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PERFORMANCE EVALUATION OF INNOVATION MANAGEMENT IN ACCOUNTING EDUCATION: A MULTICRITERIA APPROACH

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ABSTRACT

The undergraduate Accounting program faces the considerable challenge of preparing reflective professionals to meet emerging demands in the labor market. The use of innovative methods alongside conventional teaching methods at universities offers a way to improve the teaching and learning process for Accounting students. To evaluate innovation in the teaching and learning process of an undergraduate Accounting program, this study proposes the design of a management model based on the Multicriteria Decision Aiding (MCDA) methodology to support decision-making by Accounting faculty at a public university in southern Brazil. Three permanent faculty members with differing levels of teaching experience were interviewed to design the model. The interviews were transcribed and coded using *ATLAS.ti* software to identify connections among the concepts identified, enabling the construction of means–ends relationship maps. The study contributes an *ad hoc* tool designed to support management and identifies gaps in the literature on innovation in teaching and learning. The design of the management model is the principal result, as it can assess the performance of faculty members in the undergraduate Accounting program and suggest actions for improvement.

Keywords: performance evaluation, MCDA, teaching and learning.

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1 INTRODUCTION

The corporate environment undergoes continual and profound change, challenging professionals in finance, management, auditing, and related fields to develop innovative practices (Ntshangase & Mabusela, 2023). One example is the growing use of automated processes to generate information for accounting reports (Bellinga *et al.*, 2022). These advances have increased the need for Accounting students and professionals to develop the skills to communicate and interpret information essential to users' decision-making (Ntshangase & Mabusela, 2023).

Higher education institutions face the challenge of providing students with the education they need to practice their profession effectively (Warsono *et al.*, 2024). To meet this challenge in teaching and learning, they need to adopt innovative teaching strategies that depart, wholly or partly, from traditional instruction and incorporate emerging demands from the labor market (Fedajev *et al.*, 2024). Employers increasingly seek accountants who can apply critical thinking to problem-solving as a matter of course (Gunarathne *et al.*, 2021; Gyekye & Amo, 2024). In teaching and learning, innovation involves adopting approaches that shift the focus from the teacher to the student through active learning methods (Tauchen & Borges, 2013).

Innovative teaching methods require faculty members to keep pace with rapid changes if education is to advance (Omar *et al.*, 2023). Methods such as the flipped classroom can help students develop reflective and critical thinking skills (Chen *et al.*, 2023). Betakan *et al.* (2024) discuss the difficulty employers in the accounting sector face in finding accountants who apply critical thinking to practical challenges. In this context, performance evaluation, which aims to improve processes in a given setting, becomes essential to achieving established goals and objectives (Ghalayini & Noble, 1996). It is also relevant to defining strategies aligned with educational objectives (Davis & Albright, 2004).

The undergraduate Accounting program at the university examined in this study relies predominantly on traditional teaching and learning methods. Meanwhile, the labor market for accountants is becoming increasingly competitive and seeks professionals who can proactively support organizational management, respond to challenges posed by the market and legislation, and exercise well-grounded critical judgment. Teaching methods play an essential role in preparing professionals and developing students' knowledge and skills. This study argues that, in the current context, innovative teaching and learning methods can better prepare students to practice their profession and contribute to society. This leads to the research question: How can the performance of innovation in the teaching and learning process of an undergraduate Accounting program be managed?

To answer this question, this study proposes the design of a management model using the Multicriteria Decision Aiding (MCDA) methodology to support the management of innovation performance in the teaching and learning process of an undergraduate Accounting program at a public university.

The study is justified by its originality and feasibility (Castro, 2006). Its relevance lies in the contribution that performance evaluation can make to innovation within organizations. Developing models with appropriate, aligned performance measures has been a central concern for researchers seeking to identify shortcomings and support innovation management (Lobo & Samaranayake, 2020). The adoption of innovative approaches to teaching and learning is encouraged in different educational settings, including academic institutions and workplaces (Chen *et al.*, 2023). Applying the MCDA methodology with a constructivist approach can help faculty members at the university under study understand how their teaching strategies perform in terms of innovation in teaching and learning.

2 THEORETICAL FRAMEWORK

Accounting education is changing, creating a need for teaching methods that work well for students, who develop a stronger grasp of theory when they can apply what they have learned in

the classroom to real-world situations (Fernández-Araya *et al.*, 2024). This highlights the need to modify traditional teaching, in which the teacher occupies the central role in conveying knowledge (Lalit & Piplani, 2019).

Ganga-Contreras *et al.* (2023) emphasize the teacher's essential role in identifying and implementing methods that make teaching and learning more effective. These approaches should extend beyond explaining content in class, as in traditional teaching (Fernández-Araya *et al.*, 2024). In this regard, the quality of students' learning depends on the methods teachers choose to help them understand the material. Learning also has a relational dimension: students learn as they identify with and connect to the learning environment created for them (Byrne *et al.*, 2002).

