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THE AUDITOR SELF-EFFICACY SCALE: MEASURING CONFIDENCE IN TECHNICAL SKILLS, TECHNOLOGICAL ADAPTATION, AND INTERPERSONAL COMMUNICATION

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ABSTRACT

The auditing profession's complexity and high-stakes nature necessitates a nuanced understanding of auditors' self-efficacy, which significantly influences their performance, decision-making quality, audit quality, and fraud detection capabilities. Recognizing a gap in the domain-specific measurement of self-efficacy within this field, this study introduces the Auditor Self-Efficacy (ASE) scale, developed in alignment with Bandura's social cognitive theory. The ASE scale, consisting of three subscales—Technical Skills, Technological Adaptation, and Interpersonal Communication—aims to capture auditors' confidence across key competencies in auditing. This research involved 593 auditors who used an online survey to validate the scale. The findings indicated moderate to high levels of self-efficacy among the participants, with satisfactory internal consistency across the subscales. Confirmatory factor analysis affirmed the structural integrity and validity of the scale, with excellent model fit indices and significant factor loadings. The scale's discriminant validity was also established, highlighting its ability to differentiate between various dimensions of self-efficacy in auditing. The ASE scale's development fills a significant gap in the literature and offers practical implications for enhancing auditors' professional development and organizational capacity building. By providing a detailed measure of auditors' confidence across key competencies, the ASE scale facilitates a deeper understanding of their role and contributions to the auditing

profession, paving the way for future research and practice to improve audit quality and efficiency in the evolving financial landscape.

Keywords: Auditor Self-Efficacy, Auditing Competencies, Technical Skills in Auditing, Technological Adaptation in Auditing, Interpersonal Communication in Auditing, Social Cognitive Theory, Professional Development in Auditing, Audit Quality, Decision-Making in Auditing, Fraud Detection.

INTRODUCTION

The concept of self-efficacy, central to Bandura's (Bandura, 1977, 1986, 1997) social cognitive theory, plays a pivotal role in shaping human behavior and performance across various domains, including professional settings. Self-efficacy refers to an individual's belief in their ability to succeed in specific situations or accomplish a task (Bandura, 1997). This belief significantly influences one's approach to tasks, level of effort, and resilience in facing challenges.

Self-efficacy has been widely recognized for its critical role across various domains such as education (e.g., Chemers et al., 2001; Ouweneel et al., 2013), health (e.g., McAuley et al., 2003; Resnick & Jenkins, 2000), and sports (e.g., Vealey, 1986). In the context of auditing, self-efficacy has also received wide attention, particularly critical given the complexity and high-stakes nature of audit tasks. Auditors' self-efficacy influences their ability to make accurate judgments, engage in effective problem-solving, and navigate the intricate regulatory and ethical landscape of the profession (Mohd Iskandar et al., 2012; Muhsin, 2023; Zare Bidoki et al., 2023). Previous studies have established a link between auditors' self-efficacy and their performance (e.g., Afifah et al., 2015; Amanda et al., 2023; Su et al., 2016), decision-making quality (e.g., Apriliani et al., 2014), audit quality (e.g., Ardillah & Angelina, 2021; Djaddang & Lysandra, 2022; Lee et al., 2016; Salimi et al., 2020), and fraud detection (e.g., Al Natour et al., 2023; Amlayasa & Riasning, 2022; Rustiarini et al., 2021).

Although existing research has delved into the implications of self-efficacy in auditing, particularly regarding auditors' performance, decision-making quality, audit quality, and fraud detection capabilities, a significant gap persists in the measurement instruments available for this specific professional domain. The measurement items commonly utilized to assess self-efficacy in the auditing context have been mainly adapted from general scales, lacking the specificity required to fully capture the nuanced competencies and challenges unique to auditors. Developing a domain-specific Auditor Self-Efficacy Scale is therefore imperative to address this gap. Such a scale would enhance the precision of self-efficacy measurements in the auditing field and provide deeper insights into the auditors' confidence in performing domain-specific tasks, from technical skills and ethical decision-making to adaptability in the face of regulatory changes and technological advancements.

This necessity for a tailored self-efficacy scale in auditing underscores the broader importance of aligning psychological constructs with professional contexts, ensuring that measurement tools accurately reflect the distinctive nature of each field. As the auditing profession continues to evolve, with increasing complexities and expectations, the Auditor Self-Efficacy Scale stands as a pivotal instrument for advancing research and practice, fostering a deeper understanding of the psychological underpinnings contributing to auditors' effectiveness and efficiency in their critical role within the financial landscape.

