A new challenge in accounting education: convergence of maturity model, education and evaluation in accounting

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Abstract

Purpose – The purpose of this study is to propose a framework for the convergence of maturity model and education and evaluation in accounting.

Design/methodology/approach – The present research was conducted in two phases. In the first phase, to determine the indicators of convergence of the maturity model and education and evaluation in accounting, a Meta-Synthesis method was used. The conceptual model includes two dimensions of "Teaching and learning processes" and "Evaluation methods; five levels of initial, repeatable, defined, managed and optimized; and a total number of 35 indicators. In the second phase, a questionnaire was developed, and academics as accounting faculty members in Iranian public universities were employed to fill out the questionnaire electronically and present a final framework. Having received the questionnaires, 66 questionnaires were analyzed statistically.

Findings – The results showed that the two dimensions of "Teaching and learning processes" and "Evaluation methods" considering initial, repeatable, defined, managed and optimized levels include 35 indicators, which form a framework for the convergence of maturity model and education and evaluation in accounting. The results show that both dimensions have positive and significant regression path coefficients in the convergence model. Moreover, the dimension of teaching and learning processes has the highest regression path coefficient indicating a greater impact on the convergence model. Besides, all five levels have positive and significant regression path coefficients with dimensions. Finally, in this study, all indicators were prioritized according to five levels.

Originality/value – Due to the success of maturity models and the urgent developments that require transformative improvements in accounting education, maturity models can respond to the challenges associated with education and learning in accounting. Thus, conceiving an image of the convergence of maturity model, education and evaluation in accounting seems imperative which has been scarcely investigated previously.

Keywords Accounting education, Maturity model, Education and evaluation, Teaching and learning processes, Evaluation methods

Paper type Research paper

1. Introduction

The main goal of accounting education literature over the past quarter of a century until now has been to identify and develop the many skills that will ensure the success of an

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accountant, and these goals are pursued by higher education (Arianpoor *et al.*, 2023; Fogarty, 2019). The expectations of enhancing the quality and compatibility of accounting education should be related to market requirements. However, accounting education issues are debated in particular accreditation challenges and clear regulation of academic interaction with the practice (Saleh *et al.*, 2023), and the alignment of accounting education with that set by professional bodies is still open to debate (Yates and Al Mahameed, 2023). In this regard, the maturity model can be valuable in evaluating university processes to determine the path of academic excellence (Tocto-Cano *et al.*, 2020).

Although to improve experiential learning components, teaching techniques are invaluable (Kramer *et al.*, 2017), unfortunately, in practice, the teaching and learning processes are still widely marked by traditional pedagogy aspects based on passive learning and teacher-centered pedagogies (Garnjost and Lawter, 2019). Hence, there is a need to explore the process of implementing practices and not just the final outcomes of the learning process (Hung, 2011). Regarding teaching and learning processes, attention should be paid to the programs, pedagogical methods and learning evaluation mechanisms (Garbin *et al.*, 2022). Ongoing reliance on digital technologies has led to changes in accounting education (Brabete *et al.*, 2024; Powell and McGuigan, 2021). Thus, the latest structures and technologies in teaching and learning in accounting should be taken into account (Al Ghatrifi *et al.*, 2023). Although, there is recently a global turn toward new educational resources, the introduction of this procedure has not yet become a normative practice in all higher education institutions, and the reasons for this are not apparent (Reinken *et al.*, 2022). Thus, conceiving a clearer picture of the optimal model of education and evaluation in accounting seems imperative, and these concerns motivated the conduction of this research. The present study represents a first step to provide the convergence of maturity model and education and evaluation in accounting which has not been investigated so far.

There are several contributions of the present paper to the existing literature. First, due to the urgent social developments that require transformative improvements in education, maturity models respond to the challenges of education and learning (Garbin *et al.*, 2022). For this reason, in the current research, there is an emphasis on the convergence of the maturity model, education and evaluation in accounting, which helps stimulate the institutionalization of active learning methods in accounting. The study is unique in that it provides an interactive instrument to discuss and advance the maturity models together with educational issues. Second, several studies (e.g. Jackling *et al.*, 2012) showed that students have a positive attitude towards accounting as a profession. Higher education is also under pressure to educate graduates who will be employable after graduation. An appropriate approach is to connect an educational framework and a maturity model (Pažur Aničić and Divjak, 2020). Hence, the present study can help higher education improve its attempts to contribute to the employability of accounting graduates. The university can use the present findings to manage students' expectations and change in accounting training and learning methods for the knowledge and skills required by professional accountants. Third, universities are increasingly focused on preparing graduates with strong disciplinary and interdisciplinary skills to increase student employability; however, the development of employability skills remains a concern among accounting graduates and employers (Twyford and Dean, 2023). Practically, providing a framework for the convergence of the maturity model and education and evaluation in accounting can offer valuable insights for university marketers to improve their market position and develop marketing strategies. Fourth, the case studies in developed countries on accounting education systems revealed a wide variation in accounting education and found key differences (some significant and others nuanced) between accounting education systems (Watty *et al.*, 2014). Developing