One strategy teachers can use in the classroom is to examine real-world cases through active learning methods (Mitre *et al.*, 2008). This approach encourages students to engage with one another and think critically about the material taught (Lalit & Piplani, 2019). Freire (1996) advocates active learning methods in adult education when the aim is to solve problems and overcome challenges. Arianpoor and Abdollahi (2024) stress that changes to accounting education need to reflect what employers expect of professionals. Betakan *et al.* (2024) note that accounting students may perform better when applying course content if teaching methods foster deep learning. Deep learning encourages students to connect theoretical knowledge with the practical setting in which they work (Dada *et al.*, 2023).

Gamified learning is one teaching method that has gained prominence. The use of gamification in higher education has grown in the twenty-first century (Waluyo *et al.*, 2022). Reported effects include greater student motivation and engagement with assigned activities and, consequently, improved academic performance (Akçayır & Akçayır, 2018; Manzano-León *et al.*, 2021). This approach is associated with blended learning, in which technological tools and social media familiar to students support learning (Nurkhin *et al.*, 2020). Accounting departments routinely use technological tools in the workplace. It is therefore important for teachers to incorporate methods that give students experience with these tools during their education (Wong *et al.*, 2019).

Among innovative teaching methods, the flipped classroom offers a way to use class time differently by encouraging students to consult materials before the teacher-led session (Ivanytska *et al.*, 2021). This approach is also relevant to the development of communication skills (Santikarn & Wichadee, 2018).

In this context, teaching and learning require performance measures that can be used to evaluate progress, monitor activities, make improvements, and achieve established objectives (Ghalayini & Noble, 1996; Neely, 1999). Performance evaluation helps align the planning of objectives with decision-making (Micheli & Mari, 2014).

Performance evaluation is essential when implementing innovative teaching approaches. Bititci *et al.* (2012) argue that performance measures help guide improvements within organizations and monitor performance, particularly when the measures are linked to the strategies adopted in a given context (Franco-Santos *et al.*, 2012).

