

HOW DOES ACCOUNTING EDUCATION ENSURE THE RELEVANCE OF THE ACCOUNTING PROFESSION IN THE FUTURE?

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ABSTRACT

This study aims to develop an accounting education model that is adaptive to digital technological changes and the learning characteristics of Generation Z. The main issue addressed is the gap between the competencies of accounting graduates and the increasingly digitalized demands of the industry, as well as the limited relevance of conventional teaching approaches to the learning styles of digital-native students. A mixed methods approach with an exploratory-explanatory design was employed across three stages: (1) conceptual model development through a scoping literature review, (2) industry needs exploration via interviews with six accounting professionals from both the private and public sectors, and (3) empirical implementation and evaluation of the model within classroom-based accounting courses. The literature review and expert interviews concluded that the accounting education model must undergo changes to be relevant to the future industry. These changes encompass three key elements: integrating digital technology, contextual learning based on practical problems, and the role of lecturers as facilitators. This model was then tested in classroom learning among three different accounting student cohorts at Ma Chung University, with a total of 72 accounting students. The evaluation of the model's implementation demonstrated a high level of satisfaction with an average response of 4.3 (very satisfied), as well as high instrument reliability with a Cronbach's Alpha value of >0.95. This research provides a framework for future accounting education reform that is more contextual and aligned with industry demands and the character of student in this era. Adapt this model as a basis to ensure that accounting education can continue to produce relevant accounting professionals in the future.

Keywords: Accounting Education; Educational Model Innovation; Digital Native; Future Accountant.

ABSTRAK

Penelitian ini bertujuan mengembangkan model pendidikan akuntansi yang adaptif terhadap perubahan teknologi digital dan gaya belajar generasi digital-native (Gen-Z). Penelitian ini menggunakan metode campuran (*mixed methods*) dengan desain eksploratori-eksplanatori dalam tiga tahap: (1) perancangan model konseptual melalui scoping review literatur, (2) eksplorasi kebutuhan industri melalui wawancara dengan enam profesional akuntansi dalam sektor privat dan publik, dan (3) implementasi serta evaluasi empirik model dalam perkuliahan di kelas akuntansi. Dari hasil kajian literatur dan wawancara ahli didapatkan kesimpulan bahwa model pendidikan akuntansi harus melakukan perubahan untuk dapat menyesuaikan relevansinya dengan industri di masa depan. Perubahan ini mencakup tiga hal, yaitu mengintegrasikan teknologi digital, pembelajaran kontekstual berbasis permasalahan praktis, serta peranan dosen sebagai fasilitator. Model ini kemudian diuji dalam pembelajaran di perkuliahan pada tiga angkatan mahasiswa akuntansi yang berbeda di Universitas Ma Chung dengan total responden 72 mahasiswa akuntansi. Hasil evaluasi implementasi model menunjukkan tingkat kepuasan tinggi dengan rata-rata jawaban 4,3 (sangat puas), serta reliabilitas instrumen yang tinggi dengan nilai Cronbach's Alpha > 0,95. Penelitian ini menghasilkan kerangka reformasi pendidikan akuntansi masa depan yang lebih kontekstual dan selaras dengan tuntutan industri serta karakter peserta didik generasi ini. Adaptasi model ini sebagai dasar untuk memastikan bahwa pendidikan akuntansi dapat tetap melahirkan profesional akuntan yang relevan di masa depan.

Kata Kunci: Pendidikan Akuntansi; Inovasi Model Pendidikan; Digital Native; Akuntan Masa Depan.

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1. INTRODUCTION

The rapid development of digital technology in the era of Industry Revolution 4.0 has transformed the paradigm in nearly all areas of life, including the business world and the accounting profession (Pratama et al., 2021). Digitalization, automation, and artificial intelligence have become the main drivers of transformation in corporate financial and operational systems. Accounting, as a crucial aspect of the business world, has also been affected by these changes. The latest technology has enhanced most accounting functions. Take, for example, the basic accounting cycle process, where basic accounting functions for processing transactions and preparing financial reports, which conventionally took a long time, can now be done with artificial intelligence and the latest technology, which is capable of processing transactions and producing financial reports with a high degree of accuracy in real time (Comiran et al., 2018). In addition, several of the latest financial applications are also equipped with machine learning and deep learning systems that are very useful for making recommendations on economic decisions related to current financial conditions. Many other latest applications and technologies mean companies no longer need many accountants and financial consultants to process all existing accounting and financial functions. This shift inevitably alters the role of accountants in terms of both quantity and function, as well as their legitimacy within the company (Prajanto & Dian Pratiwi, 2019).

The shifting needs of accountants in the industrial world have also been demonstrated through several research findings. Research by Dewu and Barghathi (2019) suggests that a growing gap exists between the capabilities of accountants and the needs of the industrial world, primarily due to advancements in information technology. This has led to a decline in expectations for accounting resources in companies, particularly in terms of the responsibilities and tasks associated with the profession. The industrial world will require more than just conventional financial reporting processes from its accounting resources in the

future (Ganis Sukoharsono, 2020; Handoko et al., 2019). In line with this explanation, several other studies also indicate a threat to the future existence of accountants due to technological developments in the 4.0 industrial revolution (Burritt & Christ, 2016; Pratama et al., 2021; Wahyuni, 2020).