Asian countries diverge more in many ways, and drivers in developed markets may not be generalized to emerging and developing Asian markets (Zamir *et al.*, 2022). There is also evidence (e.g. Sugahara and Watty, 2016) to reveal certain similarities and differences across contextual factors that influence academic perceptions about global convergence of accounting education. Hence, conducting this study in an Asian country such as Iran can provide potential opportunities for international accounting education.

The present research uses a systematic and scientific method to find what indicators are important for the convergence of maturity model and education and evaluation in accounting. The paper proceeds as follows. The literature review is presented in Section 2. The methodology is detailed in Section 3. The findings are described in Section 4. Finally, the discussion and conclusion are presented in Section 5.

2. Literature review

2.1 Education and evaluation in higher education

The current methods of "teaching-learning" are harmful to "learning and evaluation" methods. The damage that these traditional methods cause to learning should be evaluated and identified by professors and students alike (Serrano *et al.*, 2018). In this regard, "active learning" approaches seek to answer the question of how they can integrate knowledge in social research and information and communication technology together and use them effectively in teaching and learning (Lytras *et al.*, 2018). Implementing active learning strategies in the learning process can direct the focus of some allocated class questions to the interpretation and understanding of accounting information (Coram, 2005). The prestige of accounting profession has also been found to recognize the desirability of studying accounting and pursuing accounting as a career. Hence, professional prestige and respect were strong incentives for accounting students to pursue a career in accounting compared to other professions such as medicine, law and engineering (Paolillo and Estes, 1982). Inspired by the severity of today's global issues and dissatisfied with the present gap between the real world and university curricula, researchers have begun to reconsider the role of higher education in university curriculum (Rashedi *et al.*, 2015). Hence, the maturity model can help higher education institutions assess their capability to address student success and improvement (Nelson *et al.*, 2013).

2.2 Maturity model

A maturity model is widely used in software engineering and has been extended to areas such as education, health, energy, finance, government and general use. The proposed model is valuable for evaluations and continuous improvement of business processes or certain aspects of organizations (Tocto-Cano *et al.*, 2020). Several relevant maturity models have been suggested in the literature. For instance, there is a list of seven methods to develop maturity models for software engineering and organizational management domains (Thong *et al.*, 2013), nine maturity models based on Capability Maturity Model Integration (CMMI) and Information Technology Infrastructure Library (Bass, 2011). Recent studies in higher education (e.g. Garbin *et al.*, 2022) showed that the maturity element is evaluated at five primary levels, concerning four areas. The primary levels are "initial", "replicable/repeatable", "defined", "management" and "optimized". The areas include "process management", "project management and team development", "engineering" and "support". To evolve from one level to another, it is important to achieve general and specific objectives evaluated in terms of capacity at four levels. These are "incomplete", "performed", "managed" and "defined". When the fourth level of capacity is fully reached, it evolves to the next level of maturity (SEI, 2010).

2.3 Convergence of maturity model, education and evaluation in accounting

A maturity model helps understand the reality of states through which a university must pass towards excellence and it defines routes to take and quality mechanisms at each level of maturity (Tocto-Cano *et al.*, 2020). Regarding teaching and learning processes, attention should be paid to the programs, pedagogical methods and learning evaluation methods (ASEE, 2012). The universities mostly regulate their work in the teaching-learning process (Tocto-Cano *et al.*, 2020). Conventional evaluation methods may conflict with a more productive and sophisticated learning environment (Ajjawi *et al.*, 2020) and universities need criteria to evaluate the degree of student, contributing to society in terms of skills and innovation, as a point of evaluation (Tocto-Cano *et al.*, 2020). For this reason, in this research, these two aspects were investigated. The aspects of "teaching and learning processes" and "evaluation methods" are related to the key elements of "Process management" and "support", respectively. According to Garbin *et al.* (2022), teaching and learning processes and evaluation methods can be organized along the five maturity levels (initial, replicable/repeatable, defined, management and optimized). Evolution from maturity level initial to the optimized level may occur gradually on time, advancing through intermediary levels. However, in the accounting and financial domains, there have been only few attempts to develop maturity models (Lebedev, 2021).