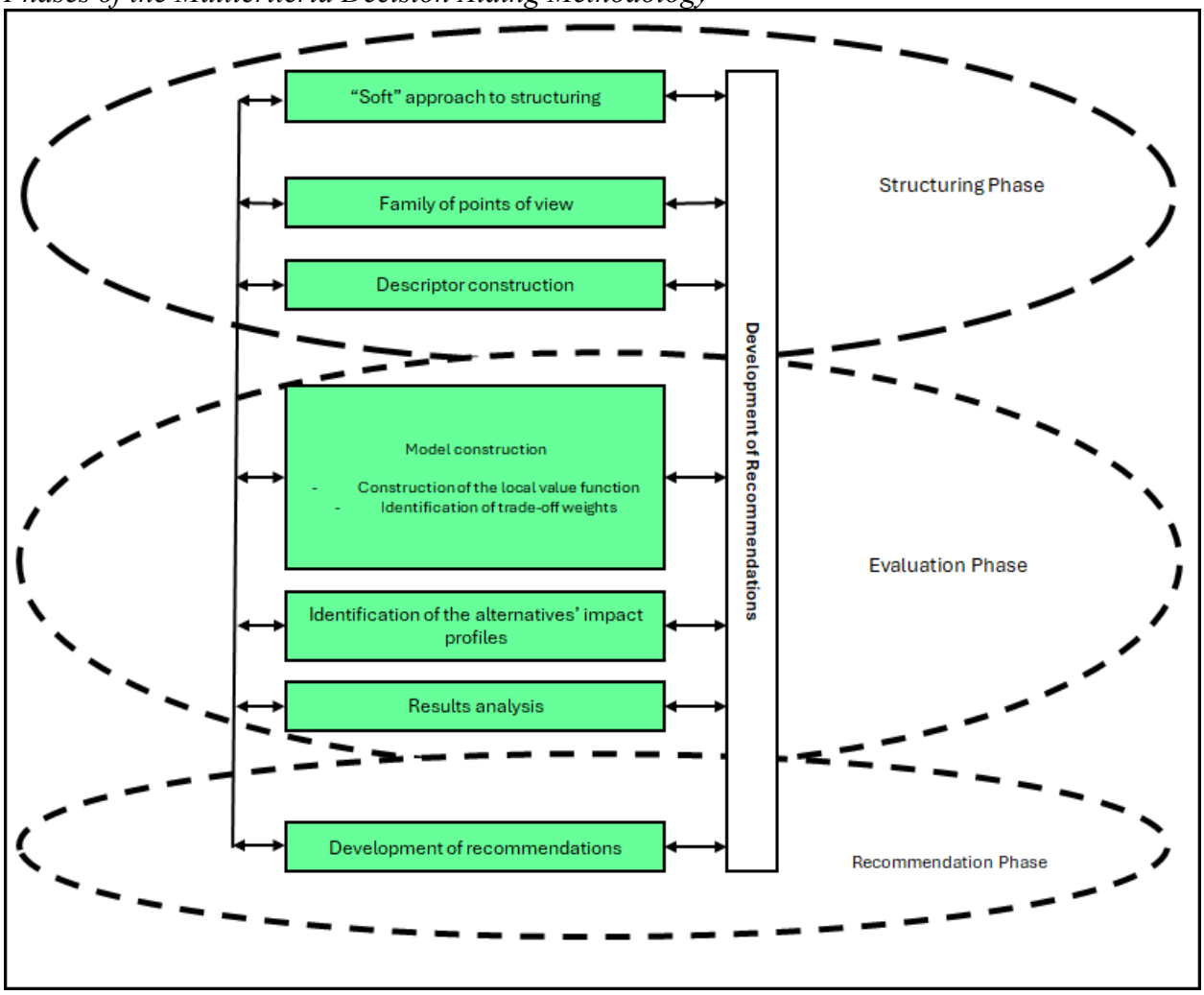
3 METHODOLOGICAL PROCEDURES

This study uses a qualitative approach, developing and describing a case study grounded in the setting examined. It is exploratory in nature, an approach that Gray (2013) considers appropriate for research in complex settings. Here, that setting is an undergraduate Accounting program at a public university. Three faculty members at different stages of their teaching careers agreed to participate in semistructured interviews, offering different perspectives on the teaching methods used in the classroom. The interviews were conducted in accordance with the approved research ethics protocol. The interview data provided the basis for designing the performance evaluation model.

Given the complexity of the setting, the Multicriteria Decision Aiding (MCDA) methodology was used to guide the research. It supported the development of knowledge and reflection needed to design the evaluation model and identify the effects of decisions made by the program's faculty members (Ensslin *et al.*, 2000; Ensslin *et al.*, 2001; Ensslin *et al.*, 2010). The interview data were analyzed using the coding process of *Grounded Theory* (GT) (Strauss & Corbin, 2008), following Charmaz (2009).

The MCDA methodology is divided into three phases, described below to detail the data collection and analysis procedures. The three phases are shown in Figure 1.

Figure 1
Phases of the Multicriteria Decision Aiding Methodology



Source: Translated from Ensslin *et al.* (2000, p. 81).

The data coding technique of Grounded Theory, in Charmaz's approach, was used to identify the Primary Evaluation Elements (PEEs), as it is useful for integrating different perspectives into a single model. In Charmaz's approach to Grounded Theory, data collection and analysis take place simultaneously (Strauss & Corbin, 2008). Coding makes it possible to identify and group data (Charmaz, 2009) and is carried out in four stages: (i) initial coding; (ii) focused coding; (iii) axial coding; and (iv) theoretical coding.

During initial coding, the interview transcripts were examined segment by segment, and provisional codes representing the Primary Evaluation Elements (PEEs) expressed by the decision-makers were identified. Because these codes are provisional, they can be changed to better reflect the decision-makers' views (Charmaz, 2009). In the next stage, focused coding, the initial codes

were used to form categories that represent them according to their content (Charmaz, 2009). Each category represents an area of concern encompassing aspects that share a common purpose. Axial coding was then applied to each category, following Charmaz (2009), to create subcategories and understand how the codes relate to the existing categories. In the final stage, theoretical coding, the relationships among the categories were analyzed to develop a Value Hierarchy Structure (VHS).

The concepts generated through coding were then used to construct Means–Ends Relationship Maps. These maps organize concepts within the same group hierarchically according to their means–ends relationships; concepts in a group address the same area of concern (Ensslin *et al.*, 2000). Each concept represents a point of view. The points of view are broken down and arranged hierarchically in the map until a measurable characteristic or property is identified, allowing an ordinal scale to be constructed. This foundational element of the Value Hierarchy Structure (VHS) is called an Elementary Point of View (EPV).

The scales, called descriptors in the MCDA methodology, are developed with the decision-makers. They set out the possible performance levels for each EPV and identify, from the decision-makers' perspective, the minimum acceptable level, Neutral (Bana e Costa & Silva, 1994), and the desirable level, Good (Bana e Costa & Silva, 1994). Performance above the Good level (the green range in Figure 7) is considered excellent, while performance below the Neutral level is considered problematic (the red range in Figure 7). Performance at an intermediate level is considered competitive (the yellow range in Figure 7) (Ensslin *et al.*, 2010).

In the second phase of the MCDA methodology, Evaluation, knowledge is expanded by converting ordinal scales into cardinal scales and identifying compensation rates (Della Bruna *et al.*, 2011). The conversion is performed using a value function that represents the loss of attractiveness associated with moving from one performance level on the ordinal scale to the next lower level (Ensslin *et al.*, 2000; Tasca *et al.*, 2012). The value function is constructed with the aid of *Macbeth* software (*Measuring Attractiveness by a Category Based Evaluation Technique*) (Bana e Costa & Vansnick, 1995). Decision-makers judge the difference in attractiveness between the descriptor's performance levels using one of seven semantic categories: (i) no difference in attractiveness (indifference); (ii) very weak difference; (iii) weak difference; (iv) moderate difference; (v) strong difference; (vi) very strong difference; and (vii) extreme difference (Ensslin *et al.*, 2001).