The dynamics of change in the business environment during the Industrial Revolution 4.0 era have consequences for how the accounting profession must prepare its qualifications. At this stage, accountants are expected to enhance their skills to meet the industry's needs. Accounting education institutions have a responsibility to facilitate an education system that meets current labor market demands. In addition to performing their basic job duties, many accountants are now required to possess a range of skills, including excellent technological skills and a general understanding of the business environment (Rosi & Mahyuni, 2021).

Meanwhile, apart from changes in the industrial world, accounting education today also faces challenges from significant generational changes that differ from the characteristics of previous generations. Generation Z, a group of students born and raised in a digital environment, is now the dominant segment in higher education. This generation exhibits distinct characteristics compared to previous generations. The digital-native characteristics of Gen Z demand a more contextual, collaborative, and experiential educational approach (Ng & Ng, 2021). In this case, the current concept of accounting education needs to be adaptable to the characteristics of its students, because education is not merely a means of transferring knowledge. However, instead, it must also serve as a medium that helps each generation grow optimally (Yazan, 2015). The failure of the majority of previous education systems mainly occurred because the education system was too rigid and unable to adapt to the latest conditions. Forcing the education process has led to discomfort, which in turn results in rejection (Pujiasih, 2020). This condition has prevented education from becoming a means of creating a

quality generation, but rather a mere means of exchanging information. Therefore, flexibility is needed in designing an appropriate education system in terms of time and subject matter (Saiful Islam et al., 2022).

Despite the growing body of literature discussing the impact of digital transformation on the accounting profession and the need for curriculum reform, most prior studies remain fragmented and predominantly conceptual. Many studies emphasize either technological disruption in the accounting profession or generational learning characteristics separately, without offering an integrative educational framework that simultaneously addresses both dimensions. Furthermore, empirical validation of proposed accounting education models through a comprehensive mixed-method approach that combines literature synthesis, industry validation, and classroom implementation is still limited. Existing research often stops at identifying competency gaps or recommending curriculum adjustments, but lacks structured model development and systematic evaluation in real educational settings.

Therefore, a clear research gap exists in developing and empirically testing an integrative accounting education model that bridges technological transformation, industry expectations, and the learning characteristics of Generation Z. Addressing this gap is crucial to ensure that accounting education does not merely react to change, but proactively redesigns its learning paradigm in alignment with future professional demands.

So, to address these multidimensional challenges, this study developed an accounting education concept model that can accommodate the characteristics of Gen-Z as students and, at the same time, produce educational outcomes that meet the needs of the industry in the future. This study aims to align the accounting education approach with the demands of the times and the characteristics of Gen-Z students. The model development was conducted using a mixed-methods research approach through several comprehensive research stages. These stages began with the design of a conceptual model, which was developed through a literature review using the scoping review

technique. The results of the model framework were then explored to gain a better understanding of industry needs through interviews with accounting professionals. Finally, this study also evaluated the accounting education model concept through trial results from the implementation of accounting learning, as assessed by accounting students.

With this integrative approach, this study not only presents a theoretical model based on a literature review but also confirms its validity through explorations from industry professionals and the perspectives of students. The results of this study are expected to make an important contribution to the sustainable development of accounting education, based on generational characteristics and enhanced industry relevance.

2. LITERATURE REVIEW

Theories and Models of Accounting Education

Accounting education is a systematic process that aims to develop professional competence in the field of accounting by mastering relevant knowledge, skills, and attitudes. According to Pujiasih (2020), a model in the context of education is a conceptual representation that describes a process or system for achieving a specific goal. In accounting education, learning models serve as a framework that helps educators design and implement effective learning processes.

Accounting learning models that are adaptive to technological developments and industry needs are becoming increasingly important. Widodo and Listiadi (2023) emphasize that educational models must be able to integrate information and communication technology to improve the effectiveness of accounting learning. Approaches such as project-based learning and blended learning have been identified as effective strategies in developing the practical and analytical skills of accounting students.

Additionally, accounting education must consider the development of digital technology that impacts accounting practices. The integration of technology into the accounting education curriculum can help

students understand and apply accounting concepts in a digital context. This aligns with the view that accounting education must be responsive to changes in the business and technology environment (Pratama et al., 2021).

The Industrial Revolution 4.0 and the Digitalization of the Accounting Profession

The Industrial Revolution 4.0 is characterized by the integration of digital technologies, such as artificial intelligence (AI), the Internet of Things (IoT), and big data, into business and industrial processes. This transformation brings significant changes to various professions, including accounting. According to Iswanto and Wahjono (2019), information technology plays a crucial role in supporting the accounting profession in the Industry 4.0 era by enabling the automation of accounting processes and facilitating more efficient data analysis.

However, digitization also poses challenges for the accounting profession. Pratama (2021) argues that accountants need to develop new skills, such as programming and algorithms, to adapt to technological changes. Without these skills, the role of accountants risks being replaced by automated systems. Therefore, accounting education must emphasize the development of digital competencies to ensure the sustainability of the accounting profession in the digital age.

