THE ACCOUNTING EDUCATORS' JOURNAL
Volume XXXV
2025
pp. 41 - 60

A Comparative Study of Accounting Skills, Certification Rankings, and Cultures

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Abstract

This study aims to investigate how accounting students and practitioners rank skills and certifications, and how cultural differences are related to these preferences. The authors conducted a survey to assess accountants' perceptions of skills and certifications in career development. The analysis included an independent samples T-test between student and practitioner rankings and an Analysis of Variance (ANOVA) to analyze how cultural differences are associated with rankings of skills and certifications. Results indicate several significant disparities in how students and practitioners ranked skills, and the ranking of certifications had greater perceptional differences among participant groups. Additionally, results find statistically significant differences in the perceptions of skills and certifications among participants from various cultures. Findings suggest a perceived gap regarding skills and provide insights for curriculum design considerations. The research underscores the importance of employers to consider employees' diverse backgrounds in strategic human resource management. The results have practical implications for employers in their recruiting and retention strategies. Finally, this study contributes to the literature by documenting culture as a relevant element in the perceptions of accounting skills and certification preferences.

Keywords: Certifications, Cultural differences, Curriculum development, and Skill preferences.

Introduction

Hard skills are achievements included on a résumé such as education and certifications (Robles, 2012). Additionally, hard skills come from one's aptitude, practice and knowledge, and can include examples such as reading, math, and the ability to use software programs (Robles, 2012). Hard skills such as data analytics (e.g., Bailey & Ragland, 2022) have become a vital part of the contemporary accounting curriculum. Furthermore, the American Institute of Certified Public Accountants (AICPA, 2011) and the International Accounting Education Standards Board (IAESB, 2014) emphasized that such specialized skills are imperative for the profession. In 2018, the AICPA defined hard skills that are important for accountants (see Appendix A for full definitions of the AICPA listed hard skills). The hard skills needed for accountants given by the AICPA include risk assessment, including analysis and management,

measurement analysis and interpretation, reporting, research, systems and process management, and finally, technology and tools.

In addition to hard skills, businesses across the globe have emphasized the importance of soft or generic, non-technical skills for business graduates (Cinque, 2016). Soft skills (e.g., Rebele & St. Pierre, 2019) are non-transferable attitudes, traits, and behaviors of individuals. Much research on the importance of soft skills has been documented (Rainsbury et al., 2002; Robles, 2012; Suleman, 2018), but research on soft skills specifically for the accounting profession is scarce. In the CPA vision project and the CPA Horizons 2025 report, the AICPA acknowledged the importance of soft skills (2011). The American Productivity and Quality Center (APQC) and the Institute of Management Accountants (IMA) reported that leadership was the most critical skill and yet the least possessed among new hires (IMA, 2014). A list of important soft skills from Robles (2012) and the National Association of Colleges and Employers (NACE, 2018) indicates that the utmost important soft skills are: Integrity, communication, courtesy, flexibility, interpersonal skills, positive attitude, professionalism, responsibility, teamwork, work ethics, career management, critical thinking/problem-solving and global/intercultural fluency. See Appendix B for full definitions of the soft skills from NACE (2018) and Robles (2012).

Furthermore, the certifications of upmost importance for accountants given by the AICPA in 2018 (see Appendix C for the detailed expertise levels of the certifications) include Excel, QuickBooks, Enterprise Resource Planning Systems (SAP, Oracle & Dynamics GP), NetSuite/Workday, SQL, and the credentials of CPA, CMA, and CIA. Prior studies (e.g., England, 2022) found that most university curricula aim to develop students' hard and soft skills while most students focus solely on hard skills. Recent studies found a widening expectation gap in skills between graduates and employers (Association of International Certified Professional Accountants, 2019; Dolce et al., 2020, Suleman, 2018; Tan & Laswad, 2018). With a high demand for employers-preferred skills, the core accounting curriculum seems to concentrate on hard/technical skills, leaving little time for soft skills (England, 2022). Dolce and colleagues (2020, p. 57) documented that accounting graduates appeared to have "underestimated the importance of other soft skills" and "overestimated other technical skills." Thus, innovations in teaching pedagogies strive to include teaching both hard and soft skills within the same learning activities (England, 2022).

A survey of more than 440,000 U.S. students in business and non-business majors across 600 American universities (Berry & Routon, 2020) showed that accounting majors (n =14,691) reported a perceived increase in their hard and soft skill acquisition over their college years. However, Berry & Routon (2020) found that compared to students of other business majors (n = 53,399), accounting majors had gained only hard skills. While obtaining hard and soft skills is important, studies examining how social and cultural factors may affect the perceived importance of hard skills, soft skills, and certification among accountants seem to be lacking.