The compensation rate indicates the contribution of each point of view to the point of view above it in the hierarchy, allowing an overall performance score to be calculated (Ensslin *et al.*, 2010). *Macbeth* software will also be used for this step (Bana e Costa & Vansnick, 1995). The compensation rates thus allow local performance on the descriptors to be integrated into an overall evaluation through an additive aggregation function in the form of a weighted sum.

The final phase, Recommendations, develops an understanding of actions that could improve current performance and of their potential effects on achieving the strategic objectives expressed by the decision-makers (Della Bruna *et al.*, 2011). This is the management stage itself: it clarifies the consequences of each action and the available options, thereby supporting decision-making (Ensslin *et al.*, 2010).

4 RESULTS

4.1 Structuring Phase

The Structuring phase began by examining and characterizing the decision-making context of the teaching and learning process in the undergraduate Accounting program. The public university was selected because of its importance to the region, having educated accountants for more than 50 years. The decision-makers were permanent faculty members in the program, and interviews were conducted between June and November 2024. To capture different perspectives, three faculty members with distinct profiles were interviewed. Their academic experience and

views on innovation in teaching methods reflect the diversity of the institution's faculty. They are identified as faculty member A, faculty member B, and faculty member C.

Of the three, faculty member A has the most teaching experience, with approximately 20 years in the profession and doctoral experience abroad. Faculty member B has an intermediate profile, with more than 15 years of management experience in the labor market and 10 years of teaching at the institution. Faculty member C completed their academic education at the university under study and is younger than the other two interviewees. Traditional methods still predominate in the undergraduate Accounting program: the teacher directs instruction, while the student plays a passive, receptive role. Given the influence that faculty members' actions can have on teaching and learning, the actors who contributed to developing the model were identified.

Table 1
Actors Involved

Decision-makers	Three permanent faculty members
Facilitator	One of the study's authors
Specialist	The study's other authors
Those affected	Undergraduate students

Source: Prepared by the authors.

After identifying the actors, the study moved to the Family of Points of View (FPV) stage. At this stage, individual, in-person semistructured interviews were conducted with the three decision-makers. During the interviews, they described how they taught course content and the difficulties they encountered with teaching methods in the classroom:

Account 1: We're going through a disastrous situation in higher education in accounting. But I don't think everything is simply going to end, that higher education is over. That's not what I mean. We're going through a period of adjustment; that's natural. What will happen? Private institutions are likely to see their accounting programs stagnate, mainly because it won't be worthwhile for them: they won't have enough students. I know of a private university that is already closing its accounting program, and that's a natural process. Public higher education institutions will withstand this process, and demand for public universities will pick up a little. In light of this, it's up to us as teachers to change our approach.

Account 2: So I see the change in student profiles from two angles. The first and, in my opinion, the main point isn't that students are more or less interested, or that technology is changing their focus. Competition for places has dropped dramatically. When a lot of people enter the institution, the student profile changes considerably too.

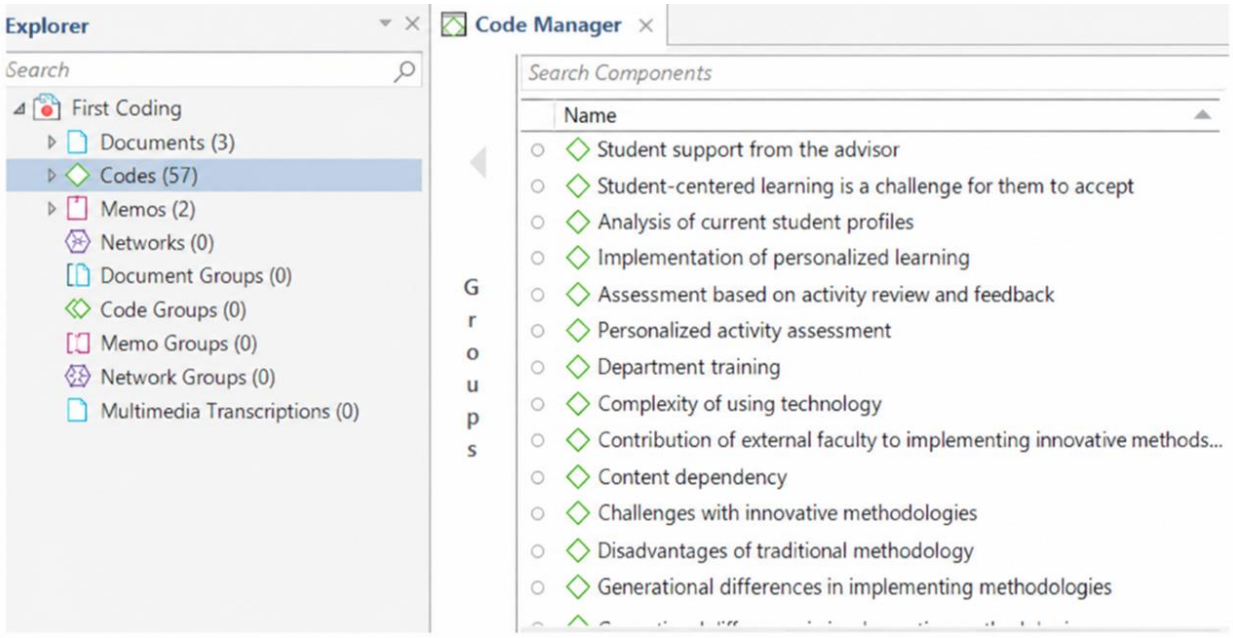
In one of the interviews, it became clear that the faculty members themselves recognize the need to innovate in the teaching methods used in the program:

Account 3: Teachers need to change their approach and their methods, moving from teaching accounting techniques to teaching students how to interpret accounting information and pursue entrepreneurship through accounting. I think that's our challenge in the classroom. Business administration has always done that, and other programs have always done that. At the end of the day, our program is technically oriented, and now it's losing out to artificial intelligence.

Account 4: So I think having an innovative strategy in the classroom gives them a certain standing, you know? I'd say this is a time to recognize that the usual model isn't the only one that could work. Another model could work too.

All interviews were transcribed and imported into *ATLAS.ti* software to begin coding. In the first stage, initial coding, 57 provisional codes were identified.

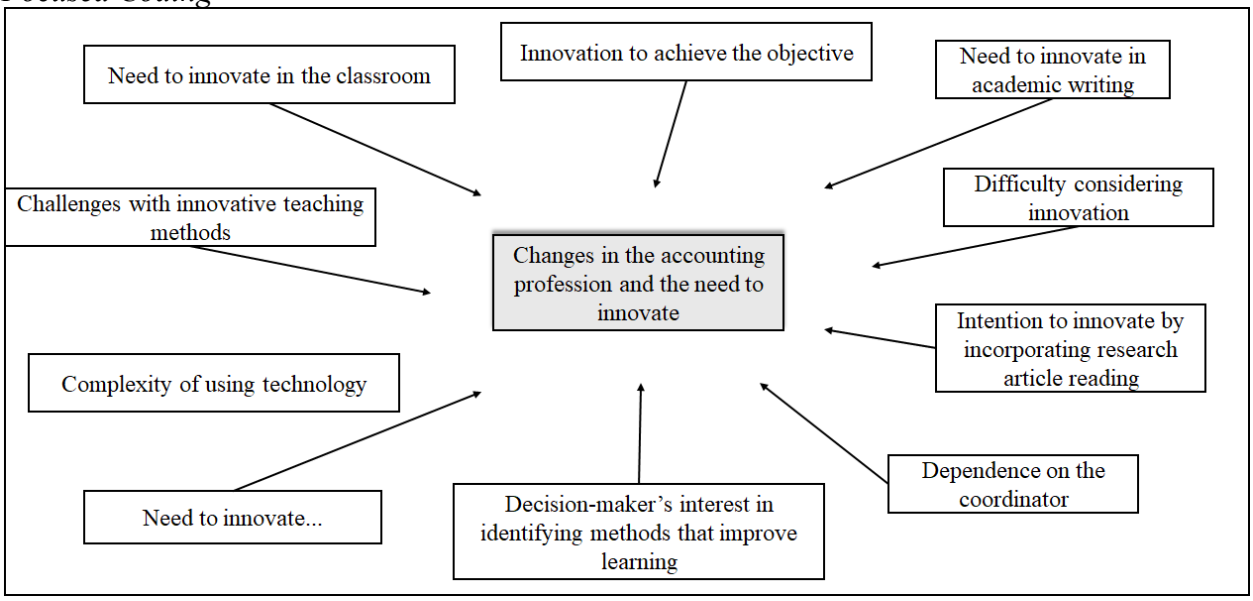
Figure 2
Initial Coding



Source: Prepared by the authors.

The codes generated during initial coding were analyzed to create categories grouping data that were related in some way. To illustrate this process, Figure 3 shows the category "Changes in the Accounting Profession and the Need to Innovate," which brings together the following codes: "Need to Innovate," "Challenges with Innovative Methods," "Skills in Using Technology," "Complexity of Using Technology," "Decision-Maker's Interest in Identifying Which Methods Best Support Learning," "Dependence on Program Coordination," "Intention to Innovate by Introducing the Reading of Scientific Articles," "Difficulty in Thinking About Innovation," "Need to Innovate in Academic Writing," and "Innovation to Achieve the Objective." The same procedure was applied to the remaining provisional codes. At this stage, four categories were identified as the model's areas of concern.