3. Methodology

This research was conducted in two phases.

3.1 Phase one: meta-synthesis method

The first phase is focused on selecting studies for inclusion in the synthesis and involves defining the focus of synthesis, locating relevant studies, making decisions on study inclusion or exclusion and quality assessment of the included studies (Atkins *et al.*, 2008). To determine the indicators of convergence of the maturity model and education and evaluation in accounting, a meta-synthesis method was used. In this phase, the databases were studied until 2023, various words were considered to search the papers, and the list studies for possible inclusion were prepared. The main phrases searched for were "Teaching", "Learning", "Evaluation", "Accounting students", "Accounting education", "Students", "Education", "Sustainable education", "Students' satisfaction" and so on. The databases used included "Emerald", "Science Direct", "Wiley", "Taylor and Francis", "Sage Publication", "Proquest", "EBSCO", "Springer", "Google Scholar" and so on. In the meta-synthesis, inclusion criteria and exclusion criteria are used to select suitable papers and to remove inappropriate papers. For example, the exclusion criterion of research language is "Other than English (English)". The exclusion criterion of studies time is "Articles published after 2023 (Articles published until 2023)". The exclusion criterion of study methods is "Non-qualitative methods (Collecting with qualitative methods)". The exclusion criteria of study type were "Personal opinions" and "Invalid articles" (those published in journals and conferences)". After an extensive search, 3,164 papers were obtained. Each academic paper that was selected was classified and stored according to the year of publication, the name of researcher(s), and the title. If another paper was selected from other databases, it was first ensured that the selected paper was not duplicated and added to the previous list only if it had not been already included. Having evaluated the compatibility of research question with searched papers, 2,529 papers were discarded and 635 papers remained after the first screening. Then the abstract, methodology and findings of the remaining papers were evaluated. 425 papers were discarded and 210 papers remained after the second screening. Finally, to measure the quality of the 210 selected literature, the Critical Appraisals Skills

Program (CASP) was used with 10 questions. The researcher gave to each of these questions a quantitative score. Then, the paper scores were summed up. Based on a 50-point scale, the papers were classified according to the quality level. According to the related studies, papers that received a score lower than 30 were excluded from further analysis. Consequently, the total number of selected papers was 54 out of 210, and 156 were excluded using the CASP. Figure 1 shows the process of paper selection, making decisions on paper inclusion or exclusion, and quality assessment of the included studies. Furthermore, the classification of selected papers using CASP is presented in Table 1.

In the present study, the final papers ($n = 54$) were studied thoroughly. During the analysis, the indicators were collected and then categorized in a comprehensive framework at the best-fitting level. The conceptual model includes two dimensions and 35 indicators at five levels (Table 2). The framework describes the practices that characterize each maturity level. Evolution from maturity Level 1 to Level 5 may occur gradually on time, advancing through the intermediary levels. For instance, if higher education is positioned at Level 1 (initial) in the area of "Teaching and learning processes," it means active methodologies are used only to address specific content; therefore, the teacher role as an instructor is predominant, while the students have a passive role in the learning process. At maturity Level 5 (optimized), the active methodologies are intrinsic elements of higher education educational strategy and daily practices, and all teachers and students share the responsibility of teaching and learning. In the area of "evaluation methods," it may be at

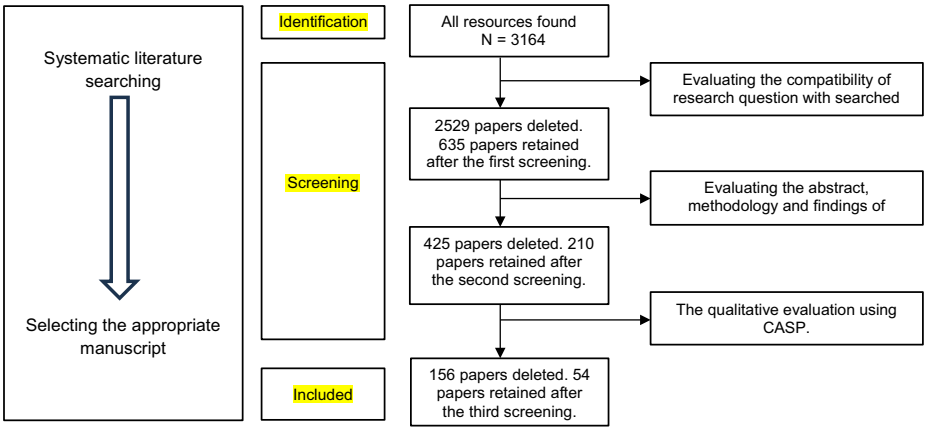

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Figure 1. The procedure of papers selection and making decisions on papers inclusion or exclusion

