JOURNAL OF CULTURAL ANALYSIS AND SOCIAL CHANGE

Journal of Cultural Analysis and Social Change,
2025, 10(3), 823-833
ISSN: 2589-1316

The Digital Divide in Accounting Education: Challenges and Solutions

Edwar Zabarburu Rojas[1*], Victor Hugo Puican Rodriguez[2]

[1] *Expert in finance and public management, Lambayeque, Cesar Vallejo University, Peru, Chiclayo, PERU, ezabarburu@ucvvirtual.edu.pe, ORCID: https://orcid.org/0000-0002-9451-3258*
[2] *Doctor, Lambayeque, Cesar Vallejo University, Peru, Chiclayo, Peru, vpuican@ucvvirtual.edu.pe, ORCID: https://orcid.org/0000-0001-7402-9576*

*Corresponding Author: ezabarburu@ucvvirtual.edu.pe

Citation: Rojas, E. Z., & Rodriguez, V. H. P. (2025). The Digital Divide in Accounting Education: Challenges and Solutions. *Journal of Cultural Analysis and Social Change*, *10*(3), 823–833. https://doi.org/10.64753/jcasc.v10i3.2502

Published: November 28, 2025

ABSTRACT

In Amazonas—Peru, accountants face challenges arising from a globalized environment and a competitive labor market. Despite geographic isolation, adapting to emerging technologies is essential to remain competitive. The implementation of advanced accounting software and artificial intelligence tools is crucial, but the lack of access and training in these technologies limits the optimization of accounting processes and remote collaboration. Continuing professional development is vital, and accountants should seek learning opportunities through seminars, workshops and distance learning programs. Investment in continuing education ensures that accounting standards and practices are constantly updated. This research highlights the importance of a multifaceted training strategy that addresses both technical skills and ethical and sustainable competencies, preparing Amazon accountants for current challenges and future opportunities. Using a quantitative approach, the research evaluates the effectiveness of training in emerging technologies, ethics and sustainability, highlighting the need to integrate these competencies to improve labor competitiveness in the region. The results indicate a positive, albeit limited, influence of financial capability on professional competitiveness, suggesting the need for policies and educational programs to strengthen this competency.

Keywords: Labor Market; Innovation; Lifelong Learning; Artificial Intelligence; Ethical Skills; Sustainability.

INTRODUCTION

In a global scenario where digitalization and corporate social responsibility prevail, the accounting profession faces unprecedented challenges that require a comprehensive reformulation of professional education. This research contributed to target 8.6 of Sustainable Development Goal 8, highlighting the importance of continuing education and professional development to ensure that accountants remain up-to-date and competitive, promoting employability and decent work.

Although emerging technologies, such as artificial intelligence and financial data analytics tools, offer opportunities to improve accounting efficiency, there is a notable lack of integration of these technologies into daily practice (Engel et al., 2024; Guerrero-Quiñonez et al., 2023). Accountants often lack the training necessary to effectively adapt to these digital technologies (Panakaje et al., 2023). In addition, ethical and professional responsibility challenges are intensifying in a globalized marketplace, with pressures for transparency and compliance, requiring greater understanding and application of ethical practices (Garcia and De Los Rios, 2021). Current training is insufficient to manage complex ethical dilemmas and ensure a commitment to integrity and transparency (Jackson et al., 2022).

In Peru, sustainability and green accounting emerge as crucial dimensions that require greater attention; assessing the environmental impact of companies and implementing practices such as responsible investment and financial planning focused on energy efficiency are essential to foster a culture of sustainability within the

accounting sector (Hidalgo et al., 2024). However, there is a notable lack of training on how to integrate sustainability criteria into daily accounting practice and how accountants can promote internal policies that support the environmental performance of organizations (Marino-Jiménez et al., 2024). This scenario highlights a palpable disconnect between accountants' current skills and knowledge and the demands of a professional environment that increasingly requires technological adaptation, ethical integrity and commitment to sustainability (Moureen et al., 2024).

In Amazonas, accountants face unique challenges arising from a globalized environment and an increasingly competitive labor market; although the region is characterized by its geographic isolation, the need to adapt to emerging technologies is palpable; the implementation of advanced accounting software, artificial intelligence tools and financial technologies has become essential to maintain accountants' professional competitiveness; however, the lack of access to and training in these technologies limits their ability to optimize accounting processes and improve efficiency in automated reporting and remote collaboration.

Continuing professional development represents a pressing need for Amazon accountants, who must actively seek continuous learning opportunities through seminars, specialized workshops and distance learning programs; investment in continuing education is essential to ensure constant updating of accounting standards and practices; this complex scenario highlights the importance of a multi-faceted training strategy that addresses both technical skills and professional, ethical and sustainable competencies, preparing Amazon accountants to meet the challenges of the present and seize the opportunities of the future.

Contemporary accounting theory highlights the importance of integrating emerging technologies and sustainable practices. The use of software and artificial intelligence tools improves the accuracy and efficiency of accounting, but there is a gap in practical application in places like Amazon. Training in these technologies and sustainability are essential to maintain the professional relevance of accountants. In Amazonas, these competencies will improve labor competitiveness. This research promoted crucial competencies in sustainability and ethics, preparing accountants for responsible business practices. The quantitative approach allowed an objective assessment of the effectiveness of training in emerging technologies, ethics and sustainability among local accountants.

The general objective was to describe how financial training and professional competitiveness, as well as to explore how financial training, the application of emerging technologies, ethics and professional responsibility and sustainability and green accounting influence professional competitiveness, continuous professional development, innovation in accounting services and the management of relationships with clients and networking of accountants in Amazonas. Likewise, it was considered as a hypothesis that there is a direct and significant influence of financial training, the application of emerging technologies, ethics and professional responsibility and sustainability and green accounting on professional competitiveness, continuous professional development, innovation in accounting services and client relationship management and networking of Amazonian accountants.

