to become an auditor in Saudi Arabia, which becomes an entry barrier that increases the salary of certified accountants. This relevant position of the Saudi local certification is in line with the ICAEW representative's point that the best certifications are those that are dynamic enough to respond to changes in business, technology and regulations. Local qualifications are key in this regard, as many of these changes will be local. Finally, the students interviewed in the focus group also recommend the SOCPA certification.

By geographical region, there is also a clear pattern. 100.00% of companies in Riyadh recommend some professional certificate to accounting students, compared to 36.59% of companies outside Riyadh (Pearson chi2(1) = 136.3661, Pr = 0.000). Riyadh is the financial capital and most of headquarters are based there. This means most of complex transactions and businesses developments take place in Riyadh, which requires skilled, certified accountants to deal with the analysis and reporting of these financial activities.

We focus our attention on the specific SOCPA professional certificate. We aim to check whether more experienced companies value SOCPA professional certificate to a higher extent. To this aim, we compare the average age of companies that recommend SOCPA professional certificate with the average age of companies recommending other certificates. We find a statistical difference, in the sense that greater experience leads to a higher support for SOCPA professional certificate. Thus, companies in favor of SOCPA professional certificate are operating more than 16 years, while companies that prefer other professional certificates are less than 15 years old. This finding proves the fact that experienced companies appreciate the quality of SOCPA professional certificate ($t = -1.8482$, $Pr(T < t) = 0.0329$). The same as experience is valued in candidates who pursue certification (Borgonobo et al. 2018), older companies appreciate the advantages of certification.

4.2.3. Professional certifications endorsement shapes companies' features

The survey applied to employers included several questions related to professional certifications. One of the questions was whether employers thought that lifelong learning is necessary for accounting professionals (variable *lifelong_learning_YN_acc*). The survey also asked if any professional certification was recommended to accounting graduates. Figure 3 shows the list of suggested certifications. Based on this latter question, we created a dummy variable with value 1 if any certification is recommended and 0 if no certification is recommended (*profess_certif_YN*). Table 2 tabulates both variables. This statistical test shows that those respondents who recommend some certificate to accounting students also significantly think that learning should not stop during all the professional life of accounting graduates. There is a clear alignment between this opinion and PAOs´ policy of requiring continuous training of certified accountants to hold a valid certificate. This result also supports Borgonobo et al. (2018), who state that lifelong learning has turned the reform of accounting education into a complex undertaking. In their review of the accounting curriculum, these authors indicate that accounting students should demonstrate a commitment to lifelong learning. They explain the case of the Philippines' CPA certification, where the implementation of the "K to 12 Program" added two additional years of studies in the high school level in order to provide sufficient time for mastery of concepts and skills and develop lifelong learners.

Table 2 Lifelong learning and certification

lifelong_learning_YN_acc	*profess_certif_YN*	
	No	Yes
No	201	10
	100.00%	4.33%
Yes	0	221
	0.00%	95.67%
Pearson chi2(1)	393.7111. Pr = 0.000***	
Significance: *10%, **5%, ***1%.		

The survey asked employers which contents they felt that are missing in fresh graduates' accounting curricula. The options were big data and AI, cyber security/blockchain, public sector accounting, financial statements analysis, sustainability/ESG and data-based decision making. This question is quite relevant, because as Tucker and Schaltegger (2016) point out, there is a gap between academics and the real problems faced by practitioners. Table 3 shows the empirical analysis of whether these missing competences differ in companies recommending SOCPA or CMA certifications as compared with companies not recommending these certifications. All respondents who recommend SOCPA certification believe that all the topics are missing from current accounting curricula. The positive attitude towards SOCPA certifications connects with the feeling of these gaps on the freshly accounting graduates. This finding indicate that certification is seen as a way to bridge these gaps between accounting programs and skills highly demanded by companies. However, those respondents recommending the CMA certification are not so concerned about these missing skills in accounting graduates, as they are only concerned about gaps in financial statements analysis and data-driven decision-making.

