Strategies to Improve Digital Skills for Accountants

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ABSTRACT

Accounting firm leaders face the challenge with employees who lack digital skills. Employees without relevant digital skills put the accounting firm at a competitive disadvantage. Grounded in human capital theory, the purpose of this qualitative multiple case study was to explore strategies regional accounting firm leaders used to help employees improve digital skills. Data were collected from six semistructured interviews with partners, directors, and managers with three years or more of experience who participated in the training and professional development process at four regional accounting firms in the Houston, Texas area. The review of company documents and company website postings triangulated the semistructured interviews. Data analysis entailed coding, conceptualizing concepts, identifying themes, and member checking. Three themes emerged, including digital skills needed for success, demonstrating investment in digital skills training, and benefits and challenges of digital skills training. One key recommendation was to offer training opportunities and intergenerational mentorship to accounting employees. The implications for positive social change include the potential to increased employee employability, work-life balance, job satisfaction, and client satisfaction, which may improve local communities' economic stability and growth.

Keywords: Digital skill, Data Analytics, Automation, Digital communication, Cloud-based software, training

INTRODUCTION

The introduction of digital technologies is the primary trend in developing today's industry and economy. At present, companies' economic bloc of work is mainly based on digital technologies, and businesses have to incorporate digital technologies to not be at a competitive disadvantage (Aboagye et al., 2022; Markiewicz & Zheng, 2018). The advent of the COVID-19 pandemic has forced businesses to accelerate digital transformation to survive and thrive by creating, delivering, and capturing value for their customers (Bikse et al., 2021; Lugtu, 2020).

Professional accountants at all stages of their careers need to adapt rapidly to the changing business world under digital transformation, and the roles of accountants have been changing since digital technologies present threats and opportunities to the accounting profession (Lawson, 2019; Richins et al., 2017). Digital technological innovation represented by big data analytics (BDA) and robotic process automation (RPA) is drastically changing what accounting professionals can do and how they do it (Cooper et al., 2019; Richins et al., 2017). Accordingly, accounting employers and clients demand accountants to use new technologies and techniques to develop new insights, create efficiency, and add value. To meet the market's needs, accountants need essential digital skills to use modern digital technologies effectively and safely in professional and personal development (Pavelko et al., 2021).

Though expected to adapt to current needs and expectations, 69% of new accountants do not consider themselves digitally competent (Zhyvets, 2018). Richins et al. (2017), Bakarich and O'Brien (2021), and Wines et al. (2013) reported that accountants do not possess the essential digital skills to apply modern IT tools due to a lack of training and resources, particularly in regional accounting firms. PCAOB Chairman William D. Duhnke is concerned about the increasing technology disparity among the firms since larger accounting firms are investing in and implementing technology at a faster rate than regional firms (PCAOB, 2019). Currently, Big 4 firms provide significantly more digital skills training than non-Big-4 firms (Bakarich & O'Brien, 2021). One of the biggest challenges regional accounting firms face is the lack of training strategies to help professional staff embrace the digital disruption in the accounting profession (Bakarich & O'Brien, 2021).

REVIEW OF THE LITERATURE

A literature review involves the identification of available documents on the topic of interest, and the evaluation and synthetization of these documents in relation to the research problem (Bougie & Sekaran, 2020). Researchers conduct a literature review to ensure their research effort is positioned relative to existing knowledge and builds on this knowledge to generate new ideas (Ishak & Osman, 2016). This qualitative multiple case study aimed to explore strategies accounting firm leaders used to help employees improve their digital skills. The central research question for the study was: What strategies do some regional accounting firm leaders use to train their employees on digital skills? To answer the research question, the researchers explored the literature relating to the established framework and the topic.

Conceptual Framework

Human capital theory serves as the conceptual framework to support this study. Gary Becker developed the human capital theory in 1962. The two tenets of human capital theory are

education and training. Becker (1962, 1993) used the theory to explain that society and organizations benefit from investing in human capital through education and skill training. Employees with enhanced skills acquired from training can improve organizational performances and promote business expansions (Marimuthu et al., 2009). Developing human capital with digital skills contributes to nations' growth objectives (Marin, 2020). Investing in cognitive and technical skills training contributes to increased employee competitiveness and reduces organizational turnover (White et al., 2016). Accounting firm leaders may increase the value of human capital to improve performance and sustain organizations' competitive advantage by developing and implementing effective strategies on digital skills training for staff accountants.

The Changing Roles of Accountants in the Digital Age

Digitalization has impacted the accounting profession significantly, and accountants are experiencing role changes in the current digitalized business world. The accountants' roles evolve from lower value-added business scorekeepers to higher value-added business partners with strategic orientation (Lawson, 2019). Today, technological advances eliminate routine and mundane accounting functions (Wongsim et al., 2019). Therefore, accountants are being freed up to focus on higher-level tasks such as strategic planning, analysis, forecasting, and decision-making (Lawson, 2019). Furthermore, accountants can become digital innovators to identify, train, sustain, and analyze functions in an organization's RPA initiatives (Kokina et al., 2021).