Therefore, the article is focused on addressing the following research questions: to what extent is the influence of new technologies presented in accounting education, and in what manner?

LITERATURE REVIEW AND BACKGROUND

Abdallah et al. (2024) conducted a study in Kuwait with 350 customers, using a questionnaire based on multiple literature sources. The results showed a significant relationship between digital financial literacy and financial behavior, with a path coefficient of 0.542, a *p*-value of 0.000 and an R^2 of 0.581, revealing that financial literacy and awareness were the most influential factors. Sun and Zuo (2023) investigated in Hong Kong with 220 small entrepreneurs using an online questionnaire and PLS-SEM. They found that financial literacy has a positive impact on entrepreneurial competence and business resilience, helping to formulate strategies for sustainable performance after COVID-19.

Hamoud et al. (2022) in Saudi Arabia, also with 220 small entrepreneurs, used PLS-SEM and revealed a positive impact of financial literacy on entrepreneurial competence and business resilience, contributing to economic opportunities and sustainable performance strategies. Pane and Siregar (2021) in Nigeria showed that 83.01% of accounting professionals did not reach the required level of competence, highlighting the need to improve curriculum frameworks and develop superior human resources.

Zafer and Killi (2021) in Turkey surveyed 300 students and highlighted that ICT skills are essential for accounting graduates, recommending the integration of computer tools in educational programs. Ecommons and Rakow (2019) in the United States surveyed 425 accountants and concluded that ICT integration in accounting courses is limited, affecting professional competitiveness and highlighting the need to update educational curricula.

Quispe et al. (2024) in Peru analyzed data from the National Household Survey, finding that financial inclusion is determined by factors such as area of residence, educational level, age, income, gender, marital status and possession of a property title. Frisancho (2023), from Peru, evaluated 506 students and observed improvements in

financial knowledge and financial behavior, without negatively affecting academic performance.

Estrada-Mejía et al. (2023) analyzed financial literacy in Peru and Uruguay, finding a low knowledge of basic financial concepts, especially among the self-employed, and a significant relationship between this knowledge and key financial behaviors. Alvarez et al. (2022) with 306 clients evaluated the relationship between financial literacy and indebtedness, finding a significant relationship, highlighting the importance of financial literacy in the management of personal indebtedness.

Albert Bandura's (1977) theory of utility has been taken into account. Mahesheari (2022) points out that this theory provides a framework for making informed decisions under conditions of uncertainty, making it possible to evaluate the probabilities and possible outcomes of various financial options; this evaluation capability is crucial for professionals to analyze and decide on investments, loans and other financial products with a greater degree of security and knowledge; it also facilitates the understanding and management of risk; through its application, individuals can identify and manage risks more effectively, making decisions that not only maximize their utility, but also minimize possible losses.

Financial training is the continuous educational process that aims to improve and update the knowledge, skills and competencies of accountants in financial matters; this includes the understanding and application of new regulations, financial technologies and accounting methodologies that are essential for the efficient and ethical practice of the accounting profession (Tejero et al., 2019).

Financial capability involves the ability to analyze financial options, plan for the future, and respond appropriately to financial events; this skill is crucial for effective management of personal and professional finances (Agarwal and Biswas, 2022).

The teaching of financial capability has been successfully incorporated into the accounting curriculum to provide future professionals with a solid foundation of financial literacy, crucial for properly advising clients (Ecommons and Rakow, 2019).

The application of emerging technologies are those technologies that have been developed to achieve highly competitive impact and long-term strategic importance, replacing current technologies and potentially becoming key technologies (Udrescu and Siteanu, 2021).

The implementation of digitalization in accounting processes in Amazonas, Peru, reflects broader global challenges associated with technological integration, particularly in isolated regions. Key obstacles include insufficient access to technology, lack of specialized training, and limited financial resources, which resonate with issues identified across various sectors. For example, small and medium-sized enterprises (SMEs) face prohibitive costs and skill gaps when attempting to integrate digital systems, leading to stand-alone solutions that do not fully optimize business operations (Telukdarie et al., 2023). Similarly, industries such as steel production and maritime logistics grapple with the need for continuous skill development and system interoperability to fully benefit from digital advancements (Branca et al., 2020; Brunila et al., 2021). Legal frameworks and technological standards also pose challenges, as seen in the steel industry, where digitalization requires ongoing updates to skills and legal regulations to manage risks effectively (Habrat, 2020). These technical challenges demonstrate the necessity of tailored solutions, focused on enhancing digital infrastructure and workforce capabilities to foster a more seamless digital transformation.

Addressing these challenges requires a multifaceted approach that includes investment in digital infrastructure, training programs, and supportive policies. Studies on the digitization of public deeds in Peru emphasize the role of legal and procedural reforms in promoting efficient and secure digital systems (Montenegro Neira et al., 2024). Additionally, research highlights that readiness for digital instruction is closely linked to digital competence and positive attitudes toward technology (Galaraga and Alpuerto, 2022). By incorporating these insights, my research underscores the need for comprehensive training programs in Amazonas, which not only address emerging technologies but also focus on ethical and sustainable practices. This strategy would bridge the gap between current digital challenges and the future labor competitiveness of accountants in the region, as suggested by the positive, though limited, impact of financial capability on professional development. Expanding educational opportunities and technological access are critical to achieving more robust and sustainable outcomes in the digitalization process.

Ethics and professional responsibility; ethics is a set of codes of conduct that govern how members of a profession should behave with each other and with third parties; it includes principles that guide moral and professional behavior, ensuring that actions and decisions are fair and ethical (O'Regan, 2018).