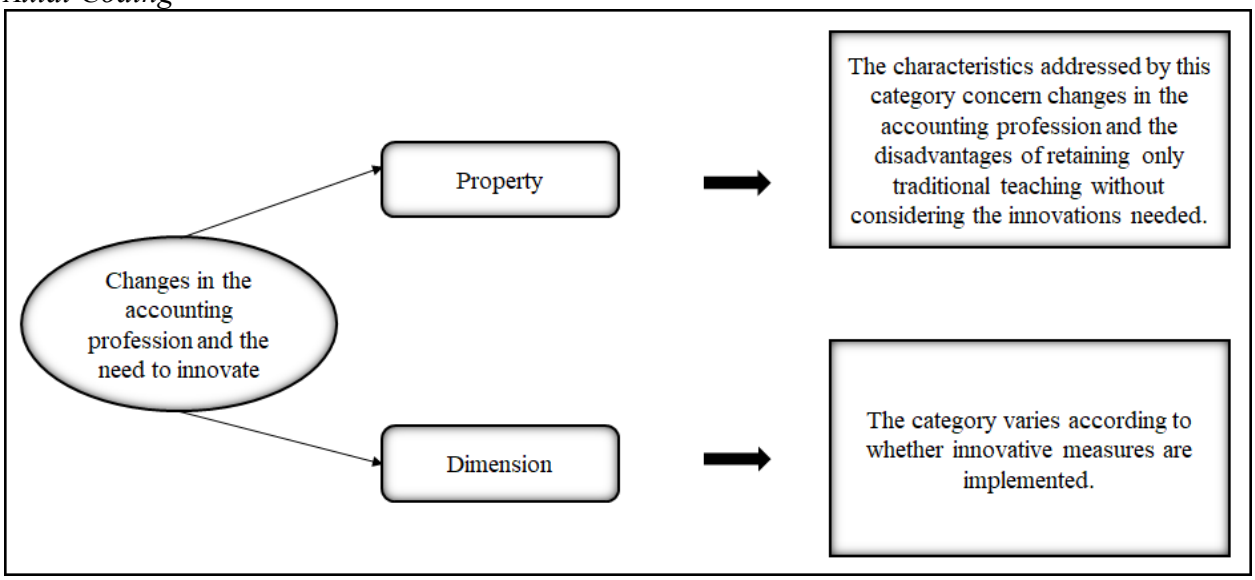
Figure 3
Focused Coding



Source: Prepared by the authors.

Axial coding followed. Each group of codes was analyzed to identify the properties and dimensions of the categories formed from them. Properties are the attributes that distinguish a category, while dimensions capture variation within it (Strauss & Corbin, 2008). Figure 4 illustrates the properties and dimensions identified for the category "Changes in the Accounting Profession and the Need to Innovate".

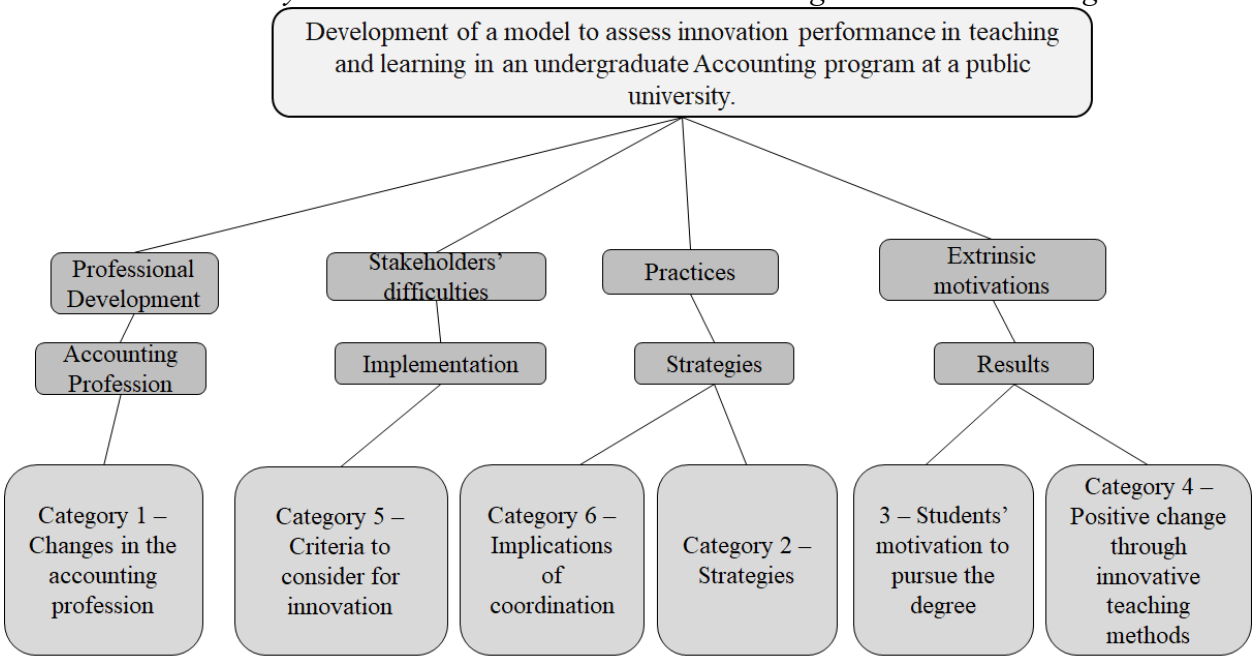
Figure 4
Axial Coding



Source: Prepared by the authors.

