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Examining the Impact of Implementing Innovative Educational Technologies on the Professional Skills Development of Accounting Students

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Abstract

This study investigates the impact of innovative accounting education methods on learning outcomes, professional skill development, and the career progression of graduates in this field. The primary objective is to identify the gap between traditional curricula and the skill requirements of the digital labor market, proposing a practical conceptual framework to bridge this gap by leveraging emerging educational technologies. The research was conducted through a structured and analytical review of 23 reputable domestic and international sources (selected based on relevance, academic credibility, and a focus on accounting education and technological innovations). The findings indicate that innovative teaching methods—such as blended learning, role-playing simulations, AI-based education, data analytics, and Project-Based Learning (PBL)—are consistently associated with improvements in deep learning, long-term retention of information, and the enhancement of analytical, communication, digital, and professional ethical skills. The results also highlight that digital literacy, as a bridging skill, plays a crucial role in facilitating the effectiveness of these methods. Furthermore, Technological Readiness (TR) is identified in the existing literature as one of the most significant factors influencing the adoption of Artificial Intelligence (AI). The proposed conceptual model enables the gradual integration of these methods into the curriculum without the need for increasing credit hours. It also offers potential to address the insufficient coverage of emerging technologies (such as AI and blockchain) in current curricula in Iran. By presenting an analytical-practical framework, this study provides insights for revising accounting curricula and enhancing graduate employability within the digital economy.

Keywords: Innovative accounting education, Digital literacy, Professional skills, Artificial intelligence, Blended learning.

1 | Introduction

In the present era, the Fourth Industrial Revolution and disruptive technologies (such as Artificial Intelligence (AI), Big Data, Blockchain, and RPA) have transformed accounting from a retrospective reporting role to a

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strategic, forward-looking, and advisory one. Traditional tasks have become automated, and accountants now require advanced skills such as predictive analysis, anomaly detection, and data-driven decision-making [1–3] Emerging educational technologies (including blended learning, simulations, AI tools, active learning, and PBL) have gained increasing significance in preparing the new generation of accountants. These methods make learning interactive and experiential, enhancing soft skills such as critical thinking, problem-solving, and digital literacy [4], [5]. Research indicates that the integration of these approaches improves academic performance, motivation, and professional growth, while factors such as Technological Readiness (TR) and perceived usefulness facilitate the adoption of innovative tools [6], [7]. Despite these advancements, a significant gap remains between traditional accounting education and the skill requirements of the labor market, threatening the sustainability of the profession [3].

In Iran, studies such as ISM have shown the significant impact of modern methods (with a coefficient of 0.88) on indicators such as the development of digital accountants, active learning, and job performance [5].

Objective of the study: the objective of this research is to examine the impact of innovative teaching methods and advanced technologies on learning outcomes, professional development, and technology adoption among Iranian students and accountants. The study aims to identify educational-professional gaps and propose a practical model to bridge these gaps.

Innovation: the study introduces an integrated hybrid model (active methods/technology-driven approaches + AI adoption factors) based on ISM (Interpretive Structural Modeling) and data analytics. This model systematically addresses the existing gaps in the literature and provides a solution for the redesign of curricula.

Expected outcomes: the study is expected to provide guidance for policymakers, universities, and professional institutions to bridge the education-employment market gap, enhance digital readiness, and increase the competitiveness of graduates in the digital economy.

2 | Theoretical Foundations and Literature Review

2.1 | Emerging Educational Technologies

In accounting education, emerging educational technologies refer to a collection of tools, platforms, and teaching strategies aimed at enhancing the quality of learning, deepening conceptual understanding, and preparing students to address the challenges of the accounting profession in the digital age [4], [5]. While the traditional paradigm of accounting education primarily focused on the one-way transmission of theoretical knowledge, the integration of digital technologies has facilitated a shift toward more experiential, interactive, and application-oriented approaches [2], [3]. According to the research literature, the most impactful technologies in accounting education include:

I. AI-based education: this includes adaptive learning systems, intelligent chatbots, and automated assessment tools that personalize educational content according to each student's needs and proficiency level [8]. These tools enhance self-directed learning by providing real-time feedback and simulating complex scenarios (such as fraud detection), thereby reducing the time required to master difficult concepts [5].