Table 3 Accounting graduates' missing skills and certification

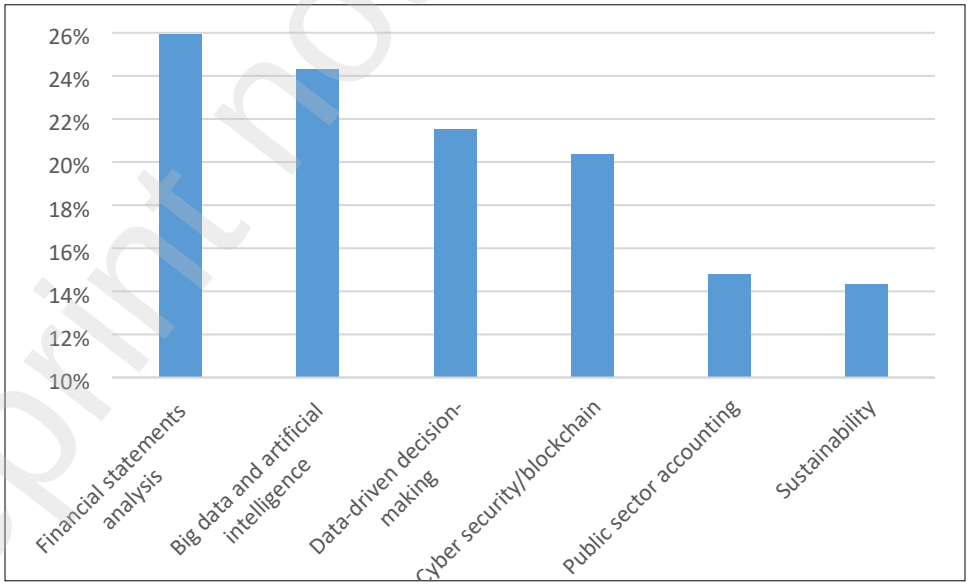
From your experience with recent graduates, what topics do you think are missing from the accounting curriculum?		*profess_certif_SOCPA_YN*		*profess_certif_CMA_YN*	
		No	Yes	No	Yes
Big data and artificial intelligence *(missing_bigdata_AI)*	No	250	77	318	9
		84.46%	56.62%	76.08%	64.29%
	Yes	46	59	100	5
		15.54%	43.38%	23.92%	35.71%
FG: Prof. bodies (ACCA, AICPA) **FG: Accounting graduates**	Pearson $\chi^2(1)$	39.2620. Pr = 0.000***		1.0236. Pr = 0.312	
Cyber security/blockchain *(missing_cybersec_blockchain)*	No	259	85	334	10
		87.50%	62.50%	79.90%	71.43%
	Yes	37	51	84	4
		12.50%	37.50%	20.10%	28.57%
FG: Accounting graduates	Pearson $\chi^2(1)$	35.9049. Pr = 0.000***		0.5999. Pr = 0.439	
Public sector accounting *(missing_pubsec_acctg)*	No	273	95	356	12
		92.23%	69.85%	85.17%	85.71%
	Yes	23	41	62	2
		7.77%	30.15%	14.83%	14.29%
	Pearson $\chi^2(1)$	36.9728. Pr = 0.000***		0.0032. Pr = 0.955	
Financial statements analysis (missing_finstat_analysis)	No	247	73	317	3
		83.45%	53.68%	75.84%	21.43%
	Yes	49	63	101	11
		16.55%	46.32%	24.16%	78.57%
	Pearson $\chi^2(1)$	43.0020. Pr = 0.000***		20.8813. Pr = 0.000***	
Sustainability/ESG (missing_sustain)	No	271	99	359	11
		91.55%	72.79%	85.89%	78.57%