In contrast, professional responsibility is the duty of professionals to fulfill their obligations to their clients, colleagues, and society at large; this includes preventing systemic harm and maintaining high ethical and professional standards (Bocean et al., 2022).

Sustainability and green accounting; sustainability is a complex framework that enables organizations to achieve environmental, social and governance (ESG) objectives in an integrated manner. It involves the ability of organizations to create long-term economic value, involving all stakeholders, protecting the environment and

generating community well-being (Tommasetti et al., 2020). Sustainability accounting is the contribution of accounting to sustainable development, encompassing economic, social and environmental impacts (Ozili, 2022).

Green accounting is a fundamental pillar of corporate sustainability reporting; it focuses on quantifying and communicating the environmental impact of business operations. It involves the integration of all environmental costs into the company's financial statements and the importance of pursuing sustainable development committed to social and environmental responsibility (Zik-rullahi and Jide, 2023). In addition, green accounting includes practices such as deflation of carbon emissions, efficient use of natural resources, and better management of industrial waste (Sudarminto and Harto, 2023).

Peter Senge's continuous learning theory in 1990, where Santos et al. (2021) point out that the main contribution of this theory is that it fosters the understanding of interrelationships within an organization instead of looking only at isolated facts; this approach allows professionals to anticipate problems and opportunities.

Personal mastery, another fundamental pillar of the theory, refers to the ability of individuals to continuously clarify and deepen their personal vision, focus their energies, develop patience and see reality objectively; this practice improves self-awareness and self-management, which contributes to greater professional effectiveness and motivation; professionals who possess good self-awareness and properly manage their skills and emotions tend to be more effective and resilient in their roles. (Hansen et al., 2020).

Professional competitiveness is the ability to retain and repair their performance and effectiveness in the work field; it also includes adapting to changes in regulations, technologies and accounting methodologies, as well as developing competencies that add value to their services and improve their position in the market (Chen, 2023; Luhova, 2023; Posokhova, 2021).

Continuing professional development (CPD) refers to the educational activities that professionals undertake after completing their basic training and continue throughout their working lives to improve their knowledge, skills, and personal competencies; this process is essential for maintaining effectiveness in their professional roles and adapting to changes in their field (Soliman et al., 2023). CPD includes practices and activities designed for continuous professional growth, ensuring that professionals remain current and effective in their work (Phun, 2021).

Innovation in accounting services involves the adoption of new technologies to improve the quality and efficiency of these services; this innovation can encompass changes in products, processes, organization, and marketing, being crucial to maintain competitiveness in the finance and accounting sector (Kapler, 2021). The integration of technologies such as artificial intelligence and the internet of things into accounting management systems allows companies to track and analyze data more efficiently, thus improving decision making and customer satisfaction (Krishna et al., 2022).

Customer relationship management and networking (CRM) is the practice of maintaining and enhancing business relationships with current and potential customers through the use of systems and technologies that facilitate a customer-centric culture (Tkachenko et al., 2021). In addition, networking refers to the creation and maintenance of a network of professional contacts that can provide support, information, and business opportunities; in the context of family businesses, accessibility to business networks and customer relationship management are key factors in improving market performance and competitiveness (Nupus and Ichwanudin, 2021).

RESEARCH METHODOLOGY

It was applied in that it provided solutions to the study phenomena through the recommendations reached; focusing on generating theoretical knowledge without the immediate intention of applying it in practical contexts. In addition, it was quantitative, meaning that numerical data were collected and analyzed to examine patterns and test hypotheses. It was non-experimental, since no independent variables were manipulated to observe their effects on the variables; it was cross-sectional because the data were collected at a single point in time, which allowed a "snapshot" of the current situation to be obtained. Furthermore, it was descriptive because it sought to detail and characterize the study phenomenon, and explanatory because it attempted to identify the causes and effects within the financial training and professional competitiveness of Peruvian accountants.

Figure 1. Components of financial training for accountants in Amazonas.
Note: Prepared with data from the literature review.

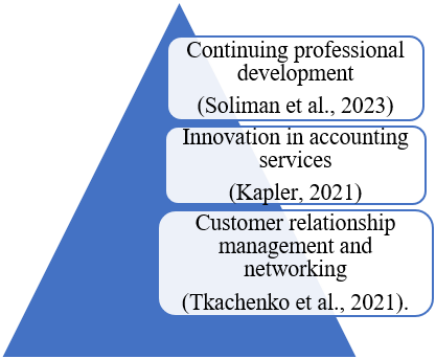

Figure 2. Dimensions of professional competitiveness of Amazon accountants.
Note: prepared with data from the literature review.

The population consisted of 593 accountants registered with the Association of Accountants of Amazonas; the inclusion criteria were: qualified accountants, a total of 242 accountants; accountants who were not registered with the Association of Accountants of Amazonas and who did not reside in Amazonas were excluded; the finite proportions formula was applied to determine the sample size, resulting in 149 accountants residing in Amazonas who voluntarily accepted to participate in the study.

The sampling method used was simple random sampling, ensuring that each member of the population has an equal chance of being selected. The technique used was the survey, and the instrument used was a Likert scale questionnaire; the results of the validation and internal consistency analysis of the questionnaire were presented and interpreted.

The descriptive and inferential statistical techniques applied to obtain the results of the study were described; the descriptive statistical analysis included several important points; the inferential analysis used appropriate statistical tests to establish influences between the study variables. The research was conducted in accordance with five fundamental ethical principles: respect for persons, beneficence, justice, confidentiality, and scientific integrity.