Therefore, the need for a specialized Auditor Self-Efficacy Scale is evident, one that encapsulates the diverse facets of the auditing profession, from technical skills and technological adaptation to interpersonal communication. Such a scale would provide a more accurate assessment of auditors' self-efficacy in relation to their specific professional roles and offer valuable insights for enhancing auditors' performance, decision-making quality, and overall contribution to audit quality and fraud detection. This research fills a significant gap in the literature and practice, providing a nuanced tool for assessing and enhancing the competencies and confidence of auditors in alignment with the evolving demands of their profession.

Against this backdrop, the forthcoming sections delve into the essential competencies that underpin effective auditing practice in the contemporary era. By examining the pivotal areas of Technical Skills in Auditing, Technological Adaptation in Auditing, and Interpersonal Communication in Auditing, this section aims to outline a comprehensive framework for an enhanced Auditor Self-Efficacy Scale.

LITERATURE REVIEW: THE DIMENSIONS OF AUDITOR SELF-EFFICACY

Based on a literature review, it's clear that the skills needed for auditors are wide-ranging. However, we can group these skills into three main areas. These areas cover the essential skills auditors need to do their job well. By looking at Technical Skills, Technological Adaptation, and Interpersonal Communication, we get a good picture of what auditors need to be good at. This way of grouping skills helps us understand and improve how auditors work, keeping up with changes in their jobs.

Technical Skills in Auditing

At the core of auditing and accounting practices lies a profound reliance on technical skills, encompassing everything from intricate financial analysis to stringent adherence to regulatory standards and the principles of ethical conduct. For auditors, it's not merely about a comprehensive understanding of accounting principles and auditing standards. It's equally about believing in their ability to apply this knowledge skillfully across diverse auditing scenarios (Aslan, 2021). This includes a deep familiarity with financial reporting frameworks like IFRS and GAAP and a keen awareness of the regulatory landscape shaping the auditing profession (Burton & Jermakowicz, 2015).

Moreover, beyond acquiring knowledge, auditors' technical expertise is deeply intertwined with professional skepticism and ethical decision-making. Facing ethical dilemmas demands more than just knowledge; auditors must trust their capacity to make sound judgments and adhere to ethical standards, embodying principles like independence, confidentiality, and integrity (Kretzschmar et al., 2013; Natchkova, 2019). This self-belief is crucial for navigating the ethical complexities inherent in the auditing profession.

Additionally, the constantly evolving financial landscape accentuates the need for expertise in risk management, internal controls evaluation, and forensic accounting. Auditors must possess these skills and have confidence in their ability to identify, assess, and mitigate potential risks effectively (Chan et al., 2023; Patel & Chauhan, 2023). This confidence, or self-efficacy, enables auditors to proactively adapt to emerging market trends, regulatory changes, and complex financial instruments, ensuring the reliability and integrity of financial reporting.

Hence, the diverse range of technical skills required in auditing highlights the critical need for a "Technical Skills" subscale within the Auditor Self-Efficacy Scale. Incorporating Bandura's

concept of self-efficacy, this subscale aims to mirror the auditors' technical capabilities alongside their self-assuredness in utilizing these skills across various contexts. As auditors traverse the intricate paths of IFRS, GAAP, and a complex regulatory framework, their mastery of technical skills, bolstered by a robust sense of self-efficacy, becomes indispensable in upholding the quality and integrity of audits within the dynamically shifting financial sector.

Technological Adaptation in Auditing

Technological advancements have profoundly transformed the auditing profession, necessitating auditors to become proficient with cutting-edge tools such as data analytics, AI, and blockchain technologies (Patel & Chauhan, 2023). This technological evolution demands that auditors familiarize themselves with these new tools and develop a strong belief in their capability to utilize them in their auditing practices effectively—a core aspect of self-efficacy as defined by Bandura (1977, 1986, 1997).

Consequently, self-efficacy, in this context, is the auditors' confidence in their skills to adapt to and harness these technologies, overcoming potential barriers such as data security concerns and the need to bridge existing skill gaps (Patel & Chauhan, 2023; Taib et al., 2022; Wan Mohamad Noor et al., 2023; Xiao, 2022).

Nevertheless, adapting to new technologies presents several challenges, including the potential underestimation of auditors' roles in a tech-centric environment, heightened information security risks, and the ambiguity surrounding liability risks (Xiao, 2022). These challenges underscore the importance of fostering an environment that supports auditors' technological self-efficacy through the cultivation of compound talents, emphasis on the auditor's value, and the development of mechanisms for accepting responsibility in a digital context (Taib et al., 2022).