Accounting Skills/Competencies Shift Necessitated Digital Skills

Recent research findings show that digital technology is the most vital disruptor to impact organizations and accounting functions (CGMA, 2019). To recognize the rapidly changing skills and competencies the practicing accountants requires today and in the future due to technology disruptions, Chartered Global Management Accountant (CGMA) updated the competency framework to add a new area of digital skills to four core existing knowledge of technical, business, leadership, and people skills. Accountants' new digital skills requirements include basic digital literacy, technology know-how, and digital mindsets and behavior (CGMA, 2019). Basic digital literacy deals with creating digital content, ensuring data privacy, and using digital channels for communication purposes. Technology know-how is where deeper expertise can be demonstrated in cloud computing, data analytics, cybersecurity, and new business models. Digital mindsets involve being agile, being willing to deal with complexity, and having a lifelong learning attitude. In the United States., most accounting and finance professionals from CGMA are also CPAs (CGMA, 2019). Therefore, the 2019 CGMA competency framework with added digital skills requirements also apply to CPAs.

Digital technologies, such as big data analytics, robotics, blockchain, and artificial intelligence, are perverting the current workplace and transforming organizations' operations (Akande & Atiku, 2021). Professionals' digital skills are crucial in developing and implementing emerging technologies in organizations to create value (Ferreira et al., 2021). Digital technology-related solutions can also create services from innovation for accounting firms and help the firms gain competitive advantages (Schiavi et al., 2020). Moreover, while the Covid pandemic demonstrated the importance and benefits, it also prioritized digital skills (Carolina Feijao et al., 2021). There are several types of digital skills needed in accountants. Yet, data analytics, accounting automation, and digital communication skills are essential for professional

accountants to survive and thrive in the current digitalized workplace (CGMA, 2019; Lawson, 2019; Qasim & Kharbat, 2020; Zhyvets, 2018).

Big Data Analytics Skills

Due to technological advancement, more organizations can access a fast-paced profusion of information called big data (Kache & Seuring, 2017). Big data is defined as huge-volume, high-velocity, and high-variety data that can be processed electronically to enhance insights and facilitate decision-making (Rezaee et al., 2002). Big data generally needs to be analyzed by applying statistics, mathematics, econometrics, simulations, optimizations, or other techniques to gain insight and help business organizations make better decisions (Cockcroft & Russell, 2018).

Big Data Analytics (BDA) skills include acquiring/cleaning data, creating data structures/models, and mining/analyzing data (Richardson et al., 2021). Spraakman et al. (2021) emphasized the importance of accountants' data preparation skills to extract transaction data from organizations' enterprise resource planning (ERP) systems, check data for accuracy, and transform data before being analyzed. The three major BDA formats are descriptive, predictive, and prescriptive analytics (Wang et al., 2016). Descriptive analysis is used to identify problems and opportunities within existing processes and functions. Predictive analytics aims to project what will happen in the future and explain why it may happen. Prescriptive analytics involves assessing alternative decisions that include objectives and requirements characterized by high volume and complexity to improve business performance (Wang et al., 2016).

Robotic Automation Process Skills

The adoption of automation in business operations has affected many accounting, tax, and auditing activities. Robotic process automation (RPA) is the term used for software tools that partly or entirely automate human activities that are manual, rule-based, and repeated (Kokina & Blanchette, 2019). RPA tools are not replacements for underlying business applications. Instead, they automate the manual tasks of human workers. The worldwide covid-19 pandemic has dramatically accelerated the adoption of RPA in organizations (Costin et al., 2021). Cooper et al. (2019) noted the skills for accountants to work with RPA include a minimum awareness of RPA, computer programming and technology experience in EPR, data analytics skills, accounting, and auditing skills.

The accounting task most likely to be automated is bookkeeping (Huerta & Jensen, 2017). However, Frey and Osborne (2017) identified specific auditing and tax tasks at a high risk of automation beyond clerical accounting and tax preparation. According to Shaffer et al. (2020), basic accounting functions such as payroll, auditing, bank reconciliation, and invoice payments have already been automated. Programmed software to prepare federal and state income taxes has been widely used for decades. Nowadays, accounting firms use RPA to perform internal business processes as well as tax and audit work for clients. In addition, accounting firms create consulting service lines around the implementation of RPA in clients' operations (Cooper et al., 2019).

Digital Communication Skills

Communication skills are interpersonal skills that enhance the employees' ability to interact with various stakeholders (Walker, 2016). Face-to-face and virtual meetings, team skills, emails, and formal presentations are communication skills that leaders consider essential (Brink & Costigan, 2015). Good communication also includes an awareness of what can and cannot be shared (Royer et al., 2022). Knowing cannot be shared means protecting the confidentiality of information in the communication.

Digital communication skills imply the ability of an accountant to use various digital tools that allow them to achieve their goals in interaction with other people in a digital environment (Makaruk, 2021). Digital communications tools include emails, memos, reports, visual output presentations, social media, and video conferencing (Bakarich et al., 2021). Modern accountants must develop the skills to use these digital communications tools proficiently to create value. Digital communication skills add value to decision-making through BDA (Spraakman et al., 2021). For example, accountants are expected to use oral and written communications to frame the problems, ask the right questions, and critically apply BDA to find solutions (Bakarich et al., 2021; Spraakman et al., 2021).

Digital Skills Training for Accountants

The changing roles of an accountant, from lower value-added scorekeepers to higher value-added digital workforces, require accountants to have digital skills. The digital skills of accounting professionals are also critical in developing and implementing emerging technology for organizations to gain competitive advantages (Ferreira et al., 2021). Yet the current challenge in the accounting profession is that accountants lack digital skills and are left behind or replaced by automation due to technological advancement (Huerta & Jensen, 2017). Zhyvets (2018) indicated that 69% of new accountants noted the inadequacy of the training on applied digital skills in the region of southern Ukraine. University accounting graduates stated their digital knowledge and skills corresponded only to 45% of the requirements of the modern workplaces for accountants (Zhyvets, 2018). Nielsen (2018) also acknowledged that most practicing accountants were not trained in technology-based analytics, such as business intelligence, data mining, and data management. Appelbaum et al. (2017) concurred that management accountants employ primarily descriptive, some predictive, and a bare minimum of prescriptive BDA.