Score	Definition	No.	%	Procedure
41–50	Excellent	17	8.1	Accepted
31–40	Very Good	37	17.6	Accepted
21–30	Good	49	23.3	Rejected
11–20	Fair	63	30.0	Rejected
0–10	Poor	44	21	Rejected

Source: Created by authors

Table 1. Classification of selected papers based on CASP

Dimension	Levels	Indicators	Author(s)	Variable sign
Teaching and learning processes	Initial	Dealing with specific content (in detail) in the lesson plan is the main goal	Pang and Marton (2003)	V1
		The professor has the role of an active instructor and students are passive	Magana *et al.* (2017)	V2
		Most teaching/learning processes have a response mode	Mishra *et al.* (2020)	V3
		Teaching/learning processes and lesson plans are without prior thought	Hall and Smith (2006)	V4
	Repeatable	Dealing with specific topics (general) in the lesson plan is the main goal	Pang and Marton (2003)	V5
		The professor is in charge of simplification and students are passive	Carabantes and Paran (2022)	V6
		Syllabus is planned	Rahimpour (2010)	V7
		Teaching/learning processes (teaching methods) are regular	Álvarez *et al.* (2013)	V8
	Defined	The teaching/learning processes published in a course are institutionalized	Flegl and Andrade Rosas (2019)	V9
		Faculty members are responsible for simplification and students are passive	Pattiwael (2019)	V10
		The learning results of each subject are published in the syllabus	Stanny *et al.* (2015)	V11
		The teaching/learning processes (teaching method) are consistent and standard	Bahadir and Tuncer (2020)	V12
	Managed	The professors' experiences extend to more than one course	Flegl and Andrade Rosas (2019)	V13
		Professors do the simplification and students are active	Planas *et al.* (2013)	V14
		Teaching/learning processes are compared with peer institutions	Klopper and Drew (2015)	V15
		Teaching/learning processes (teaching methods) are predictable	Marini *et al.* (2019)	V16
	Optimized	Methodology is part of the educational strategy of the institute	Newton (2003)	V17
		Teaching and learning responsibilities are shared between professors and students	Cook-Sather and Luz (2015)	V18
		The change in the educational process is managed	Craig (2007)	V19
		The teaching/learning processes (teaching methods) are constantly improved	Biggs (2012)	V20

Table 2.
The qualitative findings of meta-synthesis approach – the convergence of maturity model and education and evaluation in accounting

(*continued*)

Dimension	Levels	Indicators	Author(s)	Variable sign
Evaluation methods	Initial	The content of courses and instructors are informally evaluated by students	Mason *et al.* (2002)	V21
		Exams are held officially to evaluate students' memory	Williams and Wong (2009)	V22
		There is variation in the quality of education	Näykki *et al.* (2017)	V23
	Repeatable	Follow-up and monitoring of the program and course is done	Horsburgh (1999)	V24
		The content of courses and instructors are officially evaluated by students	Denson *et al.* (2010)	V25
		The educational quality of courses is guaranteed	Lawrence and McCollough (2001)	V26
	Defined	Courses are evaluated by students	Denson *et al.* (2010)	V27
		Alternative forms are adopted by courses to evaluate learning levels, skills and competencies	Bergsmann *et al.* (2015)	V28
		The educational objectives of each program are published in the syllabus	Stanny *et al.* (2015)	V29
	Managed	Academic fields are evaluated by the institute	Bianco *et al.* (2016)	V30
		Alternative forms for evaluating learning levels, skills and competencies are extended to more than one period	Bergsmann *et al.* (2015)	V31
		The founding board members are involved in evaluating the results of the program	Bianco *et al.* (2016)	V32
	Optimized	The institution is evaluated by higher authorities (ministry or parent university)	Noaman *et al.* (2017)	V33
		The learning levels, skills and competencies of all students are evaluated in the institute	Martha *et al.* (2021)	V34
		Feedback on the results is done in every educational program	Richardson (2005)	V35

Source: Created by authors

Table 2.