Furthermore, the key to fostering auditors' readiness for digital transformation is bolstering their IT-based knowledge and cognitive competency (Taib et al., 2022). A positive attitude toward change, a willingness to embrace new technologies, and robust organizational support are crucial in building a foundation for technological solid self-efficacy among auditors.

Moreover, the rapid pace of technological evolution necessitates a commitment to continual learning and adaptability among auditors. Staying abreast of the latest technological trends and advancements is crucial for maintaining the relevance and effectiveness of audit practices in the digital age (Patel & Chauhan, 2023).

Therefore, in light of Bandura's self-efficacy theory, introducing a "Technological Adaptation" subscale within the Auditor Self-Efficacy Scale becomes essential. This subscale is intended to reflect the critical technological competencies needed by auditors, serving as a tool to identify areas for further development and to enhance their capabilities in leveraging technology for superior audit performance. This focus on self-efficacy will ensure that auditors are not only technically proficient but also confident in their ability to apply these technologies effectively, ensuring the continued relevance and efficiency of the auditing profession in the digital age.

Interpersonal Communication in Auditing

In the auditing profession, interpersonal communication is paramount, with auditors frequently engaging in client interactions through various channels, from direct meetings to digital communications (Carlisle & Hamilton, 2021; Sarapaivanich et al., 2023). Bandura's (1977, 1986, 1997) concept of self-efficacy is crucial here, reflecting auditors' confidence in their

ability to effectively convey complex information and adapt their communication style to diverse client needs. Auditors with a high sense of self-efficacy in communication are more likely to build trust and rapport with clients, understand their concerns, and tailor communication strategies to meet clients' needs (Larasati & Lestari, 2022).

Furthermore, the realm of interpersonal communication self-efficacy extends beyond mere exchange of information. It encompasses auditors' belief in their project management and team leadership capabilities, essential for orchestrating audit tasks and steering audit teams toward successful outcomes (Nelson et al., 2016). Given the complexity of audit projects, which demand strong project management and team leadership skills, auditors with high self-efficacy in these areas believe in their ability to organize audit tasks, delegate responsibilities, and lead teams towards successful audit completion. This confidence is crucial for managing the dynamics of audit teams and ensuring cohesive and productive efforts towards audit objectives.

Additionally, negotiation, an integral component of the auditing process, relies on auditors' confidence in their persuasive communication skills (Angela & Husnatarina, 2015; Awadallah, 2018). Auditors with high self-efficacy in negotiation are better equipped to discuss audit findings, recommend changes, and advocate for the adoption of specific actions with conviction.

Thus, the amalgamation of these elements—from effective communication and leadership to adept client management and negotiation—emphasizes the pivotal role of self-efficacy in interpersonal communication within the auditing sphere. This underscores the necessity for an "Interpersonal Communication" subscale within the Auditor Self-Efficacy Scale, designed to encapsulate the broad spectrum of communication-related competencies indispensable for auditors.

METHODS

Scale Development

To develop the ASE scale, a systematic approach was followed. The process began with an exhaustive literature review to explore existing studies, theories, and frameworks relevant to auditor self-efficacy. This foundational step provided insights into the construct's dimensions, informing subsequent stages of scale development.

Drawing from insights from the literature, a diverse pool of items was generated for the ASE scale. Employing techniques such as brainstorming sessions and expert consultations, items were crafted to ensure clarity, relevance, and alignment with theoretical underpinnings.

Following item generation, feedback was sought from subject matter experts in the field through an expert review process. This iterative refinement phase bolstered the scale's content validity, ensuring adequate representation of auditor self-efficacy. Subsequently, pilot testing was conducted with a small group of participants to assess item clarity and comprehensibility. Participant feedback guided further revisions, reinforcing our commitment to developing a robust measurement instrument.

Employing exploratory factor analysis (EFA), we examined the underlying factor structure of the ASE scale. Through the analysis of inter-item correlations and factor loadings, latent factors or dimensions underlying auditor self-efficacy were identified. This facilitated the scale refinement by eliminating redundant or poorly performing items, thereby enhancing its psychometric properties.

Finally, item reduction was undertaken to streamline the ASE scale, retaining items that contributed most substantially to the identified factors or dimensions. This iterative process ensured the scale's parsimony and efficacy, effectively measuring the intended construct.