Moreover, the recent 2023 AICPA Trends Report indicates that more accounting graduates from diverse backgrounds are entering the workforce nowadays (AICPA, 2023). Understanding how social and cultural factors may be associated with the perceived differences in the importance of hard skills, soft skills, and certifications is crucial for accounting educational institutions, educators, and the profession. Thus, the objective of this study is to investigate whether social and cultural factors impact how accounting students and practitioners rank hard skills, soft skills, and certifications. To explore this under-studied area, the authors conducted a survey to investigate the association between rankings of accounting hard skills, soft skills, certifications, and cultures. Accounting practitioners surveyed for this study were alumni who graduated from the same university as the participating student samples in the survey. The variable of culture or cultural factors, as explicated in the Method section, was measured by aligning survey participants' ethnicity and their home country. Based on the discussion so far, we posit this research question: Do social and cultural factors affect how accounting students and alumni rank the importance of both hard and soft skills, and certification in their career development?

Applying an independent t-test and an ANOVA on the samples, results identify (1) several statistically significant disparities in how students and practitioners ranked skills and (2) several statistically significant disparities in how different cultures ranked skills. These findings suggest a perceived skills gap and highlight the need to consider cultural aspects in future curriculum adjustments. This study contributes to the literature by documenting how

cultural factors are relevant in perceptions of hard skills, soft skills, and certifications in career development. Specifically, the results of this study provide insights for accounting educational programs to synchronize future curricula with the accounting profession's evolving expected skills. Finally, these results can aid businesses in their strategic planning for recruiting and retention of accounting professionals from different cultures.

The remainder of the paper is as follows. Section 2 reviews the literature framework and develops the hypotheses. Section 3 describes the method for data collection and analysis. Section 4 details the statistical results and the related interpretations. Finally, section 5 discusses the connection to prior studies, implications, future research, limitations, and the conclusion.

Literature Review and Hypothesis Development

Requiring accountants to demonstrate both hard and soft skills suggests that skills can be learned. However, factors associated with accountants' learning and career development seemed to have been overlooked. Contemporary developments in learning were formally organized and empirically studied by philosophers and cognitive development theorists. Arends (2014, p. 373) argues that learning "rests on ideas associated with democratic classrooms, the constructivist views of teaching and learning and theories that help explain intergroup relations."

Democratic Classrooms

John Dewey provided the founding philosophy on how people learn and the works of Herbert Thelen allowed the feasible operationalization of Dewey's philosophical conceptualization of learning to be achieved in group approaches. Dewey's (1916) conceptualization of "democratic procedures and scientific process" in a classroom to induce learning strives to "mirror the larger society and be a laboratory for real-life learning" (Arends, 2014, p. 373). Dewey (1916) believed that instructors should provide group assignments for students to interact with one another for students to solve problems and learn.

Herbert Thelen (1954, 1960, & 1972) operationalized Dewey's conceptualization with more precise group works and paved the way for "contemporary developments" (Arends, 2014, p. 373) on cooperative learning. Works of both Dewey and Thelen underpinned the foundation for the cooperative group learning approach in areas where the impact of variables such as inclusion (e.g., Eldridge & McLafferty, 2021), social media (e.g., Redstone & Villasenor, 2020), and geographical differences (Sharan & Sharan, 2021) on learning are studied. Their reasoning was that a democratic society could be created and maintained in a learning environment such as a classroom to foster cooperative behaviors and achieve learning. Followers of Dewey (1916) and Thelen (1972) believed that learning is best achieved in an environment that mirrored a democratic society where socialization or social persuasion vitally impacts how people value what must be learned.

Constructivist Views and Constructivism

Building on philosophy, psychologists created the theoretical foundation to study learning through constructivism, which posited that both physical capacity (e.g., brain functions) and socialization factors impact learning. Piaget (1963) believed that people's intelligence was developed through socialization and cooperation in a group. He further promoted that both factors were indispensable from each other and happened in a sequence for cognitive development to become a "coherent whole" (Piaget, 1963, p. 156). To Piaget, the socialization process facilitated the construction and creation of knowledge from prior experiences.

Applying the beliefs of afore-discussed theorists, we argue that accountants value hard skills, soft skills, and certification differently by their socialization factors. Students in the same institution may perceive certain skills and certifications with similar importances. As graduates enter the workplace, their perceive importance of hard skills, soft skills, and certification may differ. Relying on the theoretical discussion thus far, we posit the first hypothesis as follows.

- Hypothesis 1: Socialization factors impact how accountants (students and alumni) rank the importance hard skills, soft skills, and certification in their career development.

Lev Vygotsky and colleagues (Vygotsky & Cole, 1978; Vygotsky et al., 1994) followed Piaget's (1963) work on how people develop intelligence. Both Piaget and Vygotsky believed learning occurred when learners constructed their understanding with prior social and cultural references. While Piaget (1963) believed that both biological and social factors impacted learning, Vygotsky gave more weight to the social aspect in influencing learning than the biological ones. Vygotsky and Cole (1978) and Vygotsky et al., (1994) believed that social and environmental factors were crucial to how learners made sense of problems and (re)constructed their experiences into new knowledge.