Level 4 (managed), characterized by courses evaluated by the higher education institutes concerning active methodologies, and expanding alternative ways to assess the levels of learning and skills to more than one course (Garbin *et al.*, 2022).

To control the appropriateness of classification in the conceptual model obtained from the first phase, the dimensions and indicators were repeatedly reviewed and commented on by expert professors. To assess the credibility of phases, the indicators were presented to two experts independently. Cohen's kappa coefficient was used to estimate the agreement between the two raters. Using SPSS, Cohen's kappa coefficient was estimated. This coefficient indicated that the agreement level was high, so the specified indicators enjoyed

high reliability. The p-value was 0.000 and lower than 0.05, which indicated that the assumption of independence of extraction codes was rejected. Table 3 shows information about the reliability of research in SPSS.

3.2 Phase two: presenting a final framework through survey

Maturity model designs must be viewed by university interest groups to align assessment mechanisms to teach and learn with flexible components that respond to organizational goals (Tocto-Cano *et al.*, 2020). Hence, in the second phase, a questionnaire was designed based on the indicators extracted from the first phase so that the opinions of the university interest groups are viewed for proposing a framework for the convergence of maturity model and education and evaluation in accounting.

3.2.1 Research population and sampling. Public universities have more initiatives to enhance the research and teaching capacity (Moshtari *et al.*, 2023). Hence, in the present study, accounting faculty members in Iranian public universities were employed to fill out the questionnaire electronically and present a framework for the convergence of maturity model and education and evaluation in accounting. According to investigations and recorded information in universities and Iranian ministry of Science Research and Technology, 243 people have been working as accounting faculty members in Iranian public universities until early 2023. First, the opinions of several academics about the questionnaire validity were asked which confirmed the validity. Then, based on 30 prototypes and the p and q values calculated using Cochran's formula, the final sample size ($n = 83$) was estimated:

$$n = \frac{N^{Z^2_{\frac{\alpha}{2}}\ pq}}{\in^2\ (N) + z^2_{\frac{\alpha}{2}} pq} = \frac{243(1.96)^2(0.94)(0.06)}{(0.05)^2(243) + (1.96)^2(0.94)(0.06)} \cong 64$$

where,

p = Estimation of variable attribute ratio;
p = 0.94;
q = 1−p = 0.0.06;
€ = Estimation error limit 0.05;
z = Standard normal variable corresponding to 95% confidence level ($1.96 = Z_{\frac{\alpha}{2}}$); and
N = The size of community is equal to 243.

After four months of frequent follow-ups from respondents, a total number of 68 questionnaires were collected, 2 of which were removed for some reasons like not answering most questions. Finally, 66 questionnaires were analyzed statistically.

3.2.1.1 Reliability. The present study tested the reliability of each dimension/level by calculating the Cronbach's alpha and average variance extracted (AVE). The results showed that the dimension/levels possess good reliability, as the Cronbach's alpha

Table 3. Measure of the agreement to determine the research reliability

Credibility of the stages	Expert	Value	Asymp. Std	Approx. Sig
Measure of agreement Kappa	1	0.793	0.054	0.000
	2	0.728	0.041	0.000

Source: Research findings

coefficients were all higher than 0.7 cut-off value recommended by Nunnally (1994), and the average variance extracted for each dimension/level is greater than 0.50 (Bagozzi and Yi, 1988) (Table 4). These results suggest that no deletion of indicators was necessary.

4. Research findings

4.1 Descriptive statistics

4.1.1 Descriptive statistics of respondents. The respondents' demographic features are summarized in Table 5. The results show that most respondents (96.9%) are male. Most respondents (69.27%) have 21 to 30 years of experience. Moreover, most respondents (48.5%) are in the age group of 51 to 60 years.

4.1.2 Description of effective factors for sustainable education. The results showed that the mean score of indicators is higher than 3 (average value). Also, the values of skewness and kurtosis of all indicators are within the range of "+2" and "−2", so their normality cannot be rejected.