Developing digital skills is a must for accountants now (Huerta & Jensen, 2017). Education and training help employees upskill, promote the status of individual leadership roles, and help increase the company's profitability (Becker, 1993). Learning and training occur outside schools, especially on jobs, and investment in on-the-job training is almost as significant as formal education (Becker, 1993). Not only does adequate employee training result in benefits for the organization, but also for the employees. Esteban-Lloret et al. (2018) stated that adequately trained employees positively influence organizational performance and help organizations secure a competitive advantage in the market. A positive training experience is a solidifying factor in a new employee's job satisfaction, greater loyalty, higher productivity and service quality, and willingness to remain with the organization (Jaworski et al., 2018). George (2015) stated retaining employees, particularly professional workers, is critical to any organization because it eliminates the recruiting, selection, and onboarding costs of new employees, thus maintaining continuity in the expertise of existing employees and supporting a rewarding organizational

culture. Employee retention can enhance organizational productivity and effectiveness (Al Mamun & Hasan, 2017). A likely goal of any organization's leader is to ensure appropriate training practices.

Training is often one-on-one or in group settings (Jaworski et al., 2018). One-on-one methods include options like the buddy system or an online training approach; group training can be role-playing or demonstrating types of exercise (Jaworski et al., 2018). Training programs can have a structured approach or mixed and integrated approaches that include various trainee delivery methods such as classroom training, boot camp intensive training programs, experimental learning, or mentorships (IFC, 2019; J. P. Morgan, 2019). Additionally, the length of training did not influence the employees' level of satisfaction regarding their training; rather, it was the quality that drove satisfaction (Jaworski et al., 2018).

To take advantage of the opportunity presented by the digital technology such as BDA and RPA instead of being replaced by non-accounting professionals, accountants must be ready and willing to master digital skills. According to Schmidt et al. (2020), large accounting firms and corporations have committed significant resources to develop their technological competencies. Bakarich and O'Brien (2021) concurred that Big four accounting firms have invested heavily in technology and provide more digital skills training than non-Big four firms. For example, employees at PWC have embarked on the upskilling journal to build digital acumen. PricewaterhouseCoopers (2022) invested heavily in learning applications and immersive training programs for the employees to develop storytelling, data analysis, visualization, and automation skills. Consequently, accounting professionals from regional and local accounting firms are less digitally competent due to fewer training opportunities than those from Big 4 accounting firms (Bakarich & O'Brien, 2021). Digital transformation is changing the accounting industry so rapidly. Regional accounting firm leaders need strategies to help their employees develop digital skills to survive and thrive in this digitalized business world.

METHODOLOGY

A qualitative multiple case study method and design was used to collect data from semistructured interviews with accounting firm leaders reflecting upon their digital skills training strategies for their employees. A multiple case study design allows a researcher to explore a phenomenon's *how, what*, and *why* in different contexts (Yin, 2018). The target population for this study were four regional accounting firms in the Houston area. For this study, accounting firm leaders consisted of partners, directors, or managers with at least three years of experience who have successfully developed effective strategies for accountants' digital skills training and professional development. To select participants for this multiple case study, a purposive sampling was used. Researchers commonly use purposive sampling in qualitative studies, as it allows the alignment of the sample with the research question (Anderson, 2017). A purposive sample of accounting firm leaders in Houston who meet the eligibility criteria was used for this qualitative case study. This study's sample consisted of six partners, directors, and managers from four regional accounting firms in Houston, Texas. While there is no required number of participants in a qualitative case study, the researcher should justify participants' inclusion in a study. The sample size needs to be large enough for the researcher to obtain redundancy of responses or saturation (Yin, 2018).

After receiving approval from Institutional Review Board (IRB), an interview invitation was posted on LinkedIn. In addition, potential participants from professional network were

emailed, asking whether they felt they met the study criteria and were interested in participating. When the individual responded, the researchers verified whether they were eligible. If they met the requirements additional information about the study and its purpose was shared. All participants who met the established criteria and agreed to participate in the study reviewed and signed a consent form. Once the informed consent was signed, an interview was scheduled. As suggested by Woodyatt et al., 2016), when an interview occurs in front of the participant, the researcher can extend the discussion to gain additional insights. Due to Covid concerns, all six interviews were conducted on Zoom platforms. Zoom video conferencing interview is appropriate for researchers to obtain detailed information about the research question.

The researchers conducted semistructured interviews using open-ended questions to explore strategies the accounting firm leaders used to train employees on digital skills. Before conducting interviews, permission was requested from participants to record the Zoom interviews. The semistructured interview consisted of seven interview questions that focused on addressing the research question. Each interview lasted between 40 to 50 minutes. To triangulate interview data, additional data was reviewed. Triangulation converges sources from primary and secondary data, which enriches evidence and adds value to the research (Natow, 2020). Additional data included internal documents and information from the participant firms' websites.