Additionally, digital transformation is transforming the role of accountants from mere financial report compilers to strategic consultants who can provide data-driven business insights. Rahayu (2024) highlights that accountants in the digital era must be able to manage information, utilize digital technology, and analyze data to support business decision-making. These changes require accounting education to integrate analytical and technological skills into its curriculum.

Characteristics of Generation Z and Their Implications for Learning Design

Generation Z, born between the mid-1990s and early 2010s, is a generation that grew up in a digital environment and is very familiar with information technology. These characteristics influence their preferences and

learning styles. Hayati (2024) explains that Generation Z tends to prefer interactive, visual, and technology-based learning. They also tend to learn independently and have high expectations for the relevance of learning materials to the real world (Saiful Islam et al., 2022).

In the context of accounting education, it is crucial to design learning experiences that cater to the unique characteristics of Generation Z. The integration of digital technology, project-based learning approaches, and the use of visual media can enhance student engagement and motivation to learn. In addition, flexible and adaptive learning approaches can help meet the individual learning needs of Generation Z (Ng & Ng, 2021).

Understanding the characteristics of Generation Z is also important in the development of accounting education curricula. Curricula must be designed to develop skills relevant to industry needs and adapt to the characteristics of students, making them more easily accepted (Saiful Islam et al., 2022). Thus, accounting education can prepare graduates who are ready to face the challenges and opportunities of the digital age.

3. RESEARCH METHOD

This study employs a mixed-methods approach with an exploratory-explanatory design, comprising three main stages: conceptual model development, field exploration through interviews, and model implementation and evaluation in a real learning context. The choice of mixed methods is based on the need to develop an educational model that is not only conceptually strong but also relevant and applicable in practice. The stages of this research are illustrated in Figure 1.

The first stage commenced with the development of a conceptual framework for a new accounting education model, utilizing a scoping review approach. A literature review was conducted on scientific journals and policy documents relevant to accounting education, educational technology, the characteristics of Generation Z, and the competency requirements for accountants in the era of Industrial

Revolution 4.0. The literature was collected from academic databases, including Scopus, SINTA, Garuda, and Web of Science, spanning the last decade. The literature was based on the search keywords “Accounting education,” “Future accountants,” “Generation Z education,” “Industrial revolution,” and “Education model.” The result of this stage was the identification of key elements in designing a technology-based accounting education model tailored to the characteristics of Generation Z.

The second stage involved field exploration, conducted through in-depth interviews with six professionals in the fields of accounting and finance from both the private and public sectors. The interviews were semi-structured and employed an interpretive phenomenological approach to explore in depth the experiences and perspectives of practitioners regarding the gap between accounting education and the demands of the workplace. Research informants were selected based on the most important criterion: having held a middle to upper managerial position for at least 1 year. This criterion was intended to ensure that the research informants truly understood the dynamics of accountants’ needs more comprehensively, given their structural positions. The data from these interviews were analyzed using thematic analysis techniques, which involved the steps of open coding, theme identification, and meaning categorization through a matrix. The findings at this stage served as material for verification and deepening the understanding of the industry’s needs, in comparison to the conceptual model that had been previously developed.

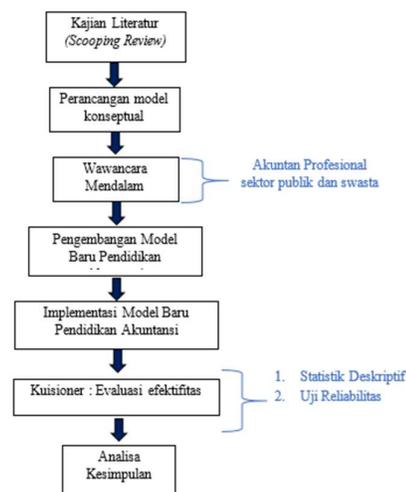


Figure 1. Research Stage Flow
Source: Processed Data (2025)

Furthermore, the new accounting education model that has been developed was implemented in learning activities in core accounting courses in the Accounting Study Program at Ma Chung University for one semester. This implementation involved 71 students from the 2022, 2023, and 2024 cohorts who were the subjects of the study. In the learning process, this model was applied through the integration of digital technology tools, the solving of real case studies based on problem-based learning, and the transformation of the lecturer’s role into that of a mentor and facilitator.

To evaluate the model’s effectiveness, quantitative data were collected using a Likert scale questionnaire. This questionnaire was designed to measure students’ perceptions of the relevance, comfort, mastery of digital skills, and effectiveness of the Accounting Education Model 4.0 in improving material comprehension and work readiness. Furthermore, the questionnaire results were analyzed using two statistical techniques: descriptive analysis to provide an overview of the answers for each assessment component, and reliability testing using Cronbach’s Alpha method to ensure the consistency of the questionnaire results.

This series of stages was carried out sequentially and integratively, so that the resulting new accounting education model was not only based on theoretical frameworks and

literary evidence, but also validated by practitioners and tested empirically through direct implementation in the learning process.