Overall, the works of both Piaget and Vygotsky on learning converged upon the premise that learners (re)construct new knowledge based on prior social experiences or their socialization. Therefore, socialization factors may play a major role in how hard skills, soft skills, and certifications are valued to benefit career development. Building on this theoretical framework, we argue that prior social experience as a proxy of cultural factors (Ethnicity/Home Country) is relevant to accountants' values and perceptions of hard skills, soft skills, and certifications. This reasoning forms the basis of our second hypothesis:

- Hypothesis 2: Cultural factors (Ethnicity/ Home Country) impact how accountants rank the importance of hard skills, soft skills, and certifications in their career development.

Methods

Some business schools find periodically examining their curriculum is essential to keeping the curriculum relevant (Behn et al., 2012; Gabric & McFadden, 2001) by developing close contacts with employers. Suleman (2018) argues that employers can focus on employees' performance without making these skills apparent to employees. Alternatively, current employees give the most reliable description of desired skills (Braun & Brachem, 2015). Surveying alumni is a valuable tool to facilitate educator-practitioner exchanges on improving program quality. We believe that surveying alumni practitioners can give the most up-to-date skills needed for students. Further, Watty et al. (2016) found that accounting faculty may be resistant to changing technology, which slows progression to needed changes in curricula. With resistance to change and slow changes to accounting curricula, accounting educators' input on the most up-to-date skills may be limited.

Miller (2014) surveyed alumni to assess the relevancy of the curriculum. Applying Miller's (2014) approach, we developed the survey instruments to test the two hypotheses. See Appendices A, B, and C for the developed list of highly valued hard skills, soft skills and certifications according to the AICPA (2018), National Association of Colleges and Employers (NACE, 2018), and Robles (2012). To ensure the reliability of the survey instrument, we computed a Cronbach Alpha (α) scores for the subscales of hard skills, soft skills, and certifications. Sekaran & Bougie (2020) believe that Cronbach Alpha coefficient of dimensions must be above .7 to reach reliability. Our analysis shows that the Cronbach Alpha coefficient of dimensions equals .799 for hard skills, .880 for soft skills, and .832 for certifications, indicating a high internal consistency (see Table I). Based on Sekaran & Bougie (2020), these αs imply that the survey instrument has high reliability for the dimensions. We asked the survey participants the following questions: "Please read the following definition and rate your level of agreement about the importance of the following accounting competencies (inserted skill or certification) in today's workplace." The survey used a 5-point Likert scale of agreement to solicit the participants' perceived importance of hard skills, soft skills, and certifications.

Hard Skills and Certifications

Following Miller (2014) who purports that communications from accounting employers often determine what hard skills are considered indispensable, we identify the most important hard and soft skills as well as certifications per the 2018 AICPA definition. We administered the survey to all suitable individuals to elicit their opinions to analyze their perceptions regarding skills and certifications. The attributes of participants are further analyzed to determine how cultural elements are associated with their perceptions. The survey instrument included the definitions of hard

skills in Appendix A and the expertise levels of accounting certifications in Appendix C.

Soft Skills

Internationally, various countries have viewed certain soft skills as important. For example, teamwork is valued in the Philippines, New Zealand, Malaysia, and Belgium (Cinque, 2016; Musa et al., 2012; Patacsil & Tablatin, 2017; Rainsbury et al., 2002). Additionally, Rainsbury et al. (2002) named customer service orientation as the most important soft skill in New Zealand. Musa et al. (2012) documented communication as the most valued of all skills in Malaysia. Finally, Cinque (2016) reported a Belgium initiative to boost students' teamwork. Contrary to teamwork, a survey of U.S. business executives ranked teamwork as the eighth most critical soft skill out of ten (Robles, 2012). As such, perceptional differences may exist for students from diverse home countries and/or ethnicities on soft skills. Robles's (2012) survey of employers regarding soft skills in the U.S. ranked integrity as the most important and work ethics ranked at the bottom. The survey instrument included the definitions of soft skills in Appendix B.

Data Collection and Analysis

After receiving an IRB approval for the study's instrument, we surveyed and collected data from accounting students and alumni from the same university in the U.S. with a culturally diverse student population. Surveying alumni from a single university pragmatically allowed testing the social factors in the hypotheses as the required courses have remained constant to eliminate potential institutional influences. Surveys were first emailed to currently enrolled accounting students. Second, we distributed the same survey to students who took accounting courses in the last semester of 2019 and the first semester of 2020 at the same institution. Finally, the surveys were emailed to the alumni.

One hundred and fifty-one participants completed and returned the survey out of 206 distributed to current accounting students (73.3 percent response rate). Out of the 151 received, 128 surveys were complete and useable. The authors also sent a total of 1,083 surveys to alumni who graduated in the inclusive years of 1955 to 2019. The authors received 219 surveys back (20.2 percent response rate). Out of the 219, 153 were complete and usable. The overall response rate is about 28.7 percent (370 out of 1,289 surveys sent), which is in line with the response rate of about 27 percent for published papers from 2014 to 2016 that used surveys as their method (see Hiebl & Richter, 2018).

We asked participants to rank skills and certifications and collected demographic data of ethnicity, home country, career path, and years of working experience. The authors applied an independent samples T-test to compare the independent variable "Status" with two attributes: student or alumni across the survey response items (dependent variables). The dependent variables included several specific survey items measuring the perceived importance of skills and certifications.