PRESENTATION OF THE FINDINGS

This study's research question was: What strategies do regional accounting firm leaders use to train employees on digital skills? The researchers conducted six semistructured interviews to gain an understanding of the digital skills training strategies. After the interviews were completed, the researchers transcribed the audio recordings, performed member-checking, reviewed the organizational documents, and imported the data into NVivo software for coding and analysis. Data analysis revealed three major themes in the participants' responses: (a) digital skills needed for success, (b) demonstrating investment in digital skills training, and (c) benefits and challenges of digital skills training. Figure 1 depicts the major themes that emerged from the data analysis process.

Figure 1

Thematic Concept Map
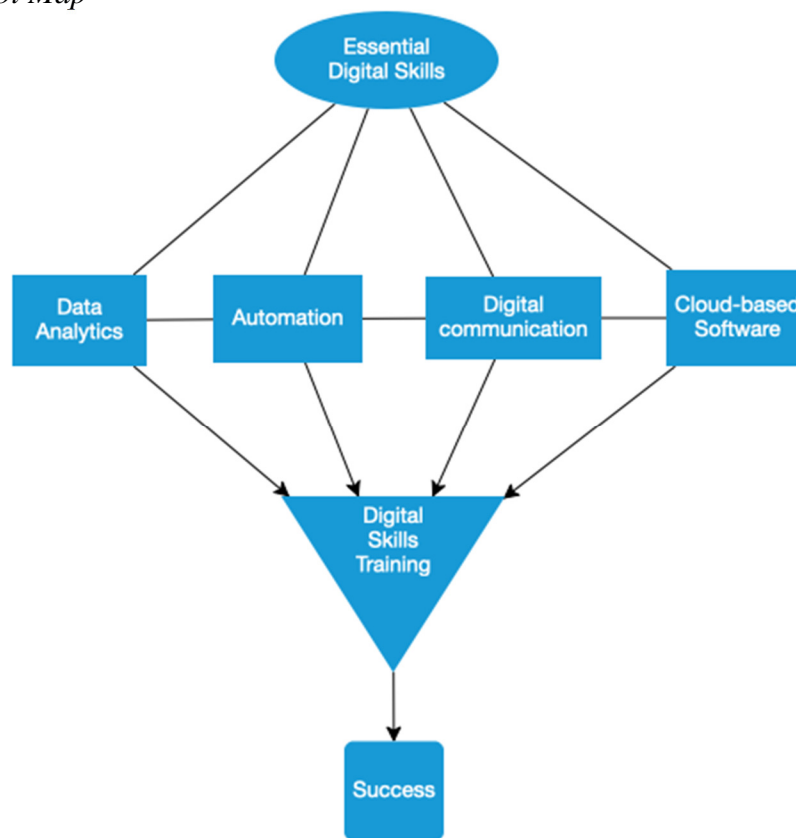
Theme 1: Digital Skills Needed for Success

The first emergent theme was the need for digital skills that were lacking in employees at the regional accounting firms. Four subthemes related to digital skills, including data analytics skills, automation and other AI-based application skills, digital communication skills, and cloud-based software skills. Each participant identified the digital skills concerns based on their interactive experience with their employees.

Data Analytics Skills

Participants considered the skills to use tools such as Excel and TeamMate Analytics essential for success. Accounting professionals have long used Excel for data storage, ad hoc evaluation, and several data analytics tasks (Schmidt et al., 2020). Excel skills are frequently cited as the top technology skill required of entry-level accountants and were the top skill students lacked upon entering the workforce (Pelzer & Delaurell, 2018). Comments from participants aligned with prior research. For instance, P01 mentioned, "I think that some of the higher-level Excel skills that people have to learn, they are not taught those in college, like the pivot tables, and some of the higher-level things." P02 noted, "Excel is easy to use, and it is the most common software people use for analyzing or summarizing data." P03 noticed that during

the 2022 busy season, "A couple of interns just lacked the basic knowledge of Excel, Word, and PDF. Those are the main Microsoft functions that we use here." Likewise, P04 explained, "Even though we use excel every day, but there's some more advanced feature in Excel, that's something that our employee probably lacks". For more complicated tasks, P04 identified TeamMate Analytics, an Excel add-on application: "As long as you can use Excel, you can pretty much use the TeamMate, and then they take whenever we run into a more complicated situation." To improve audit efficiency, P02's firm started requiring employees to utilize TeamMate analytics to select samples. Instead of hitting the Excel sheet 40 times, "With teammate analytics, we can just hit the button saying that well, I want to do a random selection from this population, and we just automatically pop out 40 samples."

Even though Excel is appropriate for some data analytics tasks, larger and larger data sets create challenges to its efficiency and effectiveness (Sartain, 2017). A multitude of newer tools can offer more efficient and effective options than the ubiquitous spreadsheet application for advanced data analytics purposes. However, some accounting professionals resist moving beyond Excel to adopt new data analytics technology (Schmidt et al., 2020). Our findings confirmed the study by Schmidt et al. (2020). The researchers inquired all six participants if their firms adopted advanced tools available in the market, such as Power BI or Tableau, for more sophisticated data analytics purposes. Only P04 mentioned that "We have been using Power BI," an emerging data analytics application beyond Excel. P04 also indicated that his firm hired a dedicated person to use ACL for the more complex data analytics task.

Automation and Other AI-based Application Skills

Contemporary accounting is immensely data-driven and depends more on artificial intelligence (AI) systems and their subsets, such as robotic process automation (RPA), to improve efficiency (Kommunuri, 2022). Our findings aligned with the study by Cooper et al. (2019), who indicated that accounting firms start using RPA to perform internal business processes as well as tax and audit work for clients. For instance, P04 explained, "On the firmwide base that yes, we do have some of the flow in the Microsoft Power Automate, so we built a lot of flow on our intranet." However, unlike Big Four or larger accounting firms whose in-house development team may modify their automation application, P04's regional accounting firm only used the third-party software from the shelf without customization or modification. P02 mentioned that his audit department adopted a CCH Axcess knowledge coach software to "automate the population of audit programs to connect the different processes."