4. RESULTS AND DISCUSSION

Development of a New Accounting Education Model: Results of Literature Review

The results of the literature review, conducted through a scoping review approach, provide an initial conceptual foundation for a new model of accounting education. This study highlights that accounting education in the era of the Industrial Revolution 4.0 faces two

significant challenges simultaneously: the dynamics of industrial technological change and the unique characteristics of Generation Z students, which demand a new approach to the learning process (Pratama et al., 2021; Rosi & Mahyuni, 2021). Therefore, the design of the accounting education model must combine technological innovation with pedagogical strategies that are responsive to the digital-native characteristics of Generation Z. The matrix illustrating the analytical framework of the scoping review results can be seen in Table 1 below:

Table 1. Analysis Framework of the Scoping Review Results

Main Theme	Critical Aspects	Primary Sources
Digital Accounting Technology	<i>Big Data, Cloud Computing, AI</i>	Iswanto & Wahjono (2019), Comiran et al. (2018), Rymarczyk (2020), Phan Huong, (2020)
Characteristics of Gen-Z	Interactive, independent, collaborative	visual, Chillakuri (2020), Ng & Ng (2021), Prayoga & Lajira (2022)
Modern Learning Strategies	Variation in learning methods, changes in the role of instructors in the classroom.	Hernandez-de-Menendez et al. (2020), Utomo & Wihartanti (2019), Wibawa et al., (2022) , Gularso, (2021)
Challenges in the Industrial World	<i>Skill</i> gaps, digitalization demands,	Pratama et al. (2021), Rosi & Mahyuni (2021), GALARZA, (2017); Jędrzejka, (2019)

Source: Processed Data (2025)

The results of the literature review analysis produced three main components that form the basic principles for developing a new accounting education model for Generation Z. First, the media used in educational activities must incorporate technology into most of its elements. Generation Z, in the era of the 4.0 industrial revolution, is very familiar with digital technology because all of their life activities are heavily influenced by the use of existing technology (Rifai, 2018). Having never known a world without computers and the Internet, Generation Z does not see technology as a tool, but as an integral part of their lives. Involving them in the development and use of new

technology is an attractive proposition for Generation Z. Gen Z is the most tech-savvy generation in history. Therefore, the use and development of applications that suit business practice needs are auspicious for the future of accounting education (Phan Huong, 2020) . Some technologies that can be applied in accounting education during the 4.0 industrial revolution era include Big Data, Cloud Computing, and Artificial Intelligence (AI).

In accounting education, the ability to utilize big data can be a valuable tool for enhancing an accountant's data presentation skills. This is because the trillions of data points contained in big data must be utilized effectively to provide helpful information for corporate financial policies. The role of accounting education

must accommodate the learning of big data processing, such as data mining, data science, and several other skills that support (GALARZA, 2017) . This is to ensure that, in the digital era, prospective accountants will have the ability to process data through Big Data and will have greater access to all the economic information needed to make informed strategic corporate policies.

Furthermore, accounting education can also equip future accountants with new skills in cloud computing. With cloud computing capabilities, every professional accountant will be able to process complex data and programs with ease (Rymarczyk, 2020). An accountant with cloud computing skills can produce a maximum financial data processing system for the company. They can build strong networks within the company team and make better business and financial decisions. In addition, accounting education can also utilize AI technology to enhance the accuracy of accountants in making economic decisions through computational results (Ardiansyah, 2020; Cho et al., 2020). All information in the system will be processed to produce a decision. In this case, AI technology can also adapt to changing conditions. AI will play a role as a digital tool that provides analytical recommendations to accountants, helping them make informed decisions on policy. This technology can help reduce the risk of bias in decision-making (Rymarczyk, 2020). These three technologies will enhance the significance of accounting education outcomes in creating professional accountants in the era of Industrial Revolution 4.0.

Next, the second element that needs to be considered in developing this new accounting education model is the formulation of learning methods that are appropriate for the characteristics of Gen-Z. Generation Z has a strong character in terms of creative and innovative thinking, but is easily bored and often obsessed with new things. The current generation is no

longer interested in a rigid and systematic learning process; they are more motivated to solve complex problems by engaging all their senses (Hernandez-de-Menendez et al., 2020). Therefore, traditional methods that rely on outdated teaching techniques, such as one-way lectures and textbook exercises, will actually become obstacles to the development of Generation Z in the future.

Contextual teaching methods, utilizing multimedia formats, case presentations, audience participation, direct instruction, group discussions, and role models, provide opportunities for interactive learning that are more suitable for Generation Z. Gen Z prefers interactive and experiential learning approaches (Indraswari & Susilowibowo, 2022; Reza et al., 2022). Generation Z has ideas and opinions that they are not afraid to express, and they do not appreciate being ignored. Generation Z is adept at multitasking, thrives in team settings, and collaborates to solve problems (Prayoga & Lajira, 2022; Widodo & Listiadi, 2023). In this context, accounting education methods for Gen-Z are no longer limited to teaching accounting knowledge from textbooks, but also include practical approaches that they can directly experience (Chillakuri, 2020; Hernandez-de-Menendez et al., 2020). To support these accounting education methods, several learning techniques can be employed, including blended learning, project-based learning, and teaching factories.