The autonomy of all participants was guaranteed, maximizing the benefits of the research and minimizing potential harms, ensuring an equitable distribution of the benefits and burdens of the research, protecting participants' personal and sensitive information, and maintaining honesty and transparency at all stages of the research process. Informed consent documents and authorizations obtained from collaborating institutions were included in the appendices, but were not published in the repository to preserve the confidentiality of the entities.

RESEARCH RESULTS

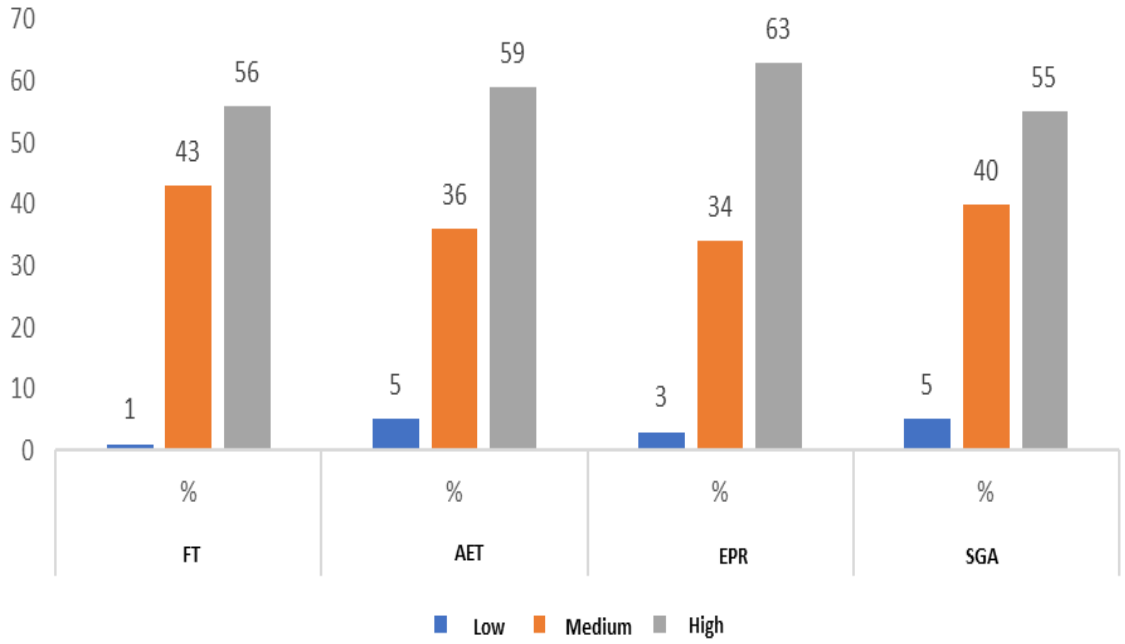

Figure 3. Level of financial training of the accountants of Amazonas.
Note: FT = financial training; AET = application of emerging technologies; EPR = ethics and professional responsibility; SGA = sustainability and green accounting.

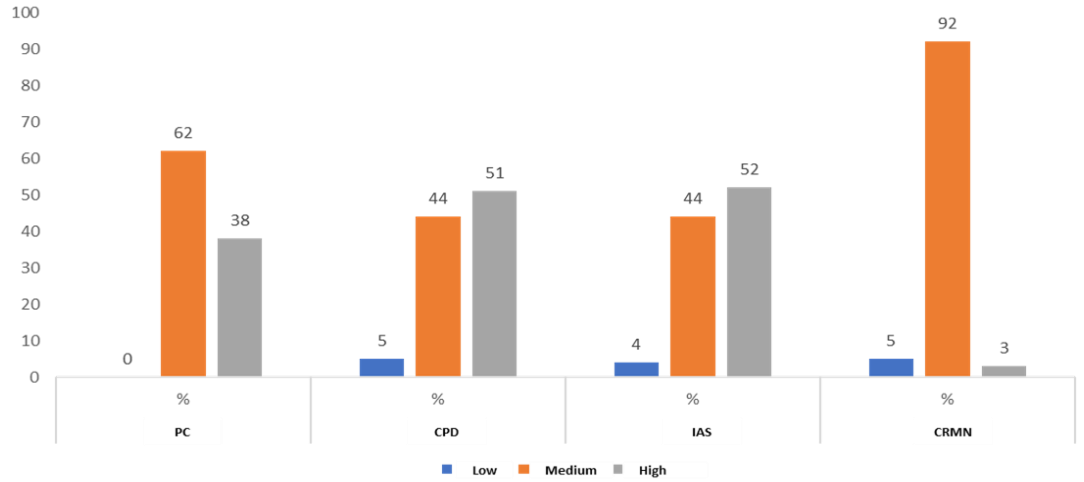

Figure 4. Level of professional competitiveness of the accountants of Amazonas.
Note: PC = professional competitiveness; CPD =continuing professional development; IAS = innovation in accounting services; CRMN = client relationship management and networking.

Table 1. Paired sample statistics: Influence of financial training on dimensions of professional competitiveness of accountants at Amazonas.

		Media	*N*	Standard deviation	Mean standard error
Pair 1	AET	2.55	149	0.586	0.048
	PC	2.38	149	0.488	0.040
Pair 2	EPR	2.61	149	0.542	0.044
	PC	2.38	149	0.488	0.040
Pair 3	SGA	2.50	149	0.588	0.048
	PC	2.38	149	0.488	0.040

Note: AET = application of emerging technologies; EPR = ethics and professional responsibility; SGA = sustainability and green accounting; PC = professional competitiveness.

Table 2. Paired samples test: Influence of financial training on dimensions of professional competitiveness of accountants at Amazonas.