Besides automation, accounting professionals employ other AI applications to gain a competitive advantage. Ng and Alarcon (2021) assured that both large and small accounting firms could take advantage of AI for audits. An AI platform developed by MindBridge Analytics Inc. can be employed to identify high-risk transactions during the audit planning process. Bowling (2019), partner at Garbelman Window CPAs, described that entire general ledgers from her QuickBooks clients can be uploaded directly to the MindBridge platform, which categorizes the transactions into different risk buckets at the transaction level. AI gives her firm a competitive advantage over firms that still use traditional sampling because she can use AI to review all the transactions to sample the riskiest transactions. However, P03 did not have successful experience with the same AI application. Bowling (2019) considered it normal to have a few hiccups in the beginning stage of new software adoption. Effective communication and adequate training ensure success. Compared with the professionals from Big Four accounting

firms, accounting professionals from regional and local accounting firms are less digitally competent due to fewer training opportunities (Bakarich & O'Brien, 2021). Perhaps, after receiving proper training and communication, P03 firm's employees may develop better solutions for applying MindBridge's AI tool to derive value.

Digital Communication Skills

Digital communication skills imply the ability of an accountant to use various digital tools that allow them to achieve their goals in interaction with other people in a digital environment (Makaruk, 2021). The COVID-19 pandemic brought a widespread shift to remote working, forcing the dispersed accounting teams to use new tools such as Zoom and Microsoft Team to communicate and collaborate with each other. Collaborative digital workspaces and document or screen sharing applications can increase communication agility and foster more engaging dialogue (Roshong, 2019). Our findings aligned with the study by Roshong (2019). P01, P02, P04, P05, and P06 indicated that their employees utilized Microsoft Teams or Zoom for internal and external communication. P06 mentioned, "We have policy and procedure to make people adhere to, using Microsoft team in today's digital world. Well, you can chat with instant answer right... I said you can share your screen. They can share their screen as well." However, P06 noticed that her staff accountants lacked writing skills to communicate with clients professionally: "I see that communication, I see my staff sending out communication to client so informal, so not professional." P06 also noticed that older generation partners at her firm lacked the skills to use Microsoft Teams video functions and e-Signature tools such as DocuSign to communicate with clients efficiently.

Accountants should also be able to communicate and present data analytics results to senior management and clients in a clear and readily understandable way, which often gets accomplished with the use of graphics, maps, and other data visual displays (Spraakman et al., 2021). The employees at P01's firm lacked data visualization skills to provide more value to their clients. P01 explained, "If we could efficiently put together the charts and graphs, then we could sit down with our clients and show them trend analysis, you know, be a value add to them. But I think because we don't really utilize that efficiently, and therefore the value add is gone".

Cloud-based Software Skills

To perform various accounting, tax, and audit functions efficiently, accounting professionals need to be proficient in using industry-specific application software, which is cloud-based nowadays. Zhyvets (2018) discussed the importance of cloud-based accounting software to help accountants perform tasks. Several participants' responses revealed that their employees lacked those software skills. For instance, P06 mentioned, "So for the operating system, we use the cloud base, so everything is through the cloud, and paperless." P06 continued, "The essential digital skill set that I see that the staff were lacking is the understanding how the important software that we use for tax and audit or even accounting, bookkeeping work, because they never used it before, knowing the software inside out to do that job every day needs training." P03 emphasized the importance of the audit teams using a helpful request list named Suralink: "It's online, it's cloud, it is real-time. So, the second thing uploaded, we can go on, hit refresh, and we can see that document and download it." For tax applications, P02, P04, and P06 all indicated that their tax professionals should know how to employ cloud-based CCH

ProSystem software named CCH Engagement and CCH Axcess to prepare individual and business tax returns.

Cloud-based systems benefit accounting professionals by enabling them to conduct business in virtual environments (Moll & Yigitbasioglu, 2019). The COVID-19 pandemic has forced dispersed accounting teams to work from home. P04's firm made a smooth transition so that the work efficiency was not affected due to cloud technology: "Our strategy is cloud-first, so we have been doing cloud transition to get rid of the file server… so even though they are kind of in a hybrid environment, so it doesn't slow down anything at all, because they can pretty much access to the data in the Cloud." P06 strongly promoted a hybrid schedule which allowed her team members to use cloud technology to work either from the office or from home: "I have been an advocate of hybrid schedule. And because of that, especially with a pandemic, and in order to be competitive with other firms in the market, that attracting talent, you have to offer that."

Theme 2: Demonstrating Investment in Digital Skills Training

The second theme developed from the data was the investment in digital skills training. Two relevant subthemes emerged, including digital skills training types and digital leadership. In discussing this theme, participants identified various effective digital skills training types. Participants also emphasized the importance of establishing digital leadership to invest heavily in digital technologies at their firms.

Digital Skills Training Types

The participants noted the four most effective digital skills training types: in-house group training, on-the-job training with mentorship or buddy program, third-party training outside the firms, and online self-study. The findings of the study support existing literature performed by Jaworski et al. (2018) who explained that training is often one-on-one or in group settings. One-on-one methods include options like the buddy system or an online training approach. During the interviews, all participants addressed at least one of the previously identified practical digital skills training methods. P01 said, "I think, the bulk of our training is, on the job training… or we utilize the software provider to provide some of the training… we had Technology Round Table and then we had a group training in the fall, and different people presented their tips and tricks." P02 mentioned, "We generally only use group training in person; sometimes we even hire people from the external party to come to our firm to provide the training."