The third element in building an accounting education model for the future is the role of lecturers. In the ever-evolving landscape of accounting education, the role of lecturers has undergone a fundamental shift from merely delivering material to becoming adaptive learning facilitators, career mentors, and strategic collaborators (Saiful Islam et al., 2022; Wibawa et al., 2022). This is particularly relevant in addressing the unique characteristics of Generation Z, who are tech-savvy, demand practical relevance, and prefer participatory

learning. As facilitators, lecturers play a role in creating an interactive and contextual learning ecosystem, utilizing project-based approaches, case studies, and digital technology to foster conceptual understanding and practical skills among students (Dewu & Barghathi, 2019). In this role, lecturers not only impart knowledge but also activate students' potential to think critically, collaborate, and solve real-world problems in the field of accounting.

Lecturers also serve as mentors and collaborators who support students' holistic professional development. As mentors, lecturers guide students in recognizing their interests and potential, designing appropriate career paths, and building ethical and sustainable professional identities (Cho et al., 2020). Meanwhile, as collaborators, lecturers serve as a bridge between the academic world and the industry through strategic partnerships, applied research projects, and internship programs that strengthen the connection between theory and practice. In these three roles, lecturers contribute significantly to preparing a generation of young accountants who are not only technically competent but also visionary, resilient, and relevant in the face of digital transformation and the complexity of today's work environment (GALARZA, 2017; Ganis Sukoharsono, 2020).

The three key elements, namely digital media, learning methods, and the role of lecturers, are formulated into a conceptual model that can serve as the basis for the implementation of accounting education in the future, known as Accounting Education 4.0. The conceptual model of accounting education in the future is illustrated in Figure 2 as follows:



Figure 2. Conceptual Model of Accounting Education

Source: Processed Data (2025)

Professional Exploration: The Relevance of the Model in the Industrial World

The accounting education process involves developing skills for prospective accounting professionals to create the human resources necessary for corporate financial management and financial reporting (Handoyo & Anas, 2019). The accounting education curriculum has been designed to provide students with learning and experience in conducting the financial reporting cycle, from upstream to downstream, and in analyzing financial statements (Reza et al., 2022). The industrial world needed all of these skills in the past to develop business activities and company operations. However, as explained in the background section, rapid industrial development necessitates the development and adaptation of skills required of human resources, including those related to the financial reporting process, such as accounting skills. Current technological changes can lead to shifts in the practical and social skills required of corporate accountants (Kamayanti, 2020; Pratama, 2024). In the second stage of this research, interviews were conducted to determine the extent of changes in the skill requirements of accountants and the educational process needed in the current era. Based on the informant criteria that had been determined, the following six studies were obtained in table 2.

The questions explored in the interview process were based on elements

from the conceptual framework of the new accounting education model that had been previously designed. There are five aspects of the questions, including (1) the current skills needed by accountants, (2) educational support tools suitable for the current industrial world, (3) learning processes appropriate for creating future accountants, (4) the significant role of lecturers in the educational process that affect the performance of accountants, and (5) suggestions for appropriate learning methods to create professional accountants in line with future industry needs. Table 3 presents a summary matrix of the interview results, presenting keywords obtained from the questions asked of all informants.

Based on the interview results in Tabel 3, several keywords can be identified that indicate the informants' responses to

the questions asked. First, regarding the question about the skills required by accountants today to advance their careers in the industrial world, almost all informants agreed that technological skills will be a significant requirement that accountants will need in the future. Additionally, soft skills are also a necessity that professional accountants must prepare for in the future. Furthermore, the second question pertained to educational support facilities relevant to today's industry. All informants agreed that digital technology, computers/laptops, and application systems are the most dominant factors influencing the education of professional accountants.

Table 2. Research Informant Data

Name	Position	Description
Nur Qomariah	Associate, Audit & Assurance - Deloitte Indonesia	Professional Accountant
Jihan Zalfauhan	Associate Auditor – Ernst & Young (EY) Indonesia	Professional Accountant
Dadang Kurniawan	Financial Administrator for the State Budget, Revenue and Expenditure. Ministry of Law and Human Rights	Public/Government Institution Accountant
Muhammad Hanan Arifah Putra	State Property Manager (BMN), State Property Management Center (PPBMN) Secretariat General of the Ministry of Energy and Mineral Resources	Public/Government Institution Accountant
Fanda Layla Sari	Finance Manager – PT. Sehat Selalu Banyak Rejeki	Private Company Accountant
Aldi Setiawan	Finance Manager PT. Piranha Multi Talenta	Private Company Accountant

Source: Processed data (2025)

Table 3. Interview Results Matrix

Name	(1)	(2)	(3)	(4)	(5)	
Nur	"Updated accounting standards from the IAI"; "The latest software	"Direct training industry"	practical with	"Actively sharing inspiration"; "Exploring learning materials";	"As a facilitator and collaborator"	"Learning to improve soft skills"; "Learning the latest software"