II. Blended learning: a combination of in-person instruction and online Learning Management System (LMS) that offers flexibility in time and location. This approach, by integrating classroom lectures with digital activities (such as videos and online quizzes), improves academic performance and enhances student engagement [4], [9].

III. Professional simulations and ERP systems: the use of simulated environments and Enterprise Resource Planning (ERP) software, such as SAP or Oracle, allows students to experience financial and auditing processes in a secure yet realistic setting. This method directly enhances problem-solving skills and job readiness [2], [6].

IV. Data analytics and advanced tools: the use of tools such as Tableau, Power BI, and advanced Excel to extract insights from financial data. Training students on these tools enhances their analytical skills and evidence-based decision-making, which are crucial for meeting the demands of the labor market [3].

V. PBL: engaging students with real-world issues (such as analyzing the financial statements of a hypothetical company), which leads to the development of teamwork, time management, and the practical application of theoretical knowledge [10].

2.2 | Dimensions of Professional Skills in the Digital Age

The professional skills of accounting students encompass a combination of knowledge, abilities, and attitudes that prepare individuals to play an effective role in complex business environments. In the digital age, these skills are categorized into five main dimensions [3], [5]:

I. Technical skills: mastery of accounting standards, tax laws, and financial reporting (the core of accounting education, which requires continuous updates with modern tools).

II. Analytical and critical skills: the ability to interpret big data, detect anomalies, and assess risk, which are vital in data-driven environments.

III. Communication skills: the ability to convey complex financial concepts to non-specialist stakeholders and collaborate effectively in virtual teams.

IV. Digital skills: proficiency in software, AI, and cybersecurity. Research indicates that technological readiness is the strongest predictor of career success [8].

V. Professional ethics and judgment: the ability to make ethical decisions when facing new challenges (such as data privacy and algorithmic bias).

2.3 | Digital Literacy

The Bridging and Facilitating Skill Digital literacy goes beyond basic operational skills, encompassing the ability to use technology intelligently, critically, and securely to solve professional problems [11]. In this study, digital literacy acts as a "bridging skill" and a facilitating factor, integrating other dimensions of competency, such as:

I. Relation to technical skills: enables the practical application of accounting knowledge in ERP software and cloud systems.

II. Relation to critical thinking: enhances reasoning and pattern recognition through data analytics tools (BI).

III. Relation to professional ethics: awareness of cybersecurity requirements and ethics in AI forms the foundation for professional judgment in the new era.

Recent studies [7], [8]indicate that digital literacy plays an intermediary role in technology adoption, meaning that without a sufficient level of digital literacy, even the most advanced educational technologies will not lead to the development of professional skills. Amiri et al. [5] also identify "digital accountant training" as a key driver of other skills in their ISM model. Studies show that digital literacy serves as both a mediator and a facility ator in the adoption and effectiveness of educational technologies [7], [8]. Recent research emphasizes that, without an adequate level of digital literacy, advanced technologies will not contribute to the development of professional skills [5].

The existing literature highlights the importance of emerging technologies and digital literacy in the development of accounting professionals' skills. However, comprehensive and context-specific investigations into the alignment of accounting education programs with the realities of the digital economy, particularly in Iran, have been limited. This underscores the need for further research in this area.

Table 1. Research background.