FG: Prof. bodies (IFAC, AICPA, ICAEW)	Yes	25	37	59	3
		8.45%	27.21%	14.11%	21.43%
	Pearson $\chi^2(1)$	26.6799. Pr = 0.000***		0.5895. Pr = 0.443	
Data-driven decision-making *(missing_data_driven_decismaking)*	No	256	83	332	7
		86.49%	61.03%	79.43%	50.00%
FG: Prof. bodies (AICPA, ACCA) **FG: Accounting graduates**	Yes	40	53	86	7
		13.51%	38.97%	20.57%	50.00%
	Pearson $\chi^2(1)$	35.7478. Pr = 0.000***		6.9433. Pr = 0.008***	
Significance: *10%, **5%, ***1%. Below each topic, in bold letters, the focus group (FG) that mentioned that the topic is missing in fresh graduates' accounting curricula.					

Regarding big data, AI, blockchain and data-based decision making, Borgonobo et al. (2018) show that, in order to develop a competency framework for certification, PAOs must evaluate likely future trends impacting the business world. In this respect, these authors note that business and professional accounting are evolving quickly. Some trends that should be covered as competences in the certification include technological changes such as software and systems, AI, cryptocurrencies, blockchain, cloud computing and data analytics.

Figure 4 shows the missing skills in the accounting curriculum, as indicated by respondents. The two skills that respondents mostly consider missing in the accounting curriculum are financial statement analysis (25.93% of respondents) and big data and AI (24.31% of respondents). Regarding the former, participants who recommend SOCPA and CMA certificates, as table 3 shows, also point out financial statements analysis as a missing skill. Regarding the latter, only SOCPA highlights this missing skill. Therefore, certification could be a way to bridge these two gaps in the accounting curricula.

Figure 4 Accounting graduates' missing skills



The questionnaire also asked employers which competences they value in job seekers when recruiting new employees. The options were teamwork, critical thinking, problem solving,

communication, data analytics and visualization and prediction models. Table 4 shows the empirical analysis of whether these required competences differ in companies recommending SOCPA or CMA certifications, as compared with participants who do not recommend these certifications. The results clearly indicate that both recommending SOCPA and CMA certification are in line with valuation of all these applicants' skills.

Table 4 Skills considered when hiring accounting graduates and certification

What skills and competencies do companies focus on when hiring new graduates, including but not limited to (teamwork, critical thinking, problem solving, interpersonal communication, etc.)?		*profess_certif_SOCPA_YN*		*profess_certif_CMA_YN*	
		No	Yes	No	Yes
Teamwork *(hiring_teamwork_YN)* **FG: Prof. bodies (ICAEW, AICPA)**	No	243	47	286	4
		82.09%	34.56%	68.42%	28.57%
	Yes	53	89	132	10
		17.91%	65.44%	31.58%	71.43%
	Pearson $\chi^2(1)$	95.4265. Pr = 0.000***		9.7488. Pr = 0.002***	
Critical thinking *(hiring_crit_think_YN)* **FG: Acctg. and audit firms**	No	263	86	341	8
		88.85%	63.24%	81.58%	57.14%
	Yes	33	50	77	6
		11.15%	36.76%	18.42%	42.86%
	Pearson $\chi^2(1)$	39.3945. Pr = 0.000***		5.2113. Pr = 0.022**	
Problem solving *(hiring_prob_solving_YN)* **FG: Acctg. and audit firms** **FG: Prof. bodies (ICAEW)**	No	244	59	299	4
		82.43%	43.38%	71.53%	28.57%
	Yes	52	77	119	10
		17.57%	56.62%	28.47%	71.43%
	Pearson $\chi^2(1)$	67.8463. Pr = 0.000***		11.9365. Pr = 0.001***	
Communication with individuals *(hiring_commun_YN)* **FG: Prof. bodies (AICPA)**	No	253	68	313	8
		85.47%	50.00%	74.88%	57.14%
	Yes	43	68	105	6
		14.53%	50.00%	25.12%	42.86%
	Pearson $\chi^2(1)$	61.4160. Pr = 0.000***		2.2323. Pr = 0.135	
Data analysis and visualization *(hiring_data_anal_visual_YN)* **FG: Acctg. and audit firms** **FG: Prof. bodies (ICAEW, AICPA, ACCA)** **FG: Accounting graduates**	No	258	75	325	8
		87.16%	55.15%	77.75%	57.14%
	Yes	38	61	93	6
		12.84%	44.85%	22.25%	42.86%
	Pearson $\chi^2(1)$	54.0686. Pr = 0.000***		3.2568. Pr = 0.071*	
Prediction models *(hiring_predict_YN)*	No	273	103	368	8
		92.23%	75.74%	88.04%	57.14%
	Yes	23	33	50	6
		7.77%	24.26%	11.96%	42.86%
	Pearson $\chi^2(1)$	22.4705. Pr = 0.000***		11.4604. Pr = 0.001***	
Significance: *10%, **5%, ***1%. Below each competency, in bold letters, the focus group (FG) that indicated this competence as relevant.					