Dimension	Level	Cronbach's alpha	AVE
Teaching and learning processes	Initial	0.812	0.726
	Repeatable	0.825	0.635
	Defined	0.836	0.632
	Managed	0.798	0.764
	Optimized	0.832	0.761
Evaluation methods	Initial	0.821	0.734
	Repeatable	0.764	0.652
	Defined	0.832	0.715
	Managed	0.863	0.738
	Optimized	0.827	0.731
All dimensions	–	0.829	0.745
All levels	–	0.816	0.702

Source: Research findings

Table 4. Cronbach's alpha and average variance extracted (AVE) results

Profile of respondents	Response	No.	%
Gender	Male	64	96.9
	Female	2	3.1
Experience (Year)	<10 years	4	6.1
	11 to 20 years	27	40.9
	21 to 30 years	31	46.9
	>30 years	4	6.1
Field of study	Accounting	43	65.2
	Auditing	23	34.8
Age	<40 years	2	3.0
	41 to 50 years	19	28.8
	51 to 60 years	32	48.5
	>60 years	13	19.7

Source: Research findings

Table 5. Information about the respondents

4.2 Main results

4.2.1 Confirmatory factor analysis. In this research, AMOS and two-stage confirmatory factor analysis (CFA) models were used to test the relationships between latent variables and their indicators. These models test the relationship between the items of the questionnaire and the structures. In the first stage, the CFA models create and measure the validity of each dimension (i.e. Teaching and learning processes, and Evaluation methods) considering their levels and indicators as effective dimensions to develop a framework for convergence of maturity model and education and evaluation in accounting. Factor loadings greater than 0.4 are considered significant (Xu *et al.*, 2023). The results showed that the factor loadings of all dimensions and levels is more than 0.4, and the *t*-values for all items is more than 1.96, which provides appropriate factor structures to measure the dimensions understudy in the model. Table 6 also shows the factor loadings, standard deviation, *t*-values, and significance for all dimensions, levels and indicators. As the significance level is lower than 0.05, all dimensions, levels and indicators are effective in promoting the framework for convergence of the maturity model and education and evaluation in accounting.

4.2.2 Indicators ranking in the framework for convergence. Table 7 shows the indicators ranking in the framework for convergence of maturity model and education and evaluation in accounting. These indicators are prioritized due to higher factor loadings (FL) at five levels. Prioritization in the "Teaching and learning processes" dimension shows that indicators V3 (FL = 0.869), V6 (FL = 0.823), V11 (FL = 0.967), V15 (FL = 0.888) and V19 (FL = 0.973) gained the highest significance in the initial, repeatable, defined, managed and optimized levels, respectively. Moreover, in the "Evaluation methods" dimension, indicators V21 (FL = 0.857), V25 (FL = 0.895), V29 (FL = 0.881), V32 (FL = 0.949) and V35 (FL = 0.903) gained the highest rank in the initial, repeatable, defined, managed and optimized levels, respectively.

4.2.3 Validity and model fit. Having examined the factor loadings, the evaluation of the validity of measurement scales is presented using model fit indices. These indices include Chi-square fit statistics/degree of freedom (CMIN/DF), root mean square residual (RMR), goodness-of-fit index (GFI), normed fix index (NFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA). All analyses were done with the Statistical Product and Service Solutions (SPSS) and Analysis of Moment Structures (AMOS) software. Acceptable indicators were considered to be (Lee *et al.*, 2021): CMIN/DF between 2 and 3; RMR < 0.05; CFI > 0.90; NFI > 0.80; GFI > 0.85; RMSEA < 0.08. Moreover, the PRATIO (parsimony ratio) which compares the degrees of freedom for the default model (df) and independence model (dfi) (Yaşlioğlu and Yaşlioğlu, 2020). Table 8 shows the values of fit indices. Therefore, the goodness of fit in this study is appropriate. Thus, it can be concluded that the models have a good fit.

4.2.4 Path coefficients for research models. Path coefficient analysis identifies the direct and indirect effects of the associations of variables with each other and measures the relative importance of each (Seid *et al.*, 2023). The standard estimates of regression path coefficients for the final model along with standard deviation and significance level (*p*-value) are presented in Table 9. The results show both dimensions of "Teaching and learning processes" and "Evaluation methods" have positive and significant (sig < 0.05) regression path coefficients in the convergence model. These dimensions are mutually related to the convergence model. The teaching and learning processes dimension has the highest regression path coefficient (coefficient: 0.932) indicating a greater impact of this dimension on the convergence model. In addition, all five levels have positive and significant regression path coefficients with both dimensions (sig < 0.05).