		Matched differences					*t*	gl	Sig. (bilateral)
		Media	Standard deviation	Mean standard error	95% confidence interval of the difference				
					Inferior	Superior			
Pair 1	AET–PC	0.168	0.730	0.060	0.050	0.286	2.807	148	0.006
Par 2	EPR–PC	0.228	0.659	0.054	0.122	0.335	4.228	148	0.000
Par 3	SGA-CP	0.121	0.734	0.060	0.002	0.240	2.008	148	0.046

Note: AET = application of emerging technologies; EPR = ethics and professional responsibility; SGA = sustainability and green accounting; PC = professional competitiveness.

Table 3. Paired sample statistics: Influence of financial training on dimensions of professional competitiveness of accountants at Amazonas.

		Media	*N*	Standard deviation	Mean standard error
Par 1	FT	2.56	149	0.512	0.042
	CPD	2.46	149	0.598	0.049
Par 2	FT	2.56	149	0.512	0.042
	IAS	2.48	149	0.576	0.047
Par 3	FT	2.56	149	0.512	0.042
	CRMN	1.99	149	0.284	0.023

Note: FT = financial training; CPD = continuing professional development; IAS = innovation in accounting services; CRM = client relationship management and networking.

Table 4. Paired samples test: Influence of financial training on dimensions of professional competitiveness of accountants at Amazonas.

		Matched differences					t	gl	Sig. (bilateral)
		Media	Standard deviation	Mean standard error	95% confidence interval of the difference				
					Inferior	Superior			
Par 1	FT - CPD	0.101	0.705	0.058	-0.013	0.215	1.744	148	0.083
Par 2	FT - IAS	0.081	0.721	0.059	-0.036	0.197	1.363	148	0.175
Par 3	FT - CRMN	0.570	0.573	0.047	0.478	0.663	12.163	148	0.000

Note: FT = financial training; CPD = continuing professional development; LAS = innovation in accounting services; CRMN = client relationship management and networking.

Table 5. Regression model summary: Exploring how financial training influences professional competitiveness of accountants at Amazonas.

Model	*R*	*R* square	Adjusted *R*-squared	Standard error of the estimate	Statistics of change					Durbin - Watson
					Change in *R*-squared	Change in *F*	gl 1	gl 2	Sig. change in *F*	
1	0.169[a]	0.029	0.022	0.482	0.029	4.330	1	147	0.039	1.308
a. Predictors: (Constant), VARIND: FT										
b. Dependent variable: VARDEP: PC										

Table 6. Analysis of variance (ANOVA): Exploration of how financial training influences the professional competitiveness of accountants at Amazonas.

Model		Sum of squares	gl	Root mean square	F	Sig.
1	Regression	1.007	1	1.007	4.330	0.039b
	Waste	34.188	147	0.233		
	Total	35.195	148			
a. Dependent variable: VARDEP: PC						
b. Predictors: (Constant), VARIND: FT						

Table 7. Regression coefficients: Exploring how financial training influences professional competitiveness of accountants at Amazonas.

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
		B	Error	Beta			Tolerance	VIF
1	(Constant)	1.970	0.202		9.756	0.000		
	VARIND: FINANCIAL TRAINING	0.161	0.077	0.169	2.081	0.039	1.000	1.000
a. Dependent variable: VARDEP: PC								

DISCUSSION

The data reveal that financial capacity has a positive influence on professional competitiveness, albeit a small one ($R = 0.169$, $R^2 = 0.029$). This indicates that only 2.9% of the variability in professional competitiveness is explained by financial capability, suggesting the influence of other factors. The regression model is significant ($F = 4.330$, $p = 0.039$), showing a significant but small effect of financial capability on occupational competitiveness. The Durbin-Watson value of 1.308 suggests the absence of significant autocorrelation in the residuals, validating the reliability of the model.

The unstandardized coefficient for financial capability is 0.161, with a t-value of 2.081 and a significance of 0.039, revealing a positive and significant influence. ANOVA analysis reinforces this significant but limited influence, suggesting the need to consider additional factors to improve labor competitiveness.

Comparatively, earlier studies such as Abdallah et al. (2024) and Sun and Zuo (2023) highlighted the importance of financial literacy in different contexts, albeit with variability in magnitude. Bandura's (1977) utility theories and Senge's (1990) continuous learning theories explain how financial literacy influences decision making and professional development.

The results suggest the need for a holistic approach to training and professional development, including financial literacy and interpersonal skills. It is recommended to implement continuous training and skills development programs complementary to financial literacy. Comparatively, 56% of accountants have a high level of financial literacy, indicating adequate training but room for improvement.

The research by Pane and Siregar (2021) and the study by Quispe et al. (2024) highlight the need to improve aspects such as area of residence, educational level and other socioeconomic factors to achieve greater financial inclusion in Peru.

The long-term effects of digitization and inclusion of digital competencies on accounting professionals extend beyond immediate technical advancements, fundamentally reshaping their roles and professional trajectories. Coman et al. (2022) emphasize that digitization drives a paradigm shift in the accounting profession, where professionals are increasingly required to move from traditional bookkeeping roles to those of strategic advisors, leveraging advanced technologies such as AI and blockchain. This shift underscores the need for continuous professional development to ensure that accountants can adapt to the evolving digital landscape. Moreover, as Cunha et al. (2022) highlight, the disconnect between higher education curricula and the actual demands of the digital economy signals a pressing need for educational reform, particularly in fostering critical transversal skills. Addressing this gap is crucial for preparing future accountants to navigate the complexities of digitization. Furthermore, as Chiecher et al. (2023) note, the integration of hybrid learning strategies post-pandemic can play a pivotal role in equipping professionals with the necessary digital literacy to thrive in this new era. The findings of this study contribute to this discourse by advocating for a multifaceted training approach that not only addresses technical proficiencies but also emphasizes ethical and sustainable competencies, ultimately enhancing long-term competitiveness in the Amazonas region.