Name	(1)	(2)	(3)	(4)	(5)
	practices in the industry"				
Jihan	"Improvement of basic education outcomes in the classroom"	"Computers/laptops equipped with supporting software"; "Financial system applications"; "Oracle, SAP, MYOB,"	"Discussion sessions focusing on communication, accounting schemes and standards, and trending economic schemes"	"Lecturers as collaborators"; "Lecturers are open to the latest conditions that may be better understood by their students"	"Improved communication both verbally and in writing"
Dadang	"ERP usage skills"; "practices of the latest and most up-to-date systems"	"PC/Laptop, Accounting/ERP Software/Audit Applications, etc."	"Case studies or group discussions"; "Analyzing real-life cases/realities"	"Lecturers as collaborators"	"Computerized accounting practices"; "Problem solving and alternative solutions"
M. Hanan	"Computer skills and office applications or similar"	"Computers/Laptops"; "direct practice tools"	"Case studies in the work environment"; "Simulation of industrial business process studies"	"Lecturers as collaborators"	"Basic learning with student exploration"
Fanda	"Technology learning"; "interpersonal skills and character development"	"Financial applications"; "Workshops and seminars"; "FGD opportunities with the industrial world"	"Case studies in industry"; "FGD"; "Mentoring"	"Moderators and Facilitators".	"Learning through case exploration by students"
Aldi	"Applications with the latest technology"	"Technology tools"; "Learning Management System"	"Artificial intelligence-based learning"; "Practitioner teaching"	"Faculty as facilitators"	"Problem solving"; "Critical and creative thinking".

Source: Processed data (2025)

The third question about the learning process indicates that conventional learning through lectures is no longer effective in

improving the skills of future professional accountants. The learning model that is needed requires students to actively and creatively explore, using learning materials and discussions that are directly obtained from real-

world industry problems. Then, in the fourth question, all informants also agreed that the role of lecturers is now better not as teachers who deliver material unilaterally, but rather lecturers must be able to transform themselves into collaborators and facilitators who provide ample space for students to explore. Finally, the informants in this study also concluded that good learning to create a generation of professional accountants in the future is learning that can improve students' soft skills, communication, and creativity by utilizing the latest technology and application systems. The responses of all informants align with the previously designed conceptual model of accounting education. This demonstrates that the conceptual model is relevant and aligned with the industry's needs in the current era of the 4.0 industrial revolution.

Implementation and Evaluation of Accounting Education 4.0: A New Model of Accounting Education

The Accounting Education 4.0 model, which was developed from literature reviews and professional explorations, was directly implemented in the learning process at the Ma Chung University Accounting Study Program for one semester, specifically in the even semester of the 2024/2025 academic year. The implementation was carried out in several accounting courses, including Accounting Information Systems, Economic Mathematics, and Accounting Computers, involving a total of 71 students from the 2022, 2023, and 2024 cohorts. This research employed an experimental approach by applying three main principles in the Accounting 4.0 education model: digital technology integration, practical problem-based learning, and the transformation of the lecturer's role from instructor to mentor and facilitator.

The first principle emphasizes the use of digital technology as the primary medium in the learning process. Students utilize various applications such as Canva, Bizagi Modeler, Microsoft Visio, Accurate, Media Maker, and other supporting applications to complete accounting-based practical assignments. This technology is used not only to help students understand accounting concepts, but also to

hone their technical skills, such as business process modeling, accounting software simulation, and visual presentation of financial data (Handoko et al., 2019). The use of this technology encourages students to become more familiar with digital tools relevant to the workplace, thereby increasing their readiness to face professional challenges in the era of the Fourth Industrial Revolution (Bondar et al., 2020).

The second principle is practical problem-based learning, which aims to connect theory with its application in the real world. Students are given assignments to analyze and solve simple business problems taken from their surrounding environment. For example, students are asked to design a transaction recording system using Accurate software for micro, small, and medium enterprises (MSMEs), or to simulate tax calculations and financial risk analysis in specific business cases. This process requires students to integrate accounting knowledge with critical and analytical thinking skills in finding the right solutions. Additionally, this approach helps students understand the direct relevance of accounting science to various issues faced by the business world (Nurkhin et al., 2020).

The third principle involves transforming the lecturer's role from teacher to mentor and facilitator. In this model, students become the center of learning, while lecturers act as guides who provide guidance, direction, and the resources needed to support the students' exploration process. Lecturers create an interactive learning environment by encouraging group discussions, case simulations, and project collaboration among students. Students not only learn to accept material, but also actively explore new concepts and ideas through interaction with classmates and other learning resources (Iswanto & Wahjono, 2019). This transformation of roles has proven to increase students' motivation to learn and strengthen their sense of responsibility toward the learning process. To measure the effectiveness of the model's implementation, data was collected through a questionnaire administered to all students. The results of the questionnaire evaluation of the three elements provided insight into how accounting students

perceive the application of the 4.0 education model in the lecture process.