New skills demanded in professional accountants (for example teamwork or critical thinking) have triggered accounting education reforms all over the world. Certification models must be adapted to the particular country, as there are different educational and professional traditions and

certification models, as well as different challenges in adapting accounting education to the each countries' economy (Borgonobo et al. 2018).

Certifications require continuous professional development from PAOs' certified members. This professional development provides opportunities to help members enhance enabling competencies. For example, small group discussions, case studies, and other interactive techniques can help members enhance their communication, critical thinking, analysis and teamwork skills (Borgonobo et al. 2018).

Critical thinking, as a competence to be evaluated in certification exams, deserves some comments. As explained above, Cory and Huttenhoff (2011) find that critical thinking skills are of utmost importance for non-public accountants. Simkim et al. (2011) review certification examinations and find that almost all of them rely solely on multiple-choice questions. This type of questions has little structural fidelity and they are not universally accepted as the best assessment tools for measuring professional accounting competencies. Instead, constructed response tests such as computational questions are usually preferred as theoretically superior metrics. They find a weak, positive relationship between performance on the multiple-choice questions and constructed response portions of CPA tests. This means that multiple-choice questions only examine rudimentary levels of knowledge–or perhaps nothing other than the multiple-choice test taking ability of the applicants. The findings from their study suggest that certification examinations based solely on multiple-choice questions may not be testing applicants at the same level as constructed response tests might. For these reasons, they encourage certification examiners to follow the CPA approach and include at least some constructed response questions on their tests.

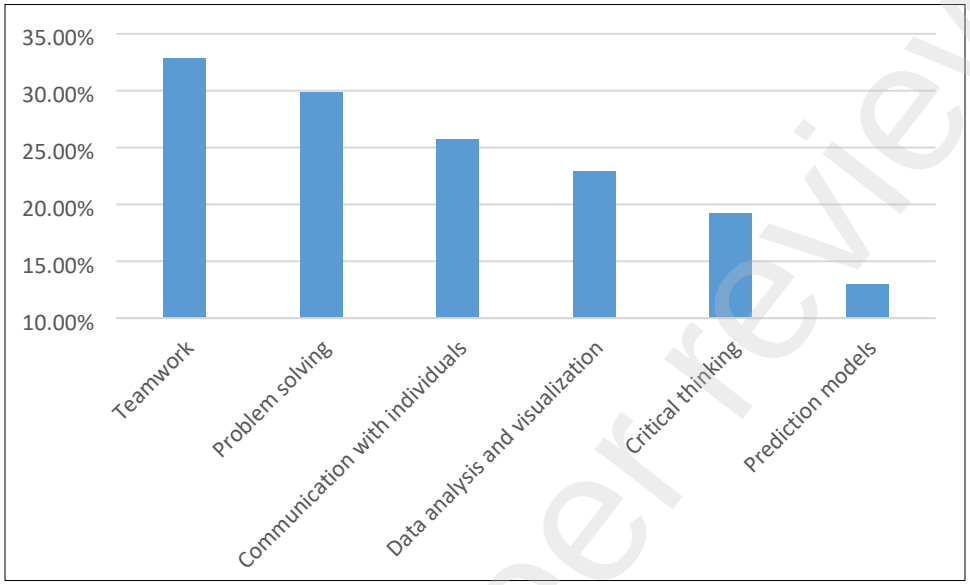
Regarding this evaluation of the certification exams, some PAOs are investigating how to use technology to better enable the assessment of critical thinking skills. AICPA recently explored various ways to test written communication skills at a higher-order skill level. They concluded, however, that the process of objectively evaluating a candidate's application of higher-order skills (thought process and judgment) within the context of a written response is currently cost- and time-prohibitive. Accordingly, the AICPA started to research into more advanced automated essay-scoring technology and into potential alternatives to evaluating professional skepticism, which could result in new types of questions for the CPA Exam (Borgonobo 2018).