The results of this research show that financial capability has a positive, albeit low, influence on the professional competitiveness of accountants. With an *R*-value of 0.169 and an *R*-squared of 0.029, it is evident that financial capability explains a small proportion of the variability in professional competitiveness, suggesting the existence of other equally important factors. The regression model is significant, indicating that financial literacy, although of limited impact, is relevant to job competitiveness. The absence of autocorrelation in the residuals and the absence of multicollinearity reinforce the reliability of the proposed model.

This research has several limitations. First, the geographic scope is limited to a specific region, which may not be representative of other areas with different socioeconomic contexts. Second, the study is based on self-reported data, which may be subject to response bias. Third, the research does not consider qualitative variables that could provide a deeper understanding of the relationship between financial capability and professional competitiveness.

The relevance of this study lies in its contribution to the understanding of the relationship between financial capability and professional competitiveness, a crucial area in the development of the accounting profession. By identifying the positive, albeit limited, influence of financial literacy, it highlights the need for policies and educational programs that strengthen this competency.

The existing literature shows a diversity of results on the influence of financial literacy on professional competitiveness, with significant variations depending on the context. This study contributes to fill the gap related to the impact of financial literacy in specific regions such as Peru, where studies are scarce. It also highlights the need to explore how other factors, such as professional ethics and emerging technologies, influence competitiveness.

For future research, it is recommended to broaden the geographical scope and consider samples from different regions and socioeconomic contexts in order to generalize the results. It is also important to incorporate qualitative methods that allow a deeper understanding of the underlying dynamics between financial capability and professional competitiveness. Future research should also explore the influence of other factors, such as professional ethics, sustainability and the application of emerging technologies, on professional competitiveness. In addition, it would be valuable to assess the impact of specific continuing education and professional development programs on improving competitiveness and to analyze longitudinally how the relationship between financial literacy and professional competitiveness evolves over time and with the implementation of new educational policies.

The creation of continuing education programs focused on improving the financial knowledge of accountants is recommended. These programs should be designed to update and deepen the latest regulations, financial technologies and accounting practices. It is essential to complement financial training with the development of soft and technical skills, such as professional ethics, social responsibility, application of emerging technologies and green accounting. This multidimensional approach will strengthen the professional competitiveness of accountants. Educational institutions should integrate innovative tools and methodologies into their curricula, including the use of information and communication technologies (ICT). This will prepare future accountants to face a digitized and competitive labor market.

It is proposed that mentoring programs be implemented to facilitate continuous professional development. These programs should be geared towards raising the level of competence of accountants, especially those with an average level of financial literacy, to ensure that the majority reach a high level of competence. It is crucial to adjust the curricular frameworks in accounting education to include training components in ethics, emerging technologies and sustainability. This adjustment will ensure that accountants are better prepared to meet contemporary challenges and enhance their professional competitiveness.

In the Peruvian context, improving financial inclusion through policies and programs that address factors such as education, area of residence, and socioeconomic conditions is fundamental. These initiatives will contribute to a more equitable environment and greater competitiveness in the labor market. These value propositions, based on a rigorous and contextualized analysis, seek not only to improve the professional competitiveness of accountants, but also to contribute to the sustainable development of the accounting sector in Peru and in similar contexts.

LIMITATIONS AND FUTURE RESEARCH

The main limitations of this research stem from the geographic and contextual specificity of the sample, focusing solely on accounting professionals in the Amazonas region of Peru. This limits the generalizability of the findings to other regions or countries where the digital divide may present different challenges or opportunities. Additionally, while the study highlights the importance of integrating emerging technologies and ethical competencies, the quantitative approach used may not fully capture the diversity of experiences in professionals adapting to digitization. Future research should explore a broader sample, incorporating comparative analyses across different regions or industries, and employ mixed-methods approaches to gain deeper insights into how accountants can navigate long-term technological shifts.

ACKNOWLEDGMENTS

The authors thank Cesar Vallejo University for its support

Author Contributions:

Edwar Zabarburu Rojas: Conceptualization and methodology, software, validation, and formal analysis.
Victor Hugo Puican Rodriguez: investigation, resources, data curation, writing original draft preparation; writing—review and editing, visualization, supervision, project administration, and funding acquisition.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Declaration Of Use of Generative AI And AI-Assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies in the writing process before submission, but only to improve the language.

REFERENCES

Abdallah , W., Tfaily, F., & Harraf, A. (2024). The impact of digital financial literacy on financial behavior: customers' perspective. Competitiveness Review, 1-14. https://doi.org/10.1108/CR-11-2023-0297

Agarwal, N., & Biswas, B. (2022). Financial literacy and its correlates among healthcare professionals of India: An ignored educational need. Journal of Education and Health Promotion, 11(1), 246-251. https://doi.org/10.4103/jehp.jehp_1129_21

Álvarez, N., Praiz, C., Pizzán, S., & Villafuerte, A. (2022). Financial literacy and credit card indebtedness of credit card customers of Plaza vea – Peru. Sapienza, 3(1), 830-842. https://doi.org/10.51798/sijis.v3i1.256

Berikol, B., & Killi, M. (2021). The Effects of Digital Transformation Process on Accounting Profession and Accounting Education. In: Çalıyurt, K.T. Ethics and Sustainability in Accounting and Finance. https://doi.org/10.1007/978-981-15-1928-4_13

Bocean, C., Nicolescu, M., Cazacu, M., & Dumitriu, S. (2022). The Role of Social Responsibility and Ethics in Employees' Wellbeing. International Journal of Environmental Research and Public Health, 19(14), 1-15. https://doi.org/10.3390/ijerph19148838