Final Measurement Items

Following the iterative process discussed above, the Auditor Self-Efficacy (ASE) scale was developed to provide a nuanced assessment of auditors' confidence in their professional capabilities. The scale consists of three distinct subscales, each targeting a critical aspect of auditing proficiency: Technical Skills (TS), Technological Adaptation (TA), and Interpersonal Communication (IC).

The TS subscale assessed auditors' self-efficacy in performing core auditing tasks requiring specialized knowledge and expertise. This subscale includes items that reflect auditors' confidence in applying auditing standards, understanding financial reporting frameworks, and navigating regulatory requirements. The items for the TS subscale are as follows:

1. **TS1**: "I am confident in my ability to apply auditing standards and accounting principles effectively in diverse auditing scenarios."
2. **TS2**: "I feel assured in my understanding and application of financial reporting frameworks like IFRS and GAAP in auditing practices."
3. **TS3**: "I trust in my capacity to navigate and comply with the regulatory landscape affecting the auditing profession."
4. **TS4**: "I am confident in my ability to exercise professional skepticism and ethical judgment in my auditing work."

The TA subscale evaluates auditors' self-efficacy in adapting to and utilizing technological advancements that are increasingly integral to modern auditing practices. This subscale includes items that measure auditors' confidence in leveraging data analytics, AI, blockchain, and other emerging technologies. The items for the TA subscale are as follows:

1. **TA1**: "I believe in my capability to adapt to and efficiently use emerging technologies such as data analytics and AI in auditing."
2. **TA2**: "I feel competent in identifying and mitigating data security risks associated with new auditing technologies."
3. **TA3**: "I am confident in my ability to overcome challenges and bridge skill gaps when learning new technological tools relevant to auditing."
4. **TA4**: "I am assured in leveraging blockchain technology for enhancing auditing processes."

The IC subscale focuses on auditors' self-efficacy in communication, an essential skill for effective client interactions, team collaboration, and leadership in auditing projects. This subscale includes items that reflect auditors' confidence in conveying complex audit findings, building client relationships, managing audit teams, and negotiating audit-related matters. The items for the IC subscale are as follows:

1. **IC1**: "I am confident in my ability to communicate complex audit findings clearly and effectively to various stakeholders."
2. **IC2**: "I feel capable of building and maintaining trustful and professional relationships with audit clients."
3. **IC3**: "I believe in my capacity to effectively manage and lead audit teams towards successful audit completions."

4. **IC4**: "I am confident in my negotiation skills to advocate for necessary actions based on audit findings with clients and team members."

Each item on the ASE scale is rated using a 5-point Likert scale, where 1 represents "Strongly Disagree" and 5 represents "Strongly Agree." This response format allows participants to express the degree of their confidence in each of the auditing competencies addressed by the items. The Likert scale facilitates a nuanced understanding of auditors' self-efficacy, enabling the identification of areas of strength and potential improvement.

Participants and Data Collection

Data was collected from 593 auditors recruited using a combination of convenience and snowball sampling techniques to validate the scale. Invitations to participate in an online survey, including the newly developed Auditor Self-Efficacy scale and demographic questions, were distributed across professional networks and auditing forums in North America, specifically the United States and Canada. This approach aimed to ensure a diverse representation of the auditing profession among participants.

Data Analysis

Data analysis commenced with descriptive statistics to summarize the scale's overall and subscale scores. This provided an initial understanding of the auditors' self-efficacy levels across the sample.

Cronbach's alpha coefficients were calculated for the overall scale and each subscale to evaluate internal consistency reliability. These analyses were crucial in determining the coherence and homogeneity of the items within each construct.

CFA was conducted using structural equation modeling (SEM) to assess the scale's structural validity. This analysis tested the hypothesized three-factor model of auditor self-efficacy, comprising the TS, TA, and IC subscales. Model fit was evaluated using several indices, including the Chi-square statistic, RMSEA, CFI, IFI, and TLI, to ensure the model's adequacy in representing the underlying data structure.

Convergent validity was assessed by examining the standardized factor loadings of each item on its respective construct, with significant loadings indicating strong associations between items and constructs. Discriminant validity was evaluated using the HTMT ratio, with detailed computational steps involving the correlation matrix, distinction of heterotrait-heteromethod and monotrait-heteromethod correlations, and calculation of the HTMT ratios for each construct pair. The HTMT thresholds of 0.90 and the more conservative 0.85 were applied to determine the distinctiveness of the constructs.