Variable of Culture

To construct the variable of "Culture," the survey participants' home country was aligned to their ethnicity. We believe that cultural identity can consist of the geographic location of the home country and ethnicity or ethnic roots. The three most selected home countries of surveyed participants were: Asia, North/Central America (NCA), and Pacific Islands (PI). For this study, the home country of Asia was aligned to the ethnicity of "Asian," and the home country of Pacific Islands was aligned to the ethnicity of "Native Hawaiian or Other Pacific Islander." Finally, the home country of North America/Central America (NCA) was aligned to the ethnicity of "Caucasian."

Home Country Definition

Home country is the country of origin, usually at birth, as well as countries that may have preceded the current one if multiple transnational migration trajectories (Simic, 2019). A connection to one's home country could also include knowledge of its language or cultural preferences (Gould, 1994).

Ethnicity Definition

Ethnicity, as defined by the American Psychological Association (APA), is "a characterization of people based on having a shared culture (e.g., language, food, music, dress, values, and beliefs) related to common ancestry and shared history" (APA, 2024, p.1). APA defines race as "the social construction and categorization of people based on perceived shared physical traits that result in the maintenance of a sociopolitical hierarchy" (APA, 2024, p.1). Contrary to APA's definition of ethnicity, the U.S. Census Bureau does not differentiate on race and ethnicity data but refers to race and ethnicity in the following categories: "White," "Black or African American," "American Indian or Alaska Native," "Asian," or "Native Hawaiian or Other Pacific Islander" (Census, n.d.).

Analytic Sample

We excluded from the data, six student participants and seven alumni who were not from these three primary home country areas (e.g., Europe and Africa) or preferred not to report their home country. Three survey participants from the home country of NCA had the ethnicity of "American Indian or Alaskan," two participants had the ethnicity of "Hispanic or Latino". Because of the limited data from these ethnicities, we excluded these survey respondents from the analysis. Overall, 11 students and 23 alumni were removed from the culture variable because their home country did not align with the specified ethnicity groups.

Further, to focus on the most important skills for accounting practitioners, we eliminated alumni who selected the "non-accounting career path" (n = 38) from the analysis. After collapsing the ethnicity and home country variable into a "Culture" variable and excluding non-accounting career path alumni, the number of usable, complete surveys from students was 111, and alumni was 85. See Figure I for the sequence of how we determine the final analytic sample.

Results

The overall results suggest that the top three most important hard skills were (1) reporting, (2) risk assessment, and (3) analysis and interpretation. Student and alumni groups selected different top three soft skills, but both groups ranked integrity as the most crucial of all. Finally, the top three certifications were advanced Excel, professional designations (e.g., CPA), and data analytics/management.

Descriptive Statistics

Panel A of Table II provides the descriptive statistics of the alumni's career paths and years of working experience. Most accounting alumni were working in corporate accounting (43.5 percent) followed by public accounting (37.7 percent). In a public firm, becoming a partner can take from ten to fifteen years (Baysden, 2014). Over twenty percent of alumni surveyed had more than fifteen years of career in accounting. Panel B of Table II presents the descriptive statistics of home country region (HCR) of both students and alumni.

Hard Skills, Soft Skills, and Certification Rankings

Panel A of Table III shows that both students and alumni converged on the top three hard skills and picked reporting as the most critical skill in career advancement. However, students preferred risk assessment ability over measurement analysis while alumni selected the measurement analysis ability over risk assessment. This preferential difference could be associated with their respective socialization factors as students learn and make inferences in the classroom while the alumni have social interactions at workplace. According to Panel B of Table III, both groups believed that integrity is the most critical soft skill. For students, in addition to integrity, responsibility and work ethics complete the top three. On the contrary, alumni chose communication and responsibility to round up their top three after integrity. For certifications, Panel C of Table III shows that both groups agreed on the top three certifications and ranked advanced proficiency in Excel as the top choice. Both groups ranked certifications (e.g., CPA) as the second most important skill, followed by SQL (e.g., data analytics).

Table IV details the independent samples t-test results on hard and soft skills as well as certifications by status (student versus alumni). Panel A displays one of the six hard skills tested that indicated a statistically significant effect ($p < .05$) between status (student and alumni). The hard skill of Systems and Process Management defined as "Identify the appropriate businesses processes and system(s), related frameworks and controls to assist in the design

and use of systems for efficient and effective operations" was ranked significantly higher by students than alumni. In Panel B, communication was the only skill ranked significantly higher ($p < .05$) for alumni than students. Conversely, students rated the soft skill of courtesy higher ($p < .05$) than alumni as well as the soft skill of global fluency ($p < .01$). In Panel C, for certifications, students rated QuickBooks, SAP or Enterprise Resource Planning Systems (ERP), Workday (e.g., cloud-based systems), and SQL (e.g., data analytics) significantly higher (< .001) than alumni.