Branca, T. A., Fornai, B., Colla, V., Murri, M. M., Streppa, E., & Schröder, A. J. (2020). The challenge of digitalization in the steel sector. Metals, 10(2), 288. https://doi.org/10.3390/met10020288

Brunila, O. P., Kunnaala-Hyrkki, V., & Inkinen, T. (2021). Hindrances in port digitalization? Identifying problems in adoption and implementation. European Transport Research Review, 13(1), 62. https://doi.org/10.1186/s12544-021-00523-0

Chen, J. (2023). Research on Strategy to Improving the Core Competitiveness of Accountants Under the New Situation. Frontiers in Business, Economics and Management, 11(2), 364-366. https://doi.org/10.54097/fbem.v11i2.12641

Chiecher, A. C., Ficco, C. R., Bersía, P. B., & Luna Valenzuela, J. (2023). Learning strategies in the virtuality forced by the pandemic: contributions to the design of learning contexts in the post-pandemic stage. Sapienza: International Journal of Interdisciplinary Studies, 4(1), e23005. https://doi.org/10.51798/sijis.v4i1.606

Coman, D. M., Ionescu, C. A., Duică, A., Coman, M. D., Uzlau, M. C., Stanescu, S. G., & State, V. (2022). Digitization of accounting: The premise of the paradigm shift of role of the professional accountant. Applied Sciences, 12(7), 3359. https://doi.org/10.3390/app12073359Cunha, T., Martins, H., Carvalho, A., & Carmo, C. (2022). Not practicing what you preach: how is accounting higher education preparing the future of accounting. Education Sciences, 12(7), 432. https://doi.org/10.3390/educsci12070432

Ecommons, L., & Rakow, K. (2019). Incorporating financial literacy into the accounting curriculum. Accounting Education, 28, 384-400. https://doi.org/10.1080/09639284.2019.1578247Engel, L., Ewesesan, R., Arowolo, I., & Adedotun, K. (2024). Financial Empowerment for Adults Living With Brain Injury: Systems Advocacy for Inclusive and Accessible Financial Contexts to Improve Financial Well-being. Archives of Physical Medicine and Rehabilitation, 105(4), e117-e118. https://doi.org/10.1016/j.apmr.2024.02.331

Estradaa, C., Mejía, D., & Córdoba, P. (2023). Financial literacy and financial wellbeing: Evidence from Peru and Uruguay. Journal of Financial Literacy and Wellbeing, 1(2), 403-429. https://doi.org/10.1017/flw.2023.15Frisancho, V. (2023). Is School-Based Financial Education Effective? Immediate and Long-Lasting Impacts on High School Students. The Economic Journal, 133(651), 1147-1180. https://doi.org/10.1093/ej/ueac084Galaraga, R. L., & Alpuerto, R. J. C. (2022). Competence and attitude as predictors of teachers' readiness for digitized instruction. Sapienza: International Journal of Interdisciplinary Studies, 3(7), 2–13. https://doi.org/10.51798/sijis.v3i7.497Garcia, J., & De Los Rios, I. (2021). Model to Develop Skills in Accounting Students for a 4.0 Industry and 2030 Agenda: From an International Perspective. Sustainability, 13(17), 1-15. https://doi.org/10.3390/su13179699

Guerrero-Quiñonez, A. J. ., Bedoya-Flores, M. C. ., Mosquera-Quiñonez, E. F. ., Mesías-Simisterra, Ángel E. ., & Bautista-Sánchez, J. V. . (2023). Artificial Intelligence and its scope in Latin American higher education. Ibero-American Journal of Education & Society Research, 3(1), 264–271. https://doi.org/10.56183/iberoeds.v3i1.627

Habrat, D. (2020). Legal challenges of digitalization and automation in the context of Industry 4.0. Procedia Manufacturing, 51, 938-942. https://doi.org/10.1016/j.promfg.2020.10.132

Hamoud, A., Fazal, S., & Alshebami, A. (2022). Entrepreneurial Competency, Financial Literacy, and Sustainable Performance—Examining the Mediating Role of Entrepreneurial Resilience among Saudi Entrepreneurs. Sustainability, 14(17), 1-16. https://doi.org/10.3390/su141710689

Hansen, J., Jensen, A., & Nguyen, N. (2020). The responsible learning organization. The Learning Organization, 27, 65-74. https://doi.org/10.1108/tlo-11-2019-0164

Hidalgo, M., Melgarejo, J., Arrunategui, J., & Pichardo, C. (2024). Quality factors in the professional accounting career at the Peruvian public university. Mendive. Journal on Education, 22(1), e3663. https://mendive.upr.edu.cu/index.php/MendiveUPR/article/view/3663

Jackson, D., Michelson, G., & Munir, R. (2022). New technology and desired skills of early career accountants. Pacific Accounting Review, 34(4), 548-568. https://doi.org/10.1108/PAR-04-2021-0045

Kapler, M. (2021). Innovation Management in the Area of Finances and Accounting in the SME Sector. System Safety: Human - Technical Facility - Environment, 3, 280-288. https://doi.org/10.2478/czoto-2021-0029

Krishna, S., Vijayanand, N., Suneetha, A., Basha, S., Seelamantula, C., & Saranya, A. (2022). Artificial Intelligence Application for Effective Customer Relationship Management. 2022 5th International Conference on Contemporary Computing and Informatics, 2019-2023. https://doi.org/10.1109/IC3I56241.2022.10073038

Luhova, O. (2023). Soft Skills of a Modern Successful Accountant. Modern Economics(37), 72-77. https://doi.org/10.31521/modecon.v37(2023)-10

Maheshwari, G. (2022). Entrepreneurial intentions of university students in Vietnam: Integrated model of social learning, human motivation, and TPB. The International Journal of Management Education, 20(3), 1-13. https://doi.org/10.1016/j.ijme.2022.100714