Dimension	Level	Indicator/variable sign (according to Table 2)	Factor load	SD	*t*-statistic	Sig.
Teaching and learning processes			0.823	–	–	–
Evaluation methods			0.788	0.110	9.089	0.000
	Initial		0.809	–	–	–
	Repeatable		0.412	0.128	2.140	0.032
	Defined		0.415	0.113	2.175	0.030
	Managed		0.997	0.125	10.694	0.000
	Optimized		0.759	0.130	8.900	0.000
Teaching and learning processes	Initial	V1	0.565	–	–	–
		V2	0.452	0.224	3.767	0.000
		V3	0.869	0.244	5.642	0.000
		V4	0.849	0.225	5.639	0.000
	Repeatable	V5	0.705	–	–	–
		V6	0.823	0.136	6.955	0.000
		V7	0.797	0.162	6.843	0.000
		V8	0.639	0.116	5.684	0.000
	Defined	V9	0.872	–	–	–
		V10	0.629	0.128	7.196	0.000
		V11	0.967	0.065	14.94	0.000
		V12	0.908	0.072	13.333	0.000
	Managed	V13	0.701	–	–	–
		V14	0.682	0.171	6.147	0.000
		V15	0.888	0.169	7.23	0.000
		V16	0.577	0.161	5.251	0.000
	Optimized	V17	0.599	–	–	–
		V18	0.786	0.182	6.46	0.000
		V19	0.973	0.214	6.85	0.000
		V20	0.817	0.195	6.443	0.000
Evaluation methods	Initial	V21	0.857	–	–	–
		V22	0.841	0.116	8.522	0.000
		V23	0.735	0.109	7.702	0.000
	Repeatable	V24	0.829	–	–	–
		V25	0.895	0.095	10.194	0.000
		V26	0.846	0.099	9.735	0.000
	Defined	V27	0.867	–	–	–
		V28	0.717	0.095	7.934	0.000
		V29	0.881	0.107	9.832	0.000
	Managed	V30	0.698	–	–	–
		V31	0.496	0.149	4.716	0.000
		V32	0.949	0.197	7.676	0.000
	Optimized	V33	0.830	–	–	–
		V34	0.529	0.116	5.387	0.000
		V35	0.903	0.102	10.132	0.000

Source: Research findings

Table 6. Confirmatory factor analysis of hidden variables for convergence of maturity model and education and evaluation in accounting

5. Discussion and conclusion

Maturity models have been used successfully in several areas of knowledge, but their role in accounting has not been investigated in practice. Hence, a theoretical contribution through proposing a maturity model for accounting education seems necessary. The novelty of the present research lies in the convergence of the maturity model and education and evaluation

Dimension	Level	Indicator/ variable sign (according to Table 2)	Factor load	Rank
Teaching and learning processes	Initial	V1	0.565	3
		V2	0.452	4
		V3	0.869	1
		V4	0.849	2
	Repeatable	V5	0.705	3
		V6	0.823	1
		V7	0.797	2
		V8	0.639	4
	Defined	V9	0.872	3
		V10	0.629	4
		V11	0.967	1
		V12	0.908	2
	Managed	V13	0.701	2
		V14	0.682	3
		V15	0.888	1
		V16	0.577	4
	Optimized	V17	0.599	4
		V18	0.786	3
		V19	0.973	1
		V20	0.817	2
Evaluation methods	Initial	V21	0.857	1
		V22	0.841	2
		V23	0.735	3
	Repeatable	V24	0.829	3
		V25	0.895	1
		V26	0.846	2
	Defined	V27	0.867	2
		V28	0.717	3
		V29	0.881	1
	Managed	V30	0.698	2
		V31	0.496	3
		V32	0.949	1
	Optimized	V33	0.830	2
		V34	0.529	3
		V35	0.903	1

Source: Research findings

Table 7.
Indicators ranking in convergence framework

Item	Validity and models' fit						
	CMIN.DF	RMR	GFI	NFI	CFI	RMSEA	PRATIO
Dimensions	2.271	0.036	0.912	0.913	0.914	0.065	0.071
Levels	2.105	0.014	0.946	0.972	0.935	0.048	0.136
Overall model	2.198	0.032	0.932	0.916	0.915	0.0532	0.255
Good fit	2–3	<0.05	>0.85	>0.80	>0.90	<0.08	0–1

Source: Research findings

Table 8.
The results for models' fit

in accounting. The accounting profession should focus on improving the education of accounting students. Hence, university managers and educators can assist students through "Teaching and learning processes" and "Evaluation methods". However, the traditional maturity models have been built with the goal of defined processes (Leppänen, 2013). In practice especially in accounting education, the teaching and learning processes are based on traditional pedagogy aspects and passive learning which damage learning.