Table V details the one-way ANOVA results on hard and soft skills as well as certifications by HCR (Asia, North/Central America, Pacific Islands). Pacific Island (PI) participants tended to have higher means than other cultures across hard skills, soft skills and certifications. Panel A provides more detailed information from the mean-wise comparisons (Tukey post hoc) among HCR indicating that PI participants rated measurement analysis significantly higher ($p < .05$) than Asian participants with a mean difference of .30 and higher than NCA participants ($p < .01$) with a mean difference of .39. Asian and PI participants rated research higher than NCA participants. PI participants rated systems and process management significantly higher ($p < .01$) than NCA participants with a mean difference of .23.

Moreover, mean-wise comparisons illustrate HCR is associated with how participants ranked soft skills. See Table V Panel B. Specifically, Asian and PI participants rated the soft skills of courtesy, professionalism, career management and global fluency higher than their NCA counterparts. The PI participants ranked work ethics significantly ($p < .01$) higher compared to their Asian counterparts with a mean difference of .34. Certification perceptions in Table V panel C had a significant difference among HCR for general knowledge of SAP or ERP, with Asian participants rating this skill significantly higher than NCA participants. Additionally, Asian and PI participants rated Workday (cloud-based systems) and SQL (data analytics) significantly higher than NCA participants. No significant HCR effects were noted for Excel skills, QuickBooks expertise, or CPA/CMA certifications.

Overall, the results supported Hypothesis 1 that there is a statistically significant relationship between social environment and rankings of hard skills, soft skills, and certifications. In other words, the socialization factors of students and alumni are relevantly associated with how they ranked the importance of skills and certifications in their careers. Results further suggest a statistically significant association between hard skills, soft skills, certifications, and HCR as posited in Hypothesis 2. Cultural factors (Ethnicity/ Home Country) play an important role in how accountants rank the importance of hard skills, soft skills, and certifications.

Discussion and Conclusion

This section provides a detailed discussion that lends credence to the findings of how both socialization factors and cultural factors influence learning and rankings of skills and certifications. Reporting was the expected highest-ranking hard skill because accountants are expected to create, analyze, and report financial-related statements (AICPA, 2011) throughout their careers. Integrity was the highest-ranking soft skill for both students and alumni as integrity is paramount for the accounting profession. Students tended to rank certifications as very or extremely important, while alumni indicated more moderate importance. The highest-rated certification was Excel, which surprisingly was ranked even higher than professional designations (e.g., the CPA). Such a high ranking of the Excel certification may reflect social and cultural conditions. In the university where the data was collected, advanced Excel is a required course in its curriculum, but not necessarily a CPA preparation course. Additionally, the uniform, U.S. CPA exam and CPA credential may not transfer as easily to other international locations. The following sections provide further discussions on how certain traits of participants affect the ranking of skills and certifications. While we do not discuss every statistically significant finding, we highlight what we believe to be the most impactful ones.

Soft Skill: Integrity for all survey participants

All participants highly rated integrity with a mean of 4.82 out of five. Such an outcome is expected as ethics are frequently taught in accounting (England, 2022). Voynich (2004), then chairman of the AICPA board of directors, put integrity at the heart of the accounting profession. Voynich (2004) believed that without integrity, the functions of auditing, assurance, and attestation services would lose their reputation as the gatekeepers of financial standards and disclosures.

Soft Skill: Communication by Status

Alumni ranked communication significantly higher than students. A recent study by LinkedIn stated that the top skill for the years 2023 and 2024 was communication (Wells, 2024). Communication is vital as many businesses have transitioned into a remote or partially remote working environment. A Forbes magazine article emphasized the importance of communication by suggesting businesses to assess communication intelligence for all employees and create a communication strategy (Harris, 2022). Clearly communicating a business's vision can help employees execute the vision and improve efficiency. This current trend of emphasizing communication may explain why alumni ranked this skill higher than students. How to help students develop such contemporarily demanded communication skill is an important topic for accounting educators to contemplate.

Hard Skill: Research by HCR

Globalization, rapid economic development, and diverse regulatory environments may lead many countries in Asia to view research as a valued hard skill. Many Asian countries are experiencing rapid economic growth and development, leading to evolving business landscapes and financial markets (Nabi, 2016). Accountants need research skills to stay current on emerging trends, international accounting standards, taxation policies, new regulations, and industry developments to effectively advise clients or manage financial operations while engaging in cross-border transactions (IAESB, 2014). Such environmental factors may explain why research is a hard skill valued higher by the Asian participants than those from other HCRs.