RESULTS

Descriptive Statistics

The descriptive statistics provided in the Table 1 offer a comprehensive overview of the Auditor Self-Efficacy (ASE) Overall Scale alongside its constituent dimensions: Technical Skills (TS), Technological Adaptation (TA), and Interpersonal Communication (IC), within a sample size of 593 respondents. The overall ASE scale comprises 12 items, while TS, TA, and IC are measured through 4 items each.

Table 1 presents the mean scores and standard deviations for the ASE scale and each of its subscales. Auditor Self-Efficacy manifests a mean score of $\bar{x} = 4.0$, indicating a moderately high level of self-efficacy among auditors. Correspondingly, the subscales Technical Skills (TS), Technological Adaptation (TA), and Interpersonal Communication (IC) exhibit mean

scores of $\bar{x} = 4.06$, $\bar{x} = 3.90$, and $\bar{x} = 4.03$, respectively, suggesting robust competencies across these domains. The associated standard deviations, ranging from $sd = .63$ to $sd = .85$, denote the dispersion of scores around the mean, highlighting the variability in participants' responses within each construct.

Table 1

Cronbach's Alphas, Means, and Standard Deviations for the ASE Scale and Subscales

	Auditor Self-Efficacy	**TS**	**TA**	**IC**
***n* = 593**				
Number of items	12	4	4	4
Cronbach's Alpha	.89	.88	.91	.87
Mean	4.0	4.06	3.90	4.03
Standard deviation	.63	.77	.85	.80

Note: Technical Skills (TS), Technological Adaptation (TA), Interpersonal Communication (IC)), Auditor Self-Efficacy (ASE)

Inter-Item and Inter-Scale Correlations

In the investigation of the internal structure of the Auditor Self-Efficacy Scale, we began by examining the average inter-item correlations within each of the three subscales: Technical Skills (TS), Technological Adaptability (TA), and Interpersonal Communication (IC). The average inter-item correlations were found to be $r = .64$ for Technical Skills, $r = .71$ for Technological Adaptability, and $r = .63$ for Interpersonal Communication. The average inter-scale correlations were $r = .49$ These inter-item correlations were above the recommended value of $r = .3$ (Hair et al., 1998). Overall, results suggest a moderate to strong level of coherence within each subscale and among the subscales, indicating that items are related to each other to a reasonable extent, which is consistent with the expectation that the items should measure aspects of the same underlying construct.

Reliability of the Auditor Self-Efficacy Scale and Subscales

The reliability analysis for the overall Auditor Self-Efficacy (ASE) scale and its constituent dimensions—Technical Skills (TS), Technological Adaptation (TA), and Interpersonal Communication (IC)—was conducted to ascertain the internal consistency and homogeneity of the measurement instruments. Cronbach's alpha coefficient, a widely recognized measure of internal consistency reliability (Churchill Jr, 1979), was employed for this assessment.

The Auditor Self-Efficacy scale demonstrated a Cronbach's alpha coefficient of $\alpha = .89$, indicating strong internal consistency. The subscales Technical Skills (TS), Technological Adaptation (TA), and Interpersonal Communication (IC) exhibit higher levels of internal consistency as well, with Cronbach's alpha coefficients of $\alpha = .88$, $\alpha = .91$, and $\alpha = .87$, respectively. These coefficients surpass the conventional threshold, indicating satisfactory internal consistency reliability for each subscale. These findings align with established standards for reliability assessment (Nunnally & Bernstein, 1994), validating the reliability of the subscales of the ASE scale as consistent measures for evaluating the components of auditor self-efficacy.

Model Description, Fit Assessment, and Convergent Validity

A Confirmatory Factor Analysis (CFA) was conducted to evaluate the structural integrity and validity of the proposed constructs related to auditor self-efficacy scale. This analysis was rooted in the principles of construct validation as delineated by Anderson and Gerbing (1988),

and the concept of convergent validity as defined by Churchill Jr (1979), which posits that a set of measures should cohesively represent the underlying construct they are intended to measure. This is particularly evidenced by the significance of individual item factor loadings, which suggests that the items are unidimensional and collectively measure the same underlying construct.

The CFA model encapsulated three latent constructs—Technical Skills (TS), Technological Adaptability (TA), and Interpersonal Communication (IC) — each represented by four observed variables, culminating in a unified model comprising these subscales. The model's fit was assessed using a range of fit indices, as recommended by Bollen and Long (1993) and Hair et al. (1998). The chi-square statistic reported a value of $\chi 2 = 118.12$ with 51 degrees of freedom (*df*), yielding a non-significant p-value of $p < .05$, which suggests an unacceptable fit of the model to the observed data. However, the Chi-square test's sensitivity to sample size necessitates the consideration of additional fit indices for a more comprehensive evaluation (Kline, 2023).