Descriptive Statistics Evaluation of the Model

Descriptive statistics is a method of calculating and visualizing data to provide an overview of the overall results obtained in the test. In this study, the results of the questionnaire distributed to accounting students were analyzed and calculated based on four aspects of the evaluation of the implementation of the Accounting Education 4.0 model. First, the evaluation of technology use is illustrated in Figure 3. The evaluation results show that 73% of students stated that it was very good, 24% stated that it was good, and the remaining 3% stated that it was very poor. The evaluation of the use of digital technology as a learning medium reveals that 97% of students are aware of the benefits of technology in supporting the teaching and learning process, as well as in enhancing their digital skills in the current era. This is important because the accounting skills they possess will be utilized to support the 4.0 industry process in the future, where all activities will be integrated with the use of the Internet of Things (Oesterreich & Teuteberg, 2019).



Figure 3. Evaluation of Technology Use in Accounting Education

Source: Processed data, (2025)

Furthermore, the second evaluation of the application of instrumental and practical learning methods is shown in Figure 4. The results show that 56% of students stated that innovation in learning in the 4.0 education model was very good, 36% was good, 5% was fairly good, and the remaining 3% was very poor. Through this evaluation, it is evident that

92% of students believe the application of instrumental methods and practical problems is very useful for them to understand the direct application of accounting science in the real world. Understanding the application of accounting science in *real-world* problems will provide relevance to the knowledge and skills acquired on campus, enabling their application to business entities and organizations in the future (Abbas & Mardan, 2022).



Figure 4. Evaluation of the Application of Instrumental and Practical Learning Methods

Source: Processed data, (2025)

The third evaluation of the role of lecturers is presented in Figure 5. The questionnaire results show that 65% of students feel very good, 30% feel good, 2% feel fairly good, and the remaining 3% feel very bad. Through this measurement, it can be seen that the role of lecturers as mentors and facilitators can attract more academic attention from students than as oral presenters. Through this role, 95% of students feel helped and find it easier to explore accounting knowledge and skills with the guidance of lecturers.



Figure 5. Evaluation of the role of lecturers as mentors and facilitators

Source: Processed data, (2025)

The final evaluation of the effectiveness of implementing the 4.0 accounting model in the teaching and learning process is presented in Figure 6. The questionnaire results show that 59% of students rated it as very good, 31% as good, 8% as fairly good, and the remaining 2% as very poor. Through this measurement, it can be concluded that 90% of students have felt the impact of implementing the 4.0 accounting education model, which has enabled them to experience the effectiveness of the teaching and learning process in the classroom. The effectiveness of these accounting learning outcomes can serve as a benchmark for the extent to which the desired learning outcomes are accepted by students, making them useful for them in the future.

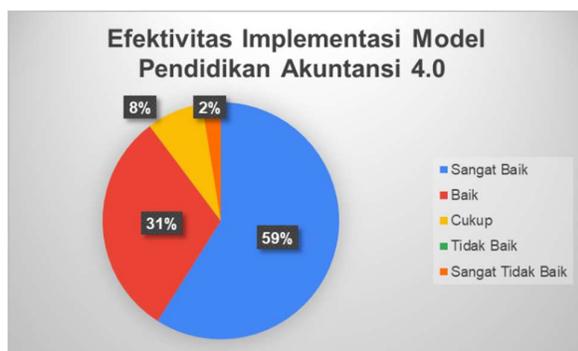


Figure 6. Evaluation of the Effectiveness of the Implementation of the Accounting Education Model 4.0

Source: Processed data, (2025)

All the results of the questionnaire data processing above demonstrate that the majority of the evaluation results for the implementation of the 4.0 accounting education model among accounting students yielded a satisfactory rating of . This is also supported by the summary

of the assessment results in Table 4, where all measurement components obtained an average score above 4 out of 5, which means that all indicators of the Accounting Education Model 4.0 have proven to be effective in improving the accounting skills and knowledge of Generation Z accounting students in the current Industrial Revolution 4.0 era.

Table 4. Average evaluation measurement scores for the model

	Average
Technology Implementation	4.442
Instrumental and Practical Methods	4.2985
Lecturers as Facilitators	4.3690
Effectiveness of the Model	4.3464

Reliability Test (Cronbach's Alpha)

Reliability testing was conducted to determine the internal consistency of each dimension of the questionnaire instrument used to evaluate students' perceptions of the Accounting Education 4.0 model. Instrument reliability indicates the extent to which items in a construct are interrelated and measure the same thing consistently.

The method used to measure reliability is *Cronbach's Alpha* (α), one of the most common techniques employed to assess *internal consistency reliability* in social and educational research. *Cronbach's Alpha* values range from 0 to 1, with the following interpretations:

- $\alpha \geq 0.90 \rightarrow$ Very high (*excellent*)
- $0.80 \leq \alpha < 0.90 \rightarrow$ High (*good*)
- $0.70 \leq \alpha < 0.80 \rightarrow$ Fair (*acceptable*)
- $\alpha < 0.70 \rightarrow$ Instrument items need revision (*questionable or poor*)

In this study, reliability was assessed for each dimension of the instrument, as each group of items was designed to measure distinct aspects of the model's application. The results of *Cronbach's Alpha* calculations for the four main elements are shown in Table 5 below:

Table 5. Instrument Reliability Test Results for the Model Evaluation Questionnaire

No	Evaluation Dimension	Number of Items	Cronbach's Alpha (α)	Interpretation
1	Technology Application	4	0.962	Very high
2	Instrumental and Practical Methods	4	0.957	Very high

No	Evaluation Dimension	Number of Items	Cronbach's Alpha (α)	Interpretation
3	The Role of Lecturers as Facilitators	3	0.960	Very high
4	Overall Evaluation of the Model	4	0.971	Very high

Source: Processed data (2025)

All *Cronbach's Alpha* values obtained were above 0.95, indicating that the instruments used had very high reliability in each dimension. This means that the items in each aspect of the evaluation showed excellent internal consistency and could be relied upon to accurately describe students' perceptions of the effectiveness and relevance of the implemented Accounting 4.0 education model.

These results support the validity of the model evaluation conducted in the study and reinforce confidence in the quantitative analysis results based on student perception data. The high consistency between items also indicates that the grouping of dimensions in the instrument is conceptually and empirically appropriate.

Synthesis of Research Findings and Implications of the Accounting Education 4.0 Model

The Accounting Education 4.0 model developed in this study is an integrative response to two major changes that are occurring in parallel in higher education: first, the profound transformation brought about by the Industrial Revolution 4.0 on accounting practices and professions; and second, the shift in the characteristics of students, who are now dominated by Generation Z. These two changes have put pressure on the conventional accounting education system, which has tended to be theory-oriented and passive in its teaching. Therefore, a new approach is needed that simultaneously addresses the challenges of digitalization and generational needs, which is conceptually and empirically built through the Accounting Education 4.0 model.

The synthesis of the *scoping review* results indicates that integrating digital technology into the accounting curriculum is no longer an option, but a necessity. Findings from the literature indicate that digital competencies,

such as understanding digital systems, *cloud-based* financial data processing, and the use of artificial intelligence in financial analysis, have become increasingly urgent industry demands. This study also highlights the importance of flexible, project-based, and contextual learning, which can accommodate the dynamic, collaborative, and independent learning styles of Gen-Z.

Meanwhile, interviews with professional practitioners reinforce the relevance of the main principles in the Accounting Education 4.0 model. Practitioners emphasize that future accountants are required not only to master accounting techniques but also to have an understanding of information systems, business communication skills, and strategic thinking. This confirms that the development of the education model must be *hybrid*, combining theoretical understanding, technical skills, and professional *soft skills*. Thus, the Accounting Education 4.0 model bridges the needs of the industry with the learning process in higher education.

Furthermore, the implementation of the model in a real classroom context, along with the evaluation results based on student perceptions, validate that the approach used in the Accounting Education 4.0 model is not only relevant but also effective. Students responded positively to the application of technology, practical approaches to learning, and the more guiding and open role of lecturers. The high reliability scores on each dimension of the evaluation instrument also indicate that the evaluation design used in this study has strong integrity and consistency.

Thus, the Accounting Education 4.0 model occupies an important position in the discourse of contemporary accounting education reform. It is not just an alternative model, but can become *a prototype for a new pedagogy* that is more contextual, integrated, and future-oriented. This model presents new opportunities for accounting educators to

transform classrooms into learning environments that are grounded in industry realities, connected to technology, and aligned with the learning styles of the current generation. In this context, Accounting Education 4.0 contributes as the basis for a revolution in accounting education to respond to the complexity of the profession and the accompanying social dynamics.

5. CONCLUSION AND RECOMMENDATIONS

This study developed and empirically examined an Industry 4.0-oriented Accounting Education Model designed to address the dual challenges of technological disruption and generational transformation. Through a sequential mixed-method design with comprising a scoping review, professional validation, and classroom implementation of the Accounting Education 4.0 model integrates digital technologies, contextual problem-based learning, and a redefined pedagogical role of lecturers as facilitators of experiential learning.

The findings demonstrate that an integrative and adaptive educational framework can enhance perceived learning relevance, engagement, and instructional effectiveness among Generation Z students. More importantly, the results suggest that the future relevance of the accounting profession is not inherently threatened by digitalization; rather, it is contingent upon the profession's capacity to recalibrate its competency framework through educational reform. In this regard, accounting education serves as the critical mediating mechanism that aligns professional identity, technological capability, and industry expectations.

Despite its contributions, this study is limited by its single-institution implementation and reliance on perception-based evaluation measures. Future research should expand cross-institutional validation and incorporate longitudinal and competency-based performance assessments to evaluate the model's impact on objective learning outcomes, including digital proficiency, analytical reasoning, and professional readiness. Additionally, further investigation into the cognitive, behavioral, and socio-digital

characteristics of Generation Z may refine the pedagogical architecture of adaptive accounting curricula. Structural validation through inferential modeling, such as SEM-based approaches, is also recommended to strengthen causal inference and theoretical robustness.

Practically, the study underscores the necessity of systemic curricular transformation rather than incremental adjustment. Theoretically, it contributes to the advancement of a sustainable and future-oriented accounting education paradigm that integrates digital transformation and generational responsiveness within a coherent conceptual framework.

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