This research was conducted in two phases. In the first phase, to determine the dimensions and indicators of convergence of the maturity model and education and evaluation in accounting, the meta-synthesis method was used. In the second phase, a questionnaire was designed to determine a final framework for the convergence of the maturity model as well as education and evaluation in accounting. Academics as accounting faculty members in Iranian public universities were asked to fill out the questionnaire electronically. A total number of 66 questionnaires were analyzed statistically. The results showed that two dimensions of "Teaching and learning processes" and "Evaluation methods" considering initial, repeatable, defined, managed, and optimized levels include 35 indicators. Statistically, the conceptual model from the first stage was also confirmed. Thus, two dimensions and 35 indicators at five levels promoted a framework for convergence of maturity model and education and evaluation in accounting. The results showed both dimensions have positive and significant regression path coefficients in the convergence model. Moreover, the dimension of teaching and learning processes has the highest regression path coefficient indicating a greater impact on the convergence model. In addition, all five levels have positive and significant regression path coefficients with dimensions. Finally, in this study, all indicators were prioritized according to five levels.

5.1 Implications

The present study provides an interactive instrument to discuss and advance the maturity models together with the accounting educational issues. The present findings are of importance to the field providing evidence for the maturity model to enhance the accounting teaching and learning processes, giving rise to practical implications for how to appropriately evaluate the process of implementing learning in accounting education. The current study can foster innovations in teaching practice in universities and help them take

Path	Regression weight	SD	*t*-statistic	Sig.
Convergence model → Teaching and learning processes	0.932	–	–	–
Convergence model →Evaluation methods	0,814	0.252	2.185	0.018
Initial →Teaching and learning processes	0.281	–	–	–
Repeatable → Teaching and learning processes	0.419	0.428	2.498	0.015
Defined → Teaching and learning processes	0.377	0.365	2.392	0.022
Managed → Teaching and learning processes	0.676	0.221	2.452	0.006
Optimized → Teaching and learning processes	0.887	0.712	2.632	0.004
Initial →Evaluation methods	0.296	–	–	–
Repeatable → Evaluation methods	0.602	0.531	2.852	0.009
Defined → Evaluation methods	0.629	0.492	2.842	0.005
Managed → Evaluation methods	0.789	0.532	2.932	0.003
Optimized → Evaluation methods	0.787	0.510	2.874	0.006

Source: Research findings

Table 9. Regression path coefficients for convergence of maturity model and education and evaluation in accounting

improvement measures to stimulate the institutionalization of accounting teaching and learning processes and evaluation methods in accounting. As the connection between an educational framework and a maturity model is an appropriate approach for employment after graduation (Pažur Aničić and Divjak, 2020), the present study can help higher education improve their practices of contributing to the employability of accounting graduates. This study also proposes a path to optimize the accounting education in an intelligent environment which can provide a reference for improved learning and accounting capability. In addition, accounting profession can identify areas for learning improvement and develop a roadmap to achieve greater maturity in their accounting and finance functions. Universities could use these findings to change accounting training and learning methods for the knowledge and skills required by professional accountants that can improve their market position and develop marketing strategies, especially for international accounting students.

5.2 Limitations and future directions

As the academics' opinion has mattered in forming the current research, we attempted to examine their views to improve the convergence of the maturity model and education and evaluation in accounting. Because there was no access to most of them, it was attempted to send them an online survey. In some cases, the questionnaire completion was not done by the intended respondent. Moreover, despite several tracking, all distributed questionnaires were not returned.

Considering the importance of education, learning and evaluation, only two dimensions of "Teaching and learning processes" and "Evaluation methods" were considered in the present research. Yet, other dimensions including project management, team development, allocation of resources and infrastructure are also influential in the maturity model. Future studies should include other dimensions of the maturity model capturing the dynamics of education.

Given the centrality of accounting employability after higher education, future research should consider how to transfer further implications from "university" to "accounting profession". Future research is also influenced by the development of new technologies. Hence, universities can try to connect accounting education with online and practical educational approaches and further develop digital platforms to work online and relate the expectations of enhanced quality and compatibility of accounting education with global market requirements. It is also important to carefully analyze the maturity models to determine if it matches the reality of accounting profession. Future research by answering this question can greatly help advance the accounting education and performance of the accounting profession. The globalization of economies and the increasing need to increase competition face the management of higher education institutions and universities with new opportunities and challenges regarding various processes. Hence, the present study makes empirical contributions by providing alternatives for future research in other countries, and there are hopes that the graduates of these institutions will appear successfully in this competition.

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