Row	Article Title	Author(s) / Year of Publication	Primary Objective of the Study	Findings and Results
1	Enhancing professional skills for accounting students to meet the program's graduation standards	Giang [12]	The aim of this article is to propose strategies for enhancing the professional competencies of accounting students, ensuring that graduates are aligned with both the curriculum standards and the demands of the labor market.	Accounting programs should shift from purely technical instruction to an integrated approach combining technical and professional training. Software-oriented skills constitute a fundamental prerequisite for graduate success. Integrating real-world experience and fostering collaboration between universities and industry are key to bridging the skills gap.
2	Teaching and learning using 21st century educational technology in accounting education	Mat Dangi [10]	This study aims to examine the extent to which and the manner in which accounting instructors utilize 21st-century educational technologies in their teaching, the factors influencing their usage behavior, and the development of a model to explain this behavior.	The use of technology in accounting education is currently suboptimal. Providing adequate resources, training, and fostering positive attitudes is essential. This study presents the first comprehensive model to explain technology usage behavior in accounting education within developing countries.
3	AI adoption in accounting education: A UTAUT-based analysis of mediating and moderating mechanisms	Han et al. [8]	The primary aim of this study is to examine the acceptance and use of AI technologies among Chinese undergraduate accounting students. By extending the Unified Theory of Acceptance and Use of Technology (UTAUT), this research addresses existing gaps in understanding the social and behavioral factors influencing AI adoption in educational settings.	Social Influence (SI) and Behavioral Intention (BI) are key factors, whereas Voluntariness of Use (VOU) appears less significant, possibly due to China's collectivist culture. Universities should cultivate social environments that encourage AI adoption, including peer collaboration and instructor support. AI vendors should develop user-friendly tools, and policymakers should strengthen AI educational programs to better prepare students for industry demands.
4	TR and AI adoption in the accounting profession	Madan et al. [11]	Key Objective of the Study: To examine the effect of TR on accountants' attitudes and intentions toward the adoption and use of AI in the accounting profession. This readiness encompasses four dimensions: Digital Literacy Innovativeness Technical Competence Adaptability and Flexibility Specific Objectives: To assess the actual level of TR among accountants in India (uttar pradesh). To determine which TR component has the greatest influence on AI adoption. To identify existing skill and training gaps. To propose strategies for fostering a sustainable digital economy in accounting.	TR is a critical prerequisite for AI adoption. TR has a highly significant and substantial impact on accountants' attitudes toward AI. Technical competence and digital literacy are the most important success factors. Strengthening these skills enhances both readiness and AI acceptance. Lack of innovativeness and practical skills constitutes a major barrier to adoption. There is a pronounced gap between urban and rural areas, highlighting the need for targeted policies, training workshops, and broader access to technology. Psychological and ethical concerns are significant obstacles. Even skilled individuals fear job displacement or biases associated with AI.

Table 1. Continued.

Findings and Results	Primary Objective of the Study	Author(s) / Year of Publication	Article Title	Row
The adoption of AI by accounting students is primarily influenced by two factors: perceived usefulness – the most important predictor of adoption. TR – plays a significant role in direct adoption. In contrast, digital competence does not have a direct effect on AI adoption, but it exerts an indirect influence through perceived usefulness.	The aim of this study is to examine how accounting students' perceived factors—including digital competence, perceived ease of use, the mediating role of perceived usefulness, and TR—can explain the adoption of AI technologies among accounting students at public universities in Surabaya.	Ardiyanti and Susiliwati [7]	Perceived usefulness and technology readiness mediate perceived ease of use and digital competence on technology adoption of AI	5
I. Education is the key to successful implementation of emerging technologies in accounting. II. The educational system must be updated in line with digital transformations, both at the university level and within organizational training programs. III. Developing educational strategies—such as workshops, specialized courses, and retraining programs—for accountants, managers, and students is essential. IV. Collaboration among academic, professional, and industry institutions is crucial to convey practical experience and labor market needs into educational programs.	The primary aim of this article is to examine the role of education in facilitating and implementing emerging technologies in accounting, with an emphasis on the need to update the educational system to align with digital transformations.	Eskouei et al. [1]	The role of education in the application of emerging accounting technologies	6
Accounting curricula in Iran are insufficiently aligned with the technological demands of the labor market. This educational gap may reduce graduates' employability and the efficiency of financial organizations.	The primary aim of this study is to assess the alignment of accounting curricula with the requirements of emerging technologies, such as AI, blockchain, and big data analytics, and to identify existing gaps between educational content and labor market needs in Iran.	Zarei et al. [3]	Assessing the alignment of accounting curriculum with emerging technological needs	7
Data analytics should be integrated into the accounting curriculum in a coherent and stepwise manner, enabling students to acquire the necessary skills for the digital workplace without the need for additional courses. Achieving this requires collaboration among instructors, educational institutions, and industry.	The primary aim of this article is to propose an operational model for integrating data analytics into the undergraduate accounting curriculum in a manner that does not require adding a separate course, but rather embeds it progressively and incrementally within existing courses.	Qasim et al. [2]	A model to integrate data analytics in the undergraduate accounting curriculum	8

Table 1. Continued.