The Chi-square to degrees of freedom ratio (CMIN/DF) presented a value of 2.3, falling within the acceptable range of 1 to 3, indicative of a satisfactory fit between the model and the observed data (Kline, 2023). The Root Mean Square Error of Approximation (RMSEA) was exceptionally low at .03, indicating a close fit between the model and the data, well below the commonly accepted threshold of .10.

Further examination of the model's fit was supported by the Comparative Fit Index (CFI), Incremental Fit Index (IFI), and the Tucker-Lewis Index (TLI), and all of which exceeded the .95 benchmark, signifying an excellent model fit. Specifically, the CFI, IFI, and TLI were reported at .98 reinforcing the model's robustness.

Convergent validity within this study was rigorously evaluated through an examination of the standardized factor loadings associated with each item on the Auditor Self-Efficacy (ASE) scale. Table 2 shows the extent to which individual items reflect their intended constructs, showcasing the intrinsic link between the items and their corresponding latent constructs. The mean scores for the 12 items spanned from $\bar{x} = 3.86$ to $\bar{x} = 4.13$, indicating a high level of self-reported efficacy across the board. The standardized loadings, a testament to the strength of association between items and constructs, ranged from λ= .76 to λ= .86, with each loading reaching statistical significance at $p < .01$.

Table 2

Construct Reliability Estimates and Measurement Loadings

Item	Auditor Self-Efficacy (ASE) Scale Question	Mean	SD	Std Loadings
Technical Skills (TS)				
TS1	"I believe I can apply auditing standards and accounting principles effectively in diverse situations."	4.13	0.87	0.85*
TS2	"I am confident in my understanding and application of financial reporting frameworks like IFRS and GAAP."	4.11	0.89	0.78*
TS3	"I trust my ability to navigate and comply with the regulatory landscape in auditing."	4.03	0.91	0.80*
TS4	"I feel capable of exercising professional skepticism and ethical judgment in my work."	3.97	0.93	078*
Technological Adaptability (TA)				
TA1	"I am confident in my ability to adapt to and efficiently use emerging technologies in auditing, such as data analytics and AI."	3.97	0.92	0.84*

TA2	"I feel capable of identifying and mitigating data security risks associated with new auditing technologies."	3.91	0.93	0.84*
TA3	" I can overcome challenges and bridge skill gaps when learning new technological tools relevant to auditing."	3.86	1.00	0.83*
TA4	"I am confident in leveraging blockchain technology for auditing purposes."	3.86	0.98	0.86*
Interpersonal Communication (IC)				
IC1	"I am confident in my ability to communicate complex audit findings clearly to stakeholders."	4.08	0.93	0.82*
IC2	"I feel capable of building and maintaining trustful relationships with clients."	4.09	0.92	0.76*
IC3	"I believe I can effectively manage and lead audit teams towards successful outcomes."	4.00	0.94	078*
IC4	"I am confident in my negotiation skills to advocate for necessary actions based on audit findings."	3.97	0.97	0.81*

** All coefficients were significant p<0.01*

Discriminant Validity

Discriminant validity is crucial in construct validation as it demonstrates that constructs within a model are not merely reflections of each other but capture different phenomena (Campbell & Fiske, 1959; Fornell & Larcker, 1981). In assessing the discriminant validity of the constructs within the Auditor Self-Efficacy scale, the Heterotrait-Monotrait (HTMT) ratio, a relatively recent and robust method proposed by Henseler et al. (2015) was utilized. Unlike traditional approaches, the HTMT ratio offers a more nuanced assessment by comparing the similarity of constructs relative to their uniqueness (Henseler et al., 2015). This can be particularly useful in scales like ASE, where constructs might be conceptually close yet distinct.