It is also worth to mention that IES 3 considers interpersonal and communication as one of the intermediate competence areas for professional skills. This means, on the one hand, demonstrating collaboration, cooperation, and teamwork when working towards organizational goals. On the other hand, communicating clearly and concisely when presenting, discussing, and reporting in formal and informal situations. Cory and Huttenhoff (2011) find that communication skills are ranked as the top skill in accounting graduates. CPA Canada, within the competence domain of enabling, includes teamwork and leadership.

Figure 5 shows the skills participants value when hiring fresh accounting graduates. The two skills more valued are teamwork (32.87% of respondents) and problem solving (29.86% of respondents). Participants recommending certification significantly recognize both skills. Thus, accounting curricula should train students in these two competences. Besides, to increase employability, certification exams could increase these competences, to meet the requirements of employers. On

the focus group of PAOs, the representative of ICAEW stated that professional certifications add value by teaching graduates how to use effectively their knowledge in the workplace.

Figure 5 Skills considered when hiring accounting graduates



5. Conclusions

This research report provides empirical evidence on the role of professional certifications and PAOs in enhancing accounting graduates' knowledge and skills in Saudi Arabia. In addition, this report reveals some interesting results based on focus group discussions and surveys.

The majority of Saudi employers recommend some kind of accounting certificate (53.47%). Within them, 60% recommend the SOCPA certifications. This finding highlights the crucial value of local or regional education and certificates to Saudi employers, compared to international certifications. This, in turn, reflects the peculiarity of the Saudi institutional market, which significantly affects the education and professional requirements of potential accounting graduates. We find a significant difference in accounting certificate recommendation, since 100.00% of companies within the accounting, auditing or zakat sector recommend some type of professional certificate, compared to only 41.23% of companies from other sectors (*Occupational Regulation* theory). The same 100% is found among companies in Riyadh recommending professional certificates, compared with 36.59% of companies outside Riyadh. We conclude that, since most of complex transactions and businesses developments take place in Riyadh, this requires skilled, certified accountants to deal with the analysis and reporting of these financial activities. This complexity needs critical thinking, which should be assessed by introducing more constructed response questions in certification exams.

Respondents who recommend some certificate to accounting students significantly think that learning should not stop during all the professional life of accounting graduates. There is a clear alignment between this opinion and PAOs´ policy of requiring continuous training of certified accountants to hold a valid certificate.

Accounting certificates are seen as a way to bridge these gaps between accounting programs and skills highly demanded by companies: big data and AI, cyber security/blockchain, public sector accounting, financial statements analysis, sustainability/ESG and data-based decision making. The two skills that respondents mostly consider missing in the accounting curriculum are financial statement analysis and big data/AI. Therefore, certification could be a way to bridge these two gaps in the accounting curricula.

The two skills more valued by employers in accounting graduates are teamwork and problem solving. Participants recommending certification significantly recognize both skills. Thus, to increase employability, certification exams could increase these weight of these competences on the exam syllabi, to meet the requirements of employers. On the focus group of PAOs, the representative of ICAEW stated that professional certifications add value by teaching graduates how to use effectively their knowledge in the workplace. Finally, certification and long-life learning through enrolment in PAOs definitely shape the future of accountants.

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