P04 and P02 also shared that their firm provided online self-learning resources for employees: "We do collect useful trainings from all types of different sources. We have our internal portal…we accumulate all the past historical training we have or any important training we think is useful to everyone. So, people can go there, and do those training by themselves." Kristl Volfova (2022) confirmed that if correctly planned, information and communication technology (ICT) can transfer education from teacher-centered to student-centered and help employees acquire the knowledge and skills they need for lifetime learning. P03 was considered an Excel expert at his firm and developed the in-house group training class to help the audit teams learn shortcuts in Excel to improve work efficiency. P03 also recommended his staff accountants use free online resources such as YouTube videos and Google to learn advanced Excel functions.

New employees from P06's firm received in-house group training on how to use software to prepare tax returns and had practice sessions to gain hands-on experience. Sometimes they were even sent out to attend the training provided by third parties such as CCH. The Buddy system was implemented at P06's firm to help employees improve their digital skills. P06 mentioned, "Furthermore, each new staff, we assigned kind of like a buddy…at least one season one year and that buddy can help to answer any questions that the new staff or the intern has about how I do this in the software. That's all they help. They not answering any technical tax knowledge. They just help how to maneuver the system."

The required competencies in the digital age are not just merely technical. In addition to digital technology skills, soft skills such as self-management, adaptability, communication and collaboration, problem-solving, critical thinking, creativity, entrepreneurship, and readiness to learn are essential to employees (European Commission, 2020; Hofmann & Ogonek, 2018). Mentoring occurs when accomplished workers share their knowledge and skills in communication, problem-solving, and role preparedness with less experienced workers (Jakubik, 2016; Satterly et al., 2018). P05 indicated that his firm had adopted a mentorship and leadership program to help employees enhance their soft skills: "As far as soft skills, we definitely want to grow our people, we have a lot of pieces of that, like our coaching and mentoring program is made to be part of that. We also have several sorts of like internally developed leadership training." Senior workers, as traditional mentors, share knowledge and skills with younger employees, while younger workers share technical expertise with older, less tech-savvy employees during reverse mentoring (Satterly et al., 2018). P06 agreed, "With the younger generation, they're very savvy with technology. And actually, sometimes I have to learn a lot of tricks from them." Traditional mentorship is beneficial for young accountants to develop soft skills, and reverse mentorship excels in digital skills development for old-generation accountants.

Digital Leadership

Organizational culture plays a critical role in helping employees improve digital skills, and accounting firm leaders must set up the tone from the top to adopt the technological culture. Petkov (2020) indicated that the implementation of technology in accounting is currently limited because the management is unwilling to make the cultural shift towards AI-based technology. Our findings disconfirmed the previous study. All the participants indicated that top management strongly promoted technological culture at their firms by strategizing to invest heavily in digital technology and digital skills training. For instance, P02 mentioned, "The good thing in our firm is that our partners, the senior level partners, the most senior generation in the firm, are actually very supportive. And they are very curious about new technology as well. We are trying to implement a lot of the new features such as knowledge coach, teammate analytic." The company document provided by P05 showed that one of her firm's core values is embracing advanced technology solutions. Consequently, her firm has been recognized for several years as a "Best Accounting Firm to Work For" in Texas.

Both P04 and P06 confirmed that a training committee was established at their firms to oversee the digital skills training. P06 explained, "We form like, training committee…we map out all the software that we are using, the type of tax returns that we want to train our staff…I do the overview training of what software that we're using, and then we break down in smaller sessions." P06's firm paid for all the training provided by the third party: "I pay for each student;

I have the firm pay for each trainer for the webinar session that CCH offer for engagement somewhere."

Theme 2 findings aligned with a conceptual framework, human capital theory. Learning and training occur outside schools, especially on jobs, and investment in on-the-job training is almost as significant as formal education (Becker, 1993). In the long run, accounting firm leaders expect high returns from their investment in digital technologies and digital skills training.

Theme 3: Benefits and Challenges of Digital Skills Training

The final theme developed from the data was the benefits and challenges of digital skills training. All participants observed the benefits resulting in the implementation of digital skills training strategies. Organizations benefit from the investment in digital skills training strategies. Our findings confirmed with the literature performed by Olejniczak-Szuster and Lukasik (2018) that effective training contributes to helping in creating a positive atmosphere in the company, increasing working efficiency and reducing turnover, thus affecting the improvement of quality of work at companies. P0, P03, P04, P05, and P06 all identified one of the returns from digital skills training: improved work efficiency. For instance, P03 mentioned, "That's when we'll start seeing, you know, more efficient audits. Staff being able to do higher level analytics with Excel functions". P05 resonated, "Like all of these technologies, you know, is in service of serving our clients and making us more efficient. And hopefully that means that our margin is higher." Investment in digital technology and digital skills enhancement may also improve client satisfaction and recruitment. P06 stated, "Client do not want the information to be outsourced to India. They want to still be able to use in the US…And if we can sell to them that we do everything in house here, but with the good price, because we utilize certain AI aspects, then we can sell more to our clients". P06 continued, "You can recruit better, if you have high technology, you know, your firm can be pushed up to the next level, be able to compete with another firm in terms of pricing." According to Porter (1985), a competitive advantage seen as being better than others has two fundamental types: cost leadership and differentiation. Accounting firms with digitally competent employees may achieve a competitive advantage by cutting costs to increase margin and providing unique services to attract more technology-savvy clients.