Soft Skill: Courtesy and Professionalism by HCR

Asian participants rated courtesy substantially higher than their NCA peers. Warden *et al.* (2005) studied cultural values between Asian and Angelo-white MBA students and found a statistically significant difference between the two groups in their view of "filial piety." Filial piety is the normative obligation of children in their filial respect and courtesy to care for parents in countries such as Korea (Sung, 1998). In Asia, filial piety is highly valued and expected of the younger generations, and such expectations can be observed in interactions with teachers and non-related elderly (Sung, 1998). Thus, the Asian participants may value filial piety and extend such expectations into higher education and the workplace. For the soft skill of courtesy, one of the definitions given is "respectful." Students and alumni who grew up in an environment where being respectful and courteous within their family and to their elders may rate courtesy as expected and crucial in one's career success. Courtesy appears to be shown as what the hypothesis predicts that social/cultural influence as a proxy by HCR impacts how soft skills were ranked. Besides the Asian participants, the PI participants also ranked courtesy as one of the highly sought-after soft skills. Cultural values from PIs frequently include respect and close family ties observed in the Samoan cultural values (Tupu Tuia, 2013). Similarly, the Tongan culture emphasizes teaching young children to have respect for elders, tribal chiefs, and the royal family. In fact, Tongan families taught children that *Faka'apa'apa* (showing mutual respect among family members) is a Tongan way of life, which may influence how PI students perceive the soft skill of professionalism (well-dressed, appearance, poised) as critical in one's career.

Soft Skill: Career Management by HCR

The survey defined career management as: "Identify and articulate one's skills, strengths, knowledge, and experiences relevant to the position desired and career goals and identify areas necessary for professional growth." Asian and PI participants rated career management significantly higher than their NCA counterparts. The Organization for Economic Cooperation and Development (OECD) has researched employment trends in Japan's labor market, which include "lifetime" or "long-term" employment (OECD, 2024). Under lifetime employment, college graduates are recruited and implicitly offered stable employment until they reach retirement. The length of employment at large companies is the longest average (in years) for all OECD countries. Asian and PI participants

could view career management as meeting or exceeding expectations to retain their jobs and continue throughout their career with the same job that they originally started out with (OECD, 2024). The participants' environment, once again, appears to be directly associated with the ranking of career management.

Certifications by HCR

Differences exist in rating certifications in areas of SAP (e.g., ERP), Workday (cloud-based systems), and SQL (e.g., data analytics) by HCR. For example, Fiame Naomi Mata'afa, the prime minister of Samoa, has reported that the PI need to enter into an age of new technology and digital literacy as they confront economic challenges. As access to connectivity (the Internet) becomes more affordable and reliable, one of the ways to help enhance economic opportunities is to have people develop digital skills. Mata'afa (2023, p. 1) stated that "Through digital skills, people can access new markets, develop innovative products and services, generate jobs [and] be more competitive in the global market." Thus, certifications related to accounting information and technologies are perceived more favorably by participants from Asia and PI. These certifications seem to provide them with advantages in the workplace of their respective home countries. Further studies are needed to understand why individuals from Asia and PI HCRs ranked these certifications higher than NCA HCR participants.

Implications, Significance, Future Research, and Limitations

This study contributes to the literature by bringing learning theory into an accounting study and documenting significant differences in multiple perceptions of skill and certification rankings among participants from various cultures. As the backgrounds of accounting students and professionals become more diverse (AICPA, 2023), the findings of this study provide practical implications for accounting programs in future curriculum development as well as for employers in their recruiting and retention strategies.

Although there were HCR or cultural differences between groups, the results only indicate significant differences between groups based on the nature of the survey instrument. We suggest for future research to gather qualitative data on differences among HCR groups to understand why certain skills/certifications were ranked higher than others. A qualitative inquiry would shed light on understanding the perceived skills gap and could be helpful with the recruitment and retention of contemporary accounting professionals.

Similar to all studies, this study is subject to limitations. First, all research with survey data is subject to self-reporting bias. The primary researcher's teacher-student relationship with participants may experience such inherent bias in a survey. However, such a relationship can be argued to allow students to answer truthfully. While the results may not be generalizable, the sample's unique demographics are essential to control institutional biases and test for diverse cultural factors. The limitations provide a direction for future research to test whether universities with more homogeneous student compositions exhibit differences in ranking skills and certifications.

Conclusion

This study tested whether social/cultural factors are associated with how accountants learn and form value rankings of skills and certifications. Built upon the learning theory of constructivism, we conducted a survey on current students and alumni from the accounting program at the same culturally diverse institution. Results indicated a consensus of the top three hard skills and top three certifications among accounting students and practicing alumni. Both students and alumni participants ranked proficiency in Excel, professional designations (e.g., CPA), and experience with data analytics and management as the top three certifications. The top three soft skills were mostly the same between students and alumni, but alumni emphasized the importance of communication in the workplace. Results further suggested that the participants from different HCRs/cultures had key differences in their perception of skills and certifications. Moreover, findings appear to support the hypotheses that learning and social/cultural factors are significantly related to how skills and certifications are ranked. Accounting educators can benefit from such findings by including more intentional discussions than currently in their instructional approaches about hard skills, soft skills, and certifications for specific student demographics to optimize learning and understanding. Finally, insights documented in this study provide employers evidence in formulating their sustainable employee human resource strategies.