The final coding stage was theoretical coding, in which the relationships among the categories were examined to connect them. At this stage, the four areas of concern were also given overarching names, yielding four final categories corresponding to the Fundamental Points of View (FPVs) in the MCDA methodology.

Figure 5
Initial Value Hierarchy Structure with the FPVs Derived Through Theoretical Coding

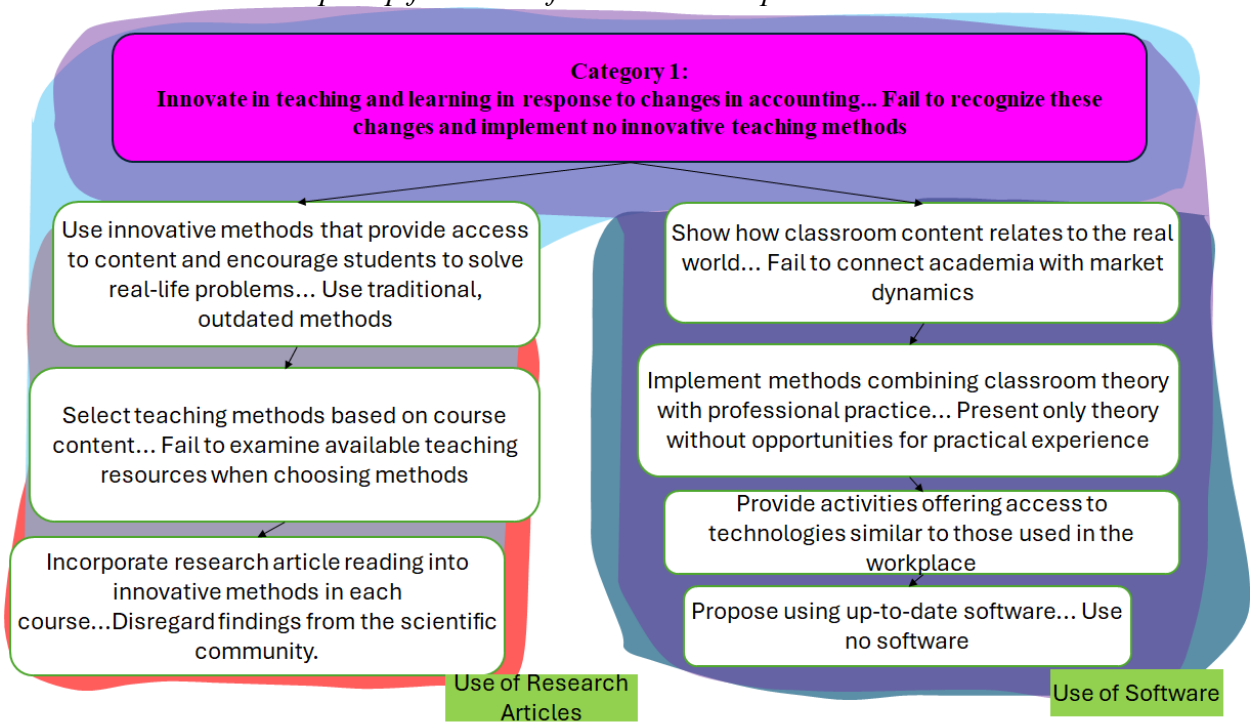


Source: Prepared by the authors.

Once coding was complete, it provided the initial classification for the Value Hierarchy Structure shown in Figure 5. Each Fundamental Point of View was then explored by constructing and using Means–Ends Relationship Maps (Ensslin *et al.*, 2000). These maps help identify hierarchical relationships between concepts concerning the ultimate objective and the actions needed to achieve it. The maps are constructed through logical relationships of decomposition and

influence among the concepts, referred to as points of view, according to the decision-maker's preferences for achieving the FPV.