Besides, digital skills training strategies aid in recruiting and retaining employees. P02 commented, "One thing I've feel I would better attract people, new people, or keep the young people stay with us." P05 resonated, "So I think especially when we have such a young firm, like making sure that we are staying on the front edge of technology, I think is just helpful for recruiting and also retention… because that's going to be one of the biggest things is right, like it always costs way more to train someone new than to get someone to stay." Employee retention can enhance organizational productivity and effectiveness (Al Mamun & Hasan, 2017). Individuals also benefit from the investment in digital skills training. Employees may achieve job satisfaction when the organization uses training to help expand individual skills and knowledge (Olejniczak-Szuster & Lukasia, 2018). P02 mentioned, "The implementation can improve people's knowledge and people are open about the implementation." P01 noticed, "Staff will be happier because they're having to work less hours, and they're able to do more higher-level task as opposed to, you know, just keep punching the stuff… plus can work at home the hybrid mode is because of technology." Besides, individuals with marketable digital skills perceive high employability, resulting in increased self-confidence (Lissitsa & Chachashvili-Bolotin, 2019).

P05 confirmed, "People can definitely see like, what they've learned and how far they've come and how they can be helpful, which I think gives people a lot of confidence." Employees with competencies developed from training may adapt to the new requirements and expectations of the labor market, improve their work efficiency, and develop strong bonds with companies (Olejniczak-Szuster & Lukasia, 2018). Employees from P05's firm "feel connected and supported" when they could use technology to perform higher-level tasks after receiving proper digital skills training.

During the interviews, the participants also acknowledged several challenges in implementing digital skills training strategies. The main challenges in implementing digital skills training strategies include reluctance to change, costs and time constraints, and software issues from third-party providers. According to Gonçalves et al. (2022), resistance to change, organizational culture, and cost are the main barriers to digital transformation in accounting. Similarly, Shaffer et al. (2020) indicated that one of the biggest challenges in the digital skills re-training of accountants who have been in practice for many years is their resistance to change. P06 confirmed the reluctance of some old generation partners to learn new technology: "It is a matter that people resist learning new things with technology. Because as a partner level with the older generation, they want everything printed out for them. They review on the paper still because that's how they do things." P05 concurred, "Obviously, there's always some like pain in implementing something new, teaching someone something new, getting people to change the way they've been doing things for maybe years. So definitely some reluctance there."
P01 was concerned about the training costs: "It would be cost prohibitive for us to have everybody in the firm where everybody has a certain level trained… Turnover in public accounting is high. And if they don't come here with those skills, then we invest those skills, and then they take those skills elsewhere." P01, P02, and P04 also showed concern about the time constrain to learn new digital skills. P01 mentioned, "It's making the time when we get so busy in our day-to-day routine, that taking the time to learn something new takes away from client service." P04 resonated, "The challenge is the professional staff, they simply don't have enough time." Therefore, P04 did not want to rush out too many digital applications to stress the accountant professionals at his firm. Excess and undifferentiated digitization may deplete employee creativity, causing various learning, attention, and misperceptions, thus reducing a firm's ability to generate intellectual property (Nambisan et al., 2019; Tarafdar et al., 2015). P05 shared her frustration when her team members had issues with the software from third-party providers: "As we're trying to train people, right, because we're told it will do this, and it doesn't quite are like…And so that's certainly a barrier when we use so many different software's if the software itself has its own little like, bugs or unique things, sort of that could definitely be a barrier to getting people to use."

Participants were willing to share their solutions to tackle the challenges during the interviews. For the challenge related to reluctance to change, P02's solution was to communicate with people the benefits and motivate them to learn new digital skills. P01. P05 and P06 introduced champion systems, task forces, or IT support to help the older generation accountants overcome the fear to change. P04 recommended moving the in-person training to the non-busy season to save time and costs. P02 strongly encouraged employees to take advantage of free online classes on the firm's internal portal. At the same time, P03 suggested his employees follow his example to learn advanced digital skills via YouTube and Google searches. Nowadays, the digital skills space focuses on using online courses and e-learning platforms to

promote a lifelong learning approach with a self-directed pace (Al Ebbini et al., 2021; Carolina Feijao et al., 2021).

Theme 3 findings aligned well with the human capital theory, which is the study's conceptual framework. The human capital theory focuses on how society, organizations, and individuals benefit from investing in people through education and training (Becker, 1962). The sustainability of society and organizational competitive advantage depends on the investment in human capital (Amran et al., 2021; Manole et al., 2018). Employees with competencies developed from training may adapt to the new requirements and expectations of the labor market, develop strong bonds with companies, improve their work efficiency, and further the competitive advantage for an organization's quality and productivity (Ismail & Awang, 2017; Olejniczak-Szuster & Lukasia, 2018). This study's findings confirmed the benefits of implementing digital skills training strategies. The benefits include, but are not limited to, increased working efficiency, improved client satisfaction, improved employee retention, and enhanced employee satisfaction and self-confidence.