A detailed and systematic approach was adopted to compute the Heterotrait-Monotrait (HTMT) ratio, ensuring the accuracy and transparency of the discriminant validity assessment for the Auditor Self-Efficacy scale. The procedure encompassed several key steps:

1. *Correlation Matrix Computation:* The initial step involved the calculation of the correlation matrix for all items within the dataset. This matrix was fundamental to the HTMT analysis as it provided the inter-item correlations, which were essential for distinguishing between heterotrait-heteromethod and monotrait-heteromethod correlations.
2. *Distinction of Correlations:*
    - *Monotrait-Heteromethod Correlations:* These correlations were identified among items measuring the same construct. For instance, correlations between different items within the Technical Skills (TS) subscale fell into this category. These correlations captured the extent to which items related to the same construct correlated with each other, excluding the trait similarity.
    - *Heterotrait-Heteromethod Correlations:* These correlations were determined between items measuring different constructs. An example includes correlations between items from the Technical Skills (TS) subscale and items from the Technological Adaptability (TA) subscale. These correlations reflected the relationships between items across distinct constructs, highlighting the trait dissimilarity.
3. *HTMT Ratio Calculation:* The HTMT Ratio is derived by dividing the heterotrait correlation by the average or geometric mean of the monotrait correlations. The HTMT ratio utilizes specific thresholds to determine the adequacy of discriminant validity. A

commonly accepted threshold is 0.90, with values below this indicating sufficient discriminant validity (Henseler et al., 2015). However, a more conservative threshold of 0.85 has also been suggested to ensure a stricter assessment of construct distinctiveness (Kline, 2023).

In the context of this study, the calculation of the HTMT ratio yielded a value of 0.60. This was achieved by dividing the average correlation among different constructs, which stood at 0.32, against the geometric mean of the correlations within the individual constructs—namely, the TS at 0.64, TA at 0.71, and IC at 0.63.

Positioning at 0.60, the HTMT ratio comfortably resides below the stringent threshold of 0.85, as proposed by Henseler and colleagues (2015), thereby signaling a clear demarcation in discriminant validity among the TS, TA, and IC constructs. This pivotal finding corroborates the distinctiveness of the constructs under scrutiny, as evidenced by the relatively lower shared variance across the different constructs in comparison to the variance retained within each construct and its associated indicators. This delineation affirms the constructs' ability to distinctly capture and reflect unique phenomena, underscoring the robustness of the methodological approach in distinguishing between the constructs' underlying dimensions.

DISCUSSION

Discussion of the Results

The present study embarked on the development and validation of the Auditor Self-Efficacy (ASE) scale, aimed at addressing the nuanced competencies and challenges inherent in the auditing profession. The ASE scale, encompassing three distinct subscales—Technical Skills (TS), Technological Adaptation (TA), and Interpersonal Communication (IC)—was meticulously crafted based on Bandura's social cognitive theory, underscoring the integral role of self-efficacy in influencing auditors' performance and decision-making capabilities (Bandura, 1977, 1986, 1997).

The findings from the descriptive statistics revealed moderate to high levels of self-efficacy among auditors in the sample, with mean scores reflecting auditors' confidence across the three key domains of auditing competencies. These results are in concordance with previous research emphasizing the importance of self-efficacy in various professional settings, including auditing (e.g., Afifah et al., 2015; Al Natour et al., 2023; Amanda et al., 2023; Su et al., 2016).

The reliability analysis of the ASE scale and its subscales demonstrated satisfactory internal consistency, with Cronbach's alpha coefficients exceeding the conventional threshold of 0.70 for the subscales (Nunnally & Bernstein, 1994). This indicates a robust coherence among the items within each subscale, reaffirming the scale's reliability in measuring auditors' self-efficacy.

The confirmatory factor analysis (CFA) further substantiated the structural integrity and validity of the ASE scale. The model fit indices, including RMSEA, CFI, IFI, and TLI, all indicated an excellent fit, resonating with the recommendations of Bollen and Long (1993) and Hair et al. (1998). The significant standardized factor loadings for each item accentuated the scale's convergent validity, ensuring that the items effectively capture the essence of the underlying constructs they intend to measure.

The discriminant validity assessed through the Heterotrait-Monotrait (HTMT) ratio provided compelling evidence of the distinctiveness of the constructs within the ASE scale. The HTMT

ratios were significantly below the conservative threshold of 0.85, suggesting that the constructs are not merely reflections of each other but capture unique facets of auditor self-efficacy (Henseler et al., 2015; Kline, 2023). This finding is crucial for construct validation and underscores the scale's ability to differentiate between the various dimensions of self-efficacy in auditing.

Theoretical and Practical Implications

The creation of the Auditor Self-Efficacy (ASE) scale represents a pivotal advancement in the realm of auditing research and practice. Prior to this development, the assessment of self-efficacy within the auditing profession largely relied on generic measures, which, although valuable, did not fully encapsulate the unique and intricate competencies required of auditors. The ASE scale, with its targeted focus on Technical Skills, Technological Adaptation, and Interpersonal Communication, offers a domain-specific instrument that mirrors the comprehensive skill set essential for auditors in today's complex financial landscape.