Marino, M., Mayuri, G., & Venegas, E. (2024). Corporate social responsibility in the families of workers: a systemic proposal for Peru. Cogent Social Sciences, 10(1), 1-19. https://doi.org/10.1080/23311886.2024.2330679

Montenegro Neira, T. D., Rimapa Navarro, L. R., Camacho Delgado, F. M., Bollet Ramírez, F., Gomez Morales, A. J., & Hernández Hernández, O. (2024). From paper to screen: towards legal certainty with the digitization of public deeds in Peru. Sapienza: International Journal of Interdisciplinary Studies, 5(2), e24043. https://doi.org/10.51798/sijis.v5i2.777

Moureen, D., Heather, S., Hoffman, J., Berenbrak, L., Katheen, K., Schneider, M., . . . Pringle, J. (2024). Training health professional students to conduct SBIRT: A step forward to interprofessional collaboration to address substance use. Journal of Interprofessional Education & Practice, 35, 1-15. https://doi.org/10.1016/j.xjep.2024.100701

Nupus, H., & Ichwanudin, W. (2021). Business Network Accessibility, Customer Relationship Management and Value Co-creation on Family Business Performance. Research Horizon, 1(4), 126-135. https://doi.org/10.54518/rh.1.4.2021.126-135

O´Regan, G. (2018). Ethics and Professional Responsibility. A Brief History of Computing, 281-291. https://doi.org/10.1007/978-3-319-75844-2_16

Ozili, P. (2022). Sustainability Accounting. Financial. Accounting eJournal, 1-14. https://doi.org/10.2139/ssrn.3803384

Panakaje, N., Rahiman, H., Parvin, R., Kudal, A., & Siddiq, A. (2023). Socio-economic empowerment in rural India: Do financial inclusion and literacy matters? Cogent Social Sciences, 9(1), 1-16. https://doi.org/10.1080/23311886.2023.2225829

Pane, S., & Siregar, S. (2021). Skills based competency and competitiveness of accounting practitioners in asean emerging market. International Journal of Economic, Technology and Social Sciences (Injects), 2(2), 478-487. https://doi.org/10.53695/injects.v2i2.537

Phun, S. (2021). Key Features of Effective Professional Development. Cambodian Journal of Educational Research, 1(1), 25-30. https://doi.org/10.62037/cjer.2021.01.01.05

Posokhova, A. (2021). Competitiveness as an invariant of professionalism of management entities. Economic and Socio-Humanitarian Studies. https://doi.org/10.24151/2409-1073-2021-4-37-42

Quispe, J., Aguilar, S., Calcina, D., Quispe, M., Gutierrez, G., Condori, G., . . . Rosado, C. (2024). Determinants of financial inclusion in households in Peru. Grontiers, 9, 1-10. https://doi.org/10.3389/fsoc.2024.1196651

Santos, I., Amestoy, S., Silva, G., Backes, V., Silca, C., Cceicao, M., & Gois, R. (2021). Theoretical-practical articulation of the continuous learning of leadership in Nursing in light of Peter Senge. Revista brasileira de enfermagem, 74(4), e20201200. https://doi.org/10.1590/0034-7167-2020-1200

Soliman, H., Goma, M., Soliman, M., Fawzi, A., & Hassan, W. (2023). Assessment of Knowledge and Attitude of Health Care Workers Regarding Continuous Professional Development Programs, Alexandria, Egypt. European Journal of Theoretical and Applied Sciences, 1(5), 1-9. https://doi.org/10.59324/ejtas.2023.1(5).30

Sudarminto, H., & Harto, P. (2023). Green Accounting Concepts and Practices Towards Measuring Environmental Sustainability and Sustainable Business Value. International Journal of Science and Society, 5(5), 629-643. https://doi.org/10.54783/ijsoc.v5i5.927

Sun, J., & Zuo, J. (2023). The Influence of Financial Innovation Education on the Employment Competitiveness of Accounting Students in Colleges and Universities. Contemporary Education and Teaching Research, 4(8), 371-375. https://doi.org/10.61360/BoniCETR232014370809

Tejero, E., Pilongo, L., & Pamaran, F. (2019). Financial Literacy in Relation to Financial Management. University of Bohol Multidisciplinary Research Journal, 7(1), 138-165. https://doi.org/10.15631/ub.mrj.v7i0.125

Telukdarie, A., Dube, T., Matjuta, P., & Philbin, S. (2023). The opportunities and challenges of digitalization for SMEs. Procedia Computer Science, 217, 689-698. https://doi.org/10.1016/j.procs.2022.12.265

Tkachenko, K., Faizullin, R., Zolkin, A., & Sychanina, S. (2021). Customer Relationship Management In The Modern Economy. European Proceedings of Social and Behavioural Sciences. https://doi.org/10.15405/epsbs.2021.09.02.191

Tommasetti, A., Mussari, R., Maione, G., & Sorrentino, D. (2020). Sustainability Accounting and Reporting in the Public Sector: Towards Public Value Co-Creation? Sustainability, 12(5), 1-19. https://doi.org/10.3390/su12051909

Udrescu, M., & Siteanu, E. (2021). Emerging Technologies: Innovation, Demassification, Effectiveness, Revolutions In Military Affairs. Land Forces Academy Review, 26, 299-308. https://doi.org/10.2478/raft-2021-0039

Zik-rullahi, A., & Jide, I. (2023). Green Accounting: A Fundamental Pillar of Corporate Sustainability Reporting. Journal of Accounting and Financial Management, 9(8), 1-14. https://doi.org/10.56201/jafm.v9.no8.2023.pg59.72