Findings and Results	Primary Objective of the Study	Author(s) / Year of Publication	Article Title	Row
This study, employing a qualitative approach (grounded theory) and expert interviews, yielded the following findings: Influential Factors (Causal Conditions): Accounting education is shaped by business environment developments, societal expectations, university leadership, and higher education policies. Requirements and Contextual Conditions: Achieving the proposed model necessitates cultural development, the provision of supportive social infrastructure, and granting universities financial and operational autonomy. Strategies: Key strategies include enhancing the quality of teaching and research, expanding international collaborations, transforming student recruitment and motivation practices, and reforming university governance and control systems.	The primary aim of this study is to design a comprehensive model for accounting education that aligns with the characteristics of third-generation universities (skill- and entrepreneurship-oriented) and fourth-generation universities (society-centered). This research addresses the critical question of how to transition accounting education from a purely theoretical approach (first- and second-generation) to one that is aligned with the complex demands of the labor market, technological advancements, and emerging societal expectations.	Ghadim et al. [13]	Designing accounting education model at the third and fourth-generation univercitu	9
Teaching based on the Multiple Intelligences Theory has a positive and significant impact on enhancing learning quality, strengthening cognitive skills, and increasing both motivation and academic performance among accounting students. Under the conditions of remote learning during the COVID-19 pandemic, this approach has led to more active learning and greater cognitive engagement among students. The authors recommend that accounting curricula be designed to accommodate students' diverse learning styles, thereby improving learning outcomes and fostering greater interest.	The primary aim of this study is to examine the impact of a teaching approach based on the Multiple Intelligences Theory on: The academic performance of management accounting students Their achievement motivation under the conditions of remote learning during the COVID-19 pandemic. The researchers sought to determine whether this pedagogical approach, compared to traditional teaching methods, could foster deeper learning and higher motivation among students.	Tabibirad et al. [6]	Multiple intelligence -based education in the accounting classroom, improving students' performance, motivation and skills; new experience1	10
This study demonstrates that the role-playing method is substantially more effective than traditional instruction, leading to improved learning outcomes, greater knowledge retention, enhanced communication and professional skills, and increased student motivation and engagement.	The primary aim of this study was to examine whether the use of simulation and role-playing instructional methods in management accounting courses can: Enhance students' learning Improve retention of knowledge over time Develop students' communication, verbal, and motivational skills This study addresses whether these methods can strengthen such skills. It was conducted in response to the limitations of traditional lecture-based approaches in accounting education and emphasizes the industry's and universities' need for more practical, application-oriented skills.	Tabibirad et al. [6]	The impact of role-playing simulation-based management accounting instruction on students' learning and retention	11

Table 1. Continued.

Findings and Results	Primary Objective of the Study	Author(s) / Year of Publication	Article Title	Row
Innovative teaching methods are essential and effective. Approaches such as digital instruction, active and collaborative learning, PBL, technology-driven teaching, and smart learning substantially enhance learning outcomes and professional development among accounting students. The gap between universities and the labor market is reduced. Innovative methods contribute to the development of practical skills, technological proficiency, critical thinking, and long-term learning retention. The ISM model revealed that certain factors act as driving forces. Specifically, initiatives should first focus on active learning, interaction, self-directed learning, and accountability, which in turn enable the enhancement of other factors such as communication skills, professional expertise, and currency of knowledge. To prepare future accountants, changes in teaching methods are essential, particularly the integration of technology, the promotion of independent learning, a focus on enduring skills, and the enhancement of interaction and teamwork.	Primary Aim of the Study: This study aims to identify and analyze the factors influencing the learning and professional development of accounting graduates, with a focus on innovative teaching methods. Key Objective: To develop a structural model of the influencing factors and subsequently determine the impact strength of innovative instructional methods on: Effective learning Professional development Enhancement of skills among students and future accountants	Amiri et al. [5]	Examining the impact of innovative accounting teaching methods on learning and professional development of accounting graduates	12

3 | Research Methodology

This study is applied in nature and, in terms of methodology, is descriptive–analytical with a structured literature review approach. The sources were drawn from reputable domestic and international studies published between 2015 and 2025, focusing on accounting education, technology adoption, professional skills, and graduate development. In total, 23 key sources were purposefully selected and analyzed based on inclusion criteria, including direct relevance to the topic, scientific credibility of the source, recency, and focus on comparable educational contexts.

Data analysis was conducted in three stages: 1) qualitative thematic and content analysis to extract key concepts, 2) comparative analysis of the findings from selected studies, and 3) conceptual synthesis of the results, guided by commonly used theoretical frameworks in the literature, such as ISM and UTAUT.