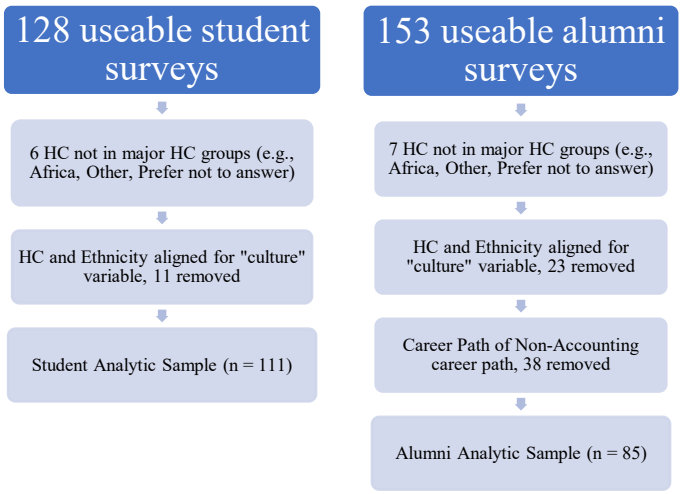


Figure I. Sequence of the Final Analytic Samples of Student and Alumni Surveys.

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Table I. Cronbach's Alpha (α) Coefficient of Dimensions (Instrument Scales)

Subscales	Number of Items in Scale	Cronbach Alpha (α)
Hard Skills	6[a]	.799
Soft Skills	13[b]	.880
Certifications	6[c]	.832

[a] Risk assessment, analysis and management, Measurement analysis and interpretation, Reporting, Research, Systems and process management, and Technology and tools.

[b]Integrity, Communication, Courtesy, Flexibility, Interpersonal skills, Positive attitude, Professionalism, Responsibility, Teamwork, Work ethics, Career management, Critical thinking/problem-solving, and Global/intercultural fluency.

[c] Excel, QuickBooks, Enterprise Resource Planning Systems (SAP, Oracle & Dynamics GP), NetSuite/Workday, SQL, and CPA, CMA, CIA, etc.

Table II. Descriptive Statistics

Panel A Alumni participants' career path and years of working experience

Career Path	**Number of Participants**	**Percentage (percent)**
Academic	3	3.5
Corporate Accounting	37	43.5
Governmental	4	4.7
Not-for-Profit	9	10.6
Public Accounting	32	37.7
Total	85	100
Years of Working Experience		
<1	13	15.3
1-3	17	20.0
4-6	8	9.4
7-9	14	16.5
10-15	15	17.6
> 15	18	21.2
Total	85	100

Total participants n = 85

Panel B Home country regions

HCR[a]	Student	Alumni	Total by HCR
Asia	65	37	102
NCA	16	36	52
PIs	30	12	42
Total by Status	111	85	196

[a] Home country region

Table III. Skill and Professional Certification Rankings

Panel A Hard Skills

	Student			Alumni		
Hard Skills	Rank	M	SD	Rank	M	SD
Reporting	1	4.53	.62	1	4.53	.63
Risk Assessment	2	4.50	.55	3	4.38	.71
Measurement analysis	3	4.47	.64	2	4.41	.60

Students (n = 111) and Alumni (n = 85)

Panel B Soft skills

	Student			Alumni		
Soft Skills	Rank	M	SD	Rank	M	SD
Integrity	1	4.79	.51	1	4.82	.39
Responsibility	2	4.65	.56	3	4.70	.48
Work Ethics	3	4.64	.59	5	4.53	.59
Communication	4	4.62	.619	2	4.77	.42

Students (n = 111) and Alumni (n = 85)

Panel C Professional certifications

	Student			Alumni		
Professional Certification	Rank	M	SD	Rank	M	SD
Advanced Excel	1	4.32	.77	1	4.46	.66
Professional certifications (e.g., CPA)	2	4.23	.86	2	3.98	.98
SQL (e.g., Data Analytics)	3	4.03	.87	3	3.43	1.18

Students (n = 111) and Alumni (n = 85)

Table IV. Independent Samples T-test, differences between Student and Alumni

Panel A Hard-Skills	Student M (SD)	Alumni M (SD)	*t*	*p*	Cohen's d effect size
Systems and Process Management	4.39(.65)	4.13(.77)	2.46	0.01*	0.36
Panel B Soft Skills	Student M (SD)	Alumni M (SD)	*t*	*p*	Cohen's d effect size
Communication	4.60 (.62)	4.76 (.43)	-2.00	0.02*	-0.27
Courtesy	4.56 (.66)	4.34 (.75)	2.11	0.02*	0.31
Global Fluency	4.33 (.84)	3.90 (.99)	3.26	<.001**	0.48
Panel C Certifications	Student M (SD)	Alumni M (SD)	*t*	*p*	Cohen's d effect size
QuickBooks	3.77 (.99)	3.19 (1.18)	3.70	<.001**	0.55
SAP (ERP)[b]	4.02 (.91)	3.39 (1.05)	4.41	<.001**	0.64
Workday (cloud-based systems)	3.98 (.87)	3.17 (1.05)	5.80	<.001**	0.85
SQL (e.g., data analytics)	4.03 (.87)	3.43 (1.18)	4.00	<.001**	0.60

**p < .01 *p<.05

[b] Enterprise Resource Planning (ERP)

Table V. One-way ANOVA, differences between Home Country Regions (HCR)