The nuanced approach taken in the ASE scale's development ensures that each item is intricately linked to the core competencies that define the auditing profession. This specificity allows for a more precise assessment of auditors' confidence in their abilities across various dimensions, providing a granular view of their strengths and areas for improvement. Such detailed insights are invaluable for both individual auditors seeking to enhance their professional development and for organizations aiming to bolster the capabilities of their auditing teams.

Moreover, the ASE scale's ability to measure self-efficacy in context-specific tasks offers significant implications for practice. For instance, understanding auditors' self-efficacy in navigating technological advancements can inform targeted training programs, ensuring that auditors are well-equipped to leverage new tools and methodologies effectively. Similarly, insights into self-efficacy related to interpersonal communication can guide initiatives aimed at improving client relationships and teamwork, which are critical for the success of audit engagements.

In terms of decision-making quality, the ASE scale provides a framework for exploring how auditors' confidence in their technical and interpersonal skills influences their judgment and problem-solving approaches. This is particularly relevant in the face of complex auditing decisions, where high levels of self-efficacy may correlate with more rigorous and ethical decision-making processes. Consequently, interventions designed to enhance auditors' self-efficacy could lead to improvements in judgment quality and ethical standards, thereby contributing to the overall quality of audits.

Furthermore, the ASE scale has implications for research on fraud detection. By understanding the relationship between auditors' self-efficacy and their ability to identify and address fraudulent activities, researchers and practitioners can develop more effective strategies for fraud prevention and detection. This is especially pertinent in an era where financial fraud poses significant risks to the integrity of financial markets.

Overall, the ASE scale represents a significant contribution to the field of auditing, offering a comprehensive tool for assessing the multifaceted competencies that underpin auditors' professional roles. Its development not only addresses a gap in the literature but also provides a foundation for future research and practice aimed at enhancing auditors' performance, decision-making quality, and contributions to audit quality and fraud detection. Through a

deeper understanding of auditor self-efficacy, the auditing profession can better navigate the challenges and opportunities of the modern financial world, ensuring the reliability and integrity of financial reporting.

CONCLUSION

This study introduces the Auditor Self-Efficacy (ASE) scale, a pioneering instrument tailored to the unique competencies required in the auditing profession. The ASE scale, encompassing Technical Skills, Technological Adaptation, and Interpersonal Communication subscales, was meticulously developed and validated to measure auditors' confidence in their professional capabilities. This scale bridges a significant gap in the existing literature and offers a domain-specific tool that enhances our understanding of auditors' self-efficacy and its impact on their performance and decision-making processes.

The findings from this research underscore the moderate to high levels of self-efficacy among auditors across the key domains of auditing competencies. The satisfactory internal consistency reliability of the ASE scale and its subscales, coupled with the excellent model fit indices from the confirmatory factor analysis, validate the scale's reliability and structural integrity. The significant standardized factor loadings for each item further affirm the scale's convergent validity, while the discriminant validity, assessed through the HTMT ratio, confirms the distinctiveness of the constructs within the ASE scale.

The theoretical implications of the ASE scale extend to enhancing our comprehension of the role of self-efficacy within the auditing domain. By providing a nuanced measure of auditors' confidence across diverse competencies, the ASE scale facilitates a deeper exploration of how self-efficacy influences auditors' approach to complex tasks, ethical decision-making, and their adaptability to technological advancements. This contributes to the broader body of knowledge in social cognitive theory and its application in professional settings, particularly in fields characterized by high complexity and ethical standards like auditing.

From a practical standpoint, the ASE scale offers valuable insights for professional development and organizational capacity building within the auditing profession. By identifying specific areas of strength and potential improvement, the scale can inform targeted training programs, enhance auditors' adaptability to technological advancements, and improve interpersonal communication skills. This, in turn, can lead to better decision-making quality, heightened ethical standards, and improved audit quality and fraud detection capabilities.

In conclusion, the development and validation of the ASE scale mark a significant advancement in auditing research and practice. It provides a comprehensive and reliable tool for assessing auditor self-efficacy, paving the way for future research endeavors aimed at understanding and enhancing the competencies and confidence of auditors. As the auditing profession continues to evolve amidst technological advancements and increasing regulatory complexities, the ASE scale stands as a vital instrument for advancing the effectiveness and efficiency of auditors in their critical role within the financial landscape.

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