Applications to Professional Practices

The findings from this study are relevant to improved business practice. Theme 1 helps accounting firm leaders realize that four essential digital skills needed for success in accounting practice nowadays are data analytics, automation and other AI applications, digital communication, and cloud-based software skills. Excel is still the most popular application for data storage, ad hoc evaluation, and several data analytics tasks at regional accounting firms. However, some advanced data analytics tools and AI applications have been implemented in the early stages. Theme 2 highlights the importance of digital leadership in implementing digital skills training strategies. Supportive leaders are willing to invest in technology and training and motivate employees to overcome reluctance to learn new digital technology. Theme 2 also makes accounting firm leaders aware and adopt the strategies of training staff accountants on digital skills. Digital skills training strategies may contribute to firms' competitive advantages and sustainability by providing a secure advantage for improving performance, increasing productivity and creativity, and facilitating innovation (Marin, 2020). Accounting firm leaders may formulate effective training strategies by adopting the training methods from theme 2, such as in-house group training, on-the-job training with mentorship or buddy program, outside training provided by third-party, and online self-study. The last theme upholds the evidence of human capital theory by revealing the benefits form digital skills training. Accounting firm leaders may also get inspiration on overcoming the common challenges related to digital skills training by reading the solution section in theme 3.

Recommendations for Action

There is an increased need to provide digital skills training to accountants, to enhance their ability to employ digital technology to improve work efficiency and add more value to their clients' services. Accountants without adequate digital skills will soon be replaced by AI, which can perform more mundane accounting tasks. Accountants must upskill or reskill to stay competitive in the digitalized business world. Our recommendations for accounting firm leaders from this study are: (a) establishing digital leadership, (b) providing digital skills training

programs, (c) implementing an intergenerational mentorship system, and (d) increasing collaborations between accounting practice and academics.

Our first recommendation is for regional accounting firm leaders to establish digital leadership to promote data-driven culture. Accounting firm leaders should set the tone from the top to embrace digital transformation in accounting practice. They may have to sacrifice current income to invest in updated digital technology and digital skills training for employees, expecting to reap long-term benefits. Advanced tools such as Power BI, and Tableau may be explored instead of mainly clinging to the Excel blanket. Furthermore, they should ensure accounting professionals in applying technology to improve work efficiency. Digital leadership is crucial in motivating employees to upskill to stay competitive advantage.

Our second recommendation for accounting firm leaders is to provide various training programs to help employees improve their digital skills. In-house group training, on-the-job training, training provided by outside third-party, and online self-study are all beneficial for employees. New digital technologies emerge at an accelerating pace, so employees should be encouraged to develop the digital mindset to be lifelong learners.

The third recommendation is for accounting firm leaders to adopt an intergenerational mentorship program. Intergenerational mentoring emphasizes the development of collaborative relationships with learning from each other as the goal. Each generational leader has something to offer within the context of such a collaborative relationship (Satterly et al., 2018). Besides digital skills, soft skills still contribute significantly to the success of accounting professionals. Therefore, both old and young accountants may benefit from intergenerational mentorship by helping each other improve soft and digital skills. Both parties may experience humbleness and self-confidence since everyone leads and everyone learns. Intergenerational mentorship might be one of the solutions to help old accountants overcome the resistance to embracing digital transformation.

Colleges and Universities should pay attention to the results of this study. Accounting educators should incorporate digital skills training in the accounting curriculum and develop training certificate programs for accounting firms. For instance, aware that Microsoft Excel skills are often presumed in the workplace today and serve as the foundation of many analytics tools, accounting faculty may require business students to obtain the Excel Expert certification prior to graduation (Lundy et al., 2021). Advanced data analytics and visualization software packages, such as Tableau and Microsoft Power BI, can be introduced to students in management accounting or data analytics courses (Lundy et al., 2021). Leading automation vendors like UiPath and Blue Prism offer free learning resources that academics can incorporate into existing courses (Lundy et al., 2021). Besides, accounting departments should consider the expertise of their faculty, especially assistant professors, who seem to have more knowledge of data analytics than any other rank (Losi et al., 2022).

Our last recommendation is for accounting practitioners and academics to seek increasing collaboration to graduate in digital skills development. Working with accounting firm leaders who employ accountants can aid universities in helping employers discover well-rounded accounting recruits. The collaborative efforts of employers and universities can provide additional perspectives on the essential digital skills needed for employability.

Recommendations for Further Research

Two main limitations of this study were the location of the accounting firms in the Houston area and the number of data sources used for analysis. Future researchers may consider using a larger sample size from other geographical regions. Besides, Future research could propose new digital skills requirements in accounting in the wake of fast-changing business scenarios (Kommunuri, 2022). With the focus being placed on digital transformation, data-driven culture and a more open-minded or innovative workforce can facilitate the transformational process. Future research may focus on how the new digital skills and different training backgrounds contribute to the data-driven culture in organizations (Wang, 2021). Furthermore, additional understanding may stem from quantitative approaches involving business performance indicators such as customer satisfaction and employee turnover. A quantitative approach to this study could also provide insight into the significant themes and strategies outlined in the findings.

CONCLUSION

The purpose of this qualitative multiple case study was to explore training strategies that accounting firm leaders used to improve their employees' digital skills. Six leaders from four regional accounting firms participated in semistructured interviews with open-ended interview questions. During data analysis, the three themes emerged related to the research question (a) digital skills needed for success, (b) demonstrating investment in digital skills training, and (c) benefits and challenges of digital skills training. Findings from this study revealed the significance of digital skills to modern accountants and the variety of effective strategies available to train employees on digital skills under digital leadership. Even though it is still at the beginning stage, some regional accounting firms have started preparing to encompass more advanced digital technologies in accounting.

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