	HCR			ANOVA		
Panel A Hard-Skills	Asia M(SD)	North/Central America M (SD)	Pacific Islands M(SD)	*F*(1, 194)	η²	Tukey Post Hoc
Measurement analysis	4.40(.63)	4.31(.64)	4.70(.51)	5.22**	0.05	A<PI*, NCA<PI**
Research	4.28(.76)	3.90(.77)	4.53(.63)	8.92**	0.09	A>NCA*, PI>NCA**
Systems & Process Management	4.28(.76)	4.08(.66)	4.51(.59)	4.44*	0.04	NCA<PI**
Panel B Soft Skills	Asia M(SD)	North/Central America M (SD)	Pacific Islands M(SD)	*F*(1, 194)	η²	Tukey Post Hoc
Courtesy	4.52(.66)	4.19(.77)	4.66(.65)	6.22**	0.06	A>NCA*, PI>NCA**
Professionalism	4.17(.86)	3.83(.86)	4.52(.70)	8.46**	0.08	A>NCA*, PI>NCA**
Work Ethics	4.47(.64)	4.65 (.52)	4.81(.45)	5.81**	0.06	A<PI**
Career Management	4.24(.67)	3.92(.84)	4.50(.70)	7.61**	0.07	A>NCA*, PI>NCA**
Global Fluency	4.22(.91)	3.75(.96)	4.41(.82)	7.20**	0.07	A>NCA**, PI>NCA**
Panel C Certifications	Asia M(SD)	North/Central America M (SD)	Pacific Islands M(SD)	*F*(1, 192)	η²	Tukey Post Hoc
SAP (ERP)	3.87(1.02)	3.40(.96)	3.84(1.03)	4.00*	0.04	A>NCA*
Workday (cloud-based systems)	3.79(1.07)	3.19 (.93)	3.75 (.94)	6.60**	0.06	A>NCA**, PI>NCA*
SQL (e.g., data analytics)	3.83(1.04)	3.35(1.10)	4.09(.91)	6.77**	0.06	A>NCA*, PI>NCA**

**p < .01 *p<.05

Appendix A. Highly valued hard skills by the AICPA in 2018

Hard Skills	Definition
1. Risk Assessment, Analysis and Management	Assess, analyze and manage risk using appropriate frameworks, professional judgment and skepticism for effective business management.
2. Measurement Analysis and Interpretation	Identify appropriate, reliable, and verifiable measurements to analyze data for a given purpose and intended use.
3. Reporting	Identify the appropriate content and communicate clearly and objectively to the intended audience, the work performed, and the results as governed by professional standards, required by law or dictated by the business environment.
4. Research	Identify, access and apply relevant professional frameworks, standards, and guidance, as well as other information for analysis and to make informed decisions.
5. Systems and Process Management	Identify the appropriate businesses processes and system(s), related frameworks and controls to assist in the design and use of systems for efficient and effective operations.
6. Technology and Tools	Identify and utilize relevant technology and tools to analyze data, efficiently and effectively perform assigned tasks as well as support other competencies.

Appendix B. Thirteen highly valued soft skills by business executives and employers (Robles, 2012; National Association of Colleges and Employers, 2018)

Soft Skills	Definition
1. Integrity	Honest, ethical, high morals, has personal values, does what's right.
2. Communication	Oral, speaking capability, written, presenting, & listening.
3. Courtesy	Manners, etiquette, business etiquette, gracious, says please and thank you, respectful.
4. Flexibility	Adaptability, willing to change, lifelong learner, accepts new things, adjusts, teachable.
5. Interpersonal Skills	Nice, personable, sense of humor, friendly, nurturing, empathetic, has self-control, patient, sociability, warmth, social skills.
6. Positive Attitude	Optimistic, enthusiastic, encouraging, happy, confident.
7. Professionalism	Businesslike, well-dressed, appearance, poised.
8. Responsibility	Accountable, reliable, gets the job done, resourceful, self-disciplined, wants to do well, conscientious, common sense.
9. Teamwork	Cooperative, gets along with others, agreeable, supportive, helpful, collaborative.
10. Work Ethics	Hard working, willing to work, loyal, initiative, self-motivated, on time, good attendance.
11. Career Management	Identify and articulate one's skills, strengths, knowledge, and experiences relevant to the position desired and career goals, and identify areas necessary for professional growth.
12. Critical thinking/problem solving	Exercise sound reasoning to analyze issues, make decisions, and overcome problems.
13. Global/Intercultural Fluency	Value, respect, and learn from diverse cultures, races, ages, genders, sexual orientations, and religions.

Appendix C. Highly valued accounting certifications by the AICPA in 2018

Certifications	Expertise Level
1. Excel	Advanced proficiency.
2. QuickBooks	Expertise, in small and midsize businesses.
3. SAP, Oracle, & Dynamics GP (ERP)	Proficiency of enterprise resource planning (ERP) software.
4. NetSuite and Workday	Knowledge of cloud-based systems.
5. SQL	Experience with data analytics and database management software
6. CPA, CMA, CIA, etc.,	Pass the standardized professional designation examination and maintain the required continuing professional education (CPE) credits.