This approach enabled the development of a coherent and analytical perspective to explain the professional education gap in accounting in Iran.

3.1 | Research Design and Approach

This study is applied in terms of its objective and descriptive–analytical in nature and methodology, employing a systematic literature review approach. Rather than collecting primary field data, the study focuses on in-depth analysis and synthesis of findings from previous research to identify existing gaps in accounting education.

3.2 | Population and Search Protocol

The population of this study comprises all documents, scholarly articles, reports, and theses related to the fields of 'accounting education', 'emerging technologies', and 'professional skills' published between 2015 and

2025 (1394–1403 in the Iranian calendar). To access these sources, a structured search was conducted in reputable international databases (Scopus, ScienceDirect, Google Scholar) and domestic databases (SID, Magiran, Noormags) using the following specialized keywords in both Persian and English:

English keywords: modern accounting education, AI in accounting, professional skills, digital literacy, curriculum gap, blended learning.

Persian keywords: modern accounting education, AI in accounting, professional skills, digital literacy, curriculum gap, blended learning.

3.3 | Screening and Sample Selection

For the selection of final sources, a purposive sampling method was employed with clearly defined inclusion and exclusion criteria:

Inclusion criteria: direct relevance to the research topic, publication in scientifically reputable (peer-reviewed) journals or conferences, and a focus on the impact of technology on education.

Exclusion criteria: articles lacking a coherent theoretical framework, non-scholarly notes, and sources published before 2015 (due to rapid technological changes). After initial screening and the removal of duplicates or irrelevant sources, a total of 23 key and influential references—including ISM models, UTAUT studies, and comparative analyses—were selected for the final analysis.

3.4 | Data Analysis Method

The data extracted from the selected sources were processed using content analysis and research synthesis methods. In this stage, key components (such as types of innovative teaching methods, dimensions of digital literacy, and indicators of professional development) were identified and coded. Subsequently, the relationships among these components were mapped using an inductive approach. The validity of the findings was ensured through triangulation of sources and by aligning the internal results with international trends.

4 | Research Findings

Based on the search and screening protocol, 23 reputable studies—including 12 key articles summarized in Table 1—were examined in depth. Content analysis of these studies led to the identification of three main themes regarding the impact of technology on accounting skills:

4.1 | Transition from Hard Skills to Hybrid Competencies

Findings indicate that the focus of accounting education has shifted from "purely technical skills" (e.g., journal entry recording) toward "hybrid competencies". Studies such as Jiang [14] and Dangi [10] emphasize that emerging technologies are no longer peripheral tools but serve as the primary learning environment. The results show that blended learning and simulations have a significant impact on soft skills (problem-solving, critical thinking, and teamwork), whereas traditional instruction has largely relied on rote memorization.

4.2 | Digital Literacy

Analysis of studies based on technology acceptance models [8], [11] reveals a recurring pattern: technological infrastructure alone is insufficient for skill development. These studies identify digital literacy and TR as the most important predictors of success. In other words, students with low digital literacy experience anxiety and resistance when confronted with AI, which hinders their professional development.

4.3 | Implementation Gap in Curricula

Comparative studies [2], [3] indicate a substantial gap between labor market needs and university content. Findings suggest that, although the importance of data analytics is well established, its integration into

curricula is slow. Successful strategies reported in the literature involve embedding technological concepts within existing courses rather than adding new standalone courses.

5 | Conclusion

The rapid advancements in digital technologies—particularly AI, big data analytics, and blockchain—have shifted the accounting paradigm from a profession focused on "recording past events" to one that is "forward-looking and strategic". The findings of this study, consistent with previous research [2], [3], confirm that traditional teaching methods no longer meet the complex demands of the labor market.

A synthesis of the 23 reviewed studies indicates that the use of innovative instructional methods—such as blended learning, ERP simulations, AI-based training, data analytics, and PBL—has a substantial impact on skill development. For example, Kottara et al. [4], in their quasi-experimental study, demonstrated that blended learning not only increased the mean scores from 6.6 to 7.4 but also raised the proportion of top scores (score 10) from 4% to 27%, promoting deeper learning and greater engagement, even if the statistical difference was not significant ($p = 0.224$). These findings align with the ISM model proposed by Amiri et al. [5], which places "active and interactive learning" and the "training of modern, digital accountants" at the highest level of influence (Level 5), estimating the overall impact coefficient of innovative methods at 0.88 ($t = 11.59$, $p < 0.001$).

A key point emphasized by this study is the critical role of digital literacy. Contrary to the common assumption that simply acquiring technological equipment is sufficient, the results indicate that digital literacy functions as a facilitating and linking factor. In other words, educational technologies only enhance analytical and ethical skills when students possess an adequate level of digital readiness [11]. This finding aligns with the perspective of Grabinski et al. [15], who argue that e-learning is not merely a technical tool but requires the digital literacy of both instructors and students to foster effective interaction and learning. Similarly, Tenhunen [16] emphasizes that AI in management accounting becomes strategic only when digital literacy is institutionalized as a prerequisite within curricula, enabling students to leverage AI tools for managerial decision-making.

In the context of higher education in Iran, although structural models [5] confirm the significant impact of innovative teaching methods on professional development, implementation gaps remain evident. For instance, Zarei et al. [3] reported that coverage of AI in current curricula is only 37%, and blockchain 28%, significantly below the desired benchmarks of 50% and 40% ($p < 0.001$). Ghaffarian Ghadim et al. [13] argue that third- and fourth-generation Iranian universities need to redesign curricula with an emphasis on digital literacy and emerging technologies to keep pace with digital transformation. Similarly, Beik Boshrouyeh et al. [17], using a grounded theory approach, explicitly highlight the gap between theoretical education and professional requirements, emphasizing that without strengthening digital literacy, knowledge cannot be effectively translated into practical skills, ultimately reducing graduates' employability. Festus and Vivian [18] further underscore the role of digital literacy as a critical factor in the adoption and effective utilization of educational technologies, demonstrating that its absence constitutes a primary barrier to change and reflects a deficiency in instructors' digital competencies.

This study argues that resistance to change and insufficient instructor skills constitute the primary barriers to adopting innovative technologies, which can be addressed through targeted interventions in the variable of digital literacy. Enhancing digital literacy not only facilitates the adoption of emerging technologies [8], [7] but also simultaneously promotes the development of analytical, communication, and ethical skills, as well as professional growth, thereby sustainably reducing the education–profession gap. Overall, the findings indicate that innovative teaching methods, when digital literacy is institutionalized as a linking competency, can foster deeper learning, long-term knowledge retention, superior job performance, and sustainable professional development for accounting graduates, ultimately preparing accountants who are equipped to thrive in a sustainable digital economy.

This study was conducted with the aim of providing a framework for aligning accounting education with the digital economy. The key conclusion is that integrating technology into education is not optional but an

indispensable requirement for professional sustainability. The study recommends that, rather than implementing radical changes or adding multiple new courses, a "gradual and integrative" approach should be adopted. In this approach, data analytics and AI tools are embedded within core courses, such as managerial accounting and auditing. This strategy not only strengthens deep and sustainable learning but also simultaneously develops students' soft and digital skills, preparing them to contribute effectively in data-driven organizations.

Practical recommendations

Based on the findings of this study, the following recommendations are offered to policymakers, universities, and instructors:

I. Integrated curriculum revision: accounting departments should, rather than waiting for ministerial syllabus updates, incorporate data analytics tools (e.g., advanced Excel and Power BI) as part of assignments in core courses such as *Principles of Accounting* and *Financial Management* (modeled on Qasim et al., [2]).

II. Digital literacy empowerment workshops: mandatory courses for incoming students should be offered to enhance TR prior to enrollment in specialized courses, thereby reducing resistance to intelligent tools.

III. Faculty professional development: conduct train-the-trainer programs to familiarize instructors with AI-based teaching methods and gamification strategies.

IV. Realistic simulation: replace a portion of internship hours with work in simulated ERP software environments that replicate real-world market scenarios.

Ethical Considerations, This study fully adhered to the principles of academic integrity, including accurate citation of sources and avoidance of plagiarism. All sources were obtained from reputable scientific databases and are cited with complete bibliographic details.

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Data Availability

All data supporting the findings of this study were obtained through field investigations, expert questionnaires, and analytical methods described in the paper. Additional processed data may be made available from the corresponding author upon reasonable request.

Conflicts of Interest

The author declares no conflict of interest regarding the publication of this article.

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