Figure 6
Means–Ends Relationship Map for the Professional Development FPV

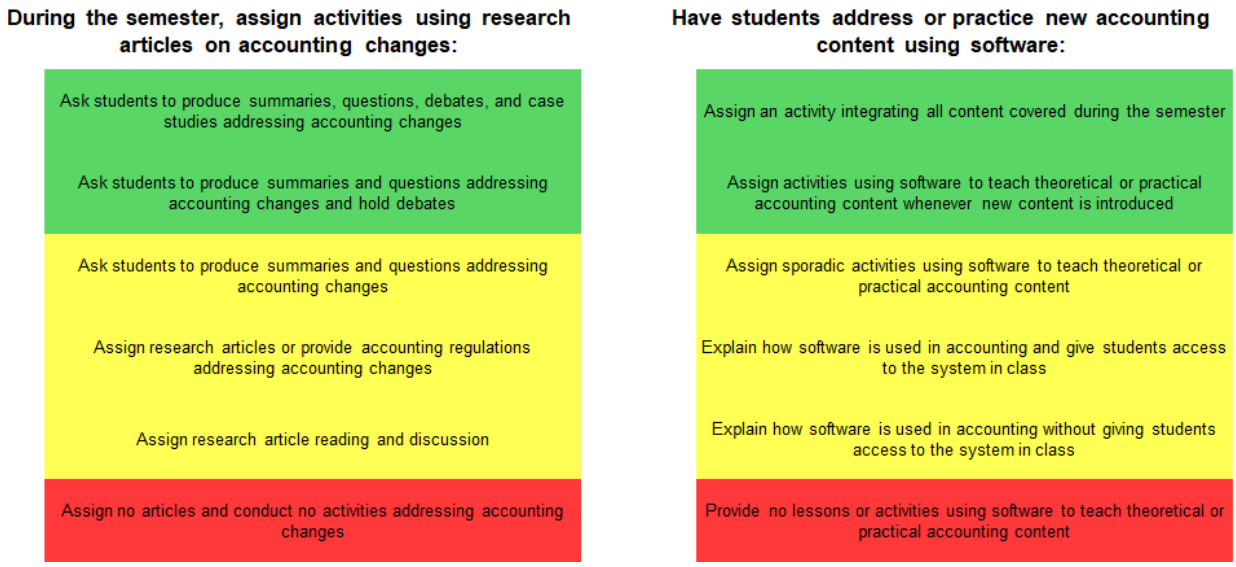


Source: Prepared by the authors.

Each branch is named after an Elementary Point of View (EPV), for which a descriptor (ordinal scale) is constructed. The model design comprised 14 EPVs. The descriptors were developed with the decision-makers to ensure that the characteristics selected for evaluation reflected their preferences. Once the scales had been constructed, the minimum acceptable performance was set as the Neutral level and the target as the Good level. Performance above the Good level is considered excellent, while performance below the Neutral level is considered problematic.

Figure 7

Descriptors for the EPVs "Use of Scientific Articles" and "Use of Software"



Source: Prepared by the authors.

4.2 Evaluation Phase and Performance Profile

The Evaluation phase begins by converting the ordinal scales into cardinal scales. The decision-makers participated in this process by expressing, through semantic judgments, the differences in attractiveness between levels on each scale using *Macbeth* software (Bana e Costa & Vansnick, 1995). Figure 8 shows how the value function was constructed for the EPV "Use of Scientific Articles".

Figure 8

Process of Generating the Value Function in MACBETH Software for the EPV "Use of Scientific Articles"

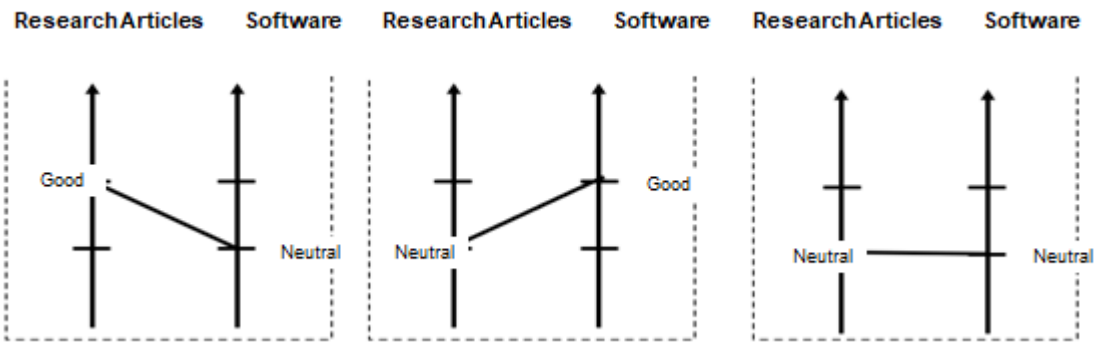


Source: Prepared by the authors.

Next, compensation rates were determined to enable an overall evaluation of innovation in the teaching and learning methods used by each faculty member in each course, supporting decisions about adopting more innovative practices. These rates were determined through pairwise comparisons using *Macbeth* software. Based on the hierarchical structure, rates reflecting the value judgments expressed and validated by the three decision-makers were established. Figure 9 illustrates how the EPVs "Use of Scientific Articles" and "Use of Software" were ranked to identify their compensation rates.

Figure 9

Ranking of the EPVs "Use of Scientific Articles" and "Use of Software" Using the Roberts Matrix and Identification of Compensation Rates



Descriptor	Research Articles	Software	A0	Sum	Rank
Research Articles		1	1	2	1st
Software	0		1	1	2nd
A0	0	0	0	0	3rd

	A1	A2	A0	Current Scale
A1	none	weak	very strong	100.00
A2		none	strong	66.67
A0			none	0.00

Consistent judgments

Current Scale
60%
40%
0

Extreme
Very strong
Strong
Moderate
Weak
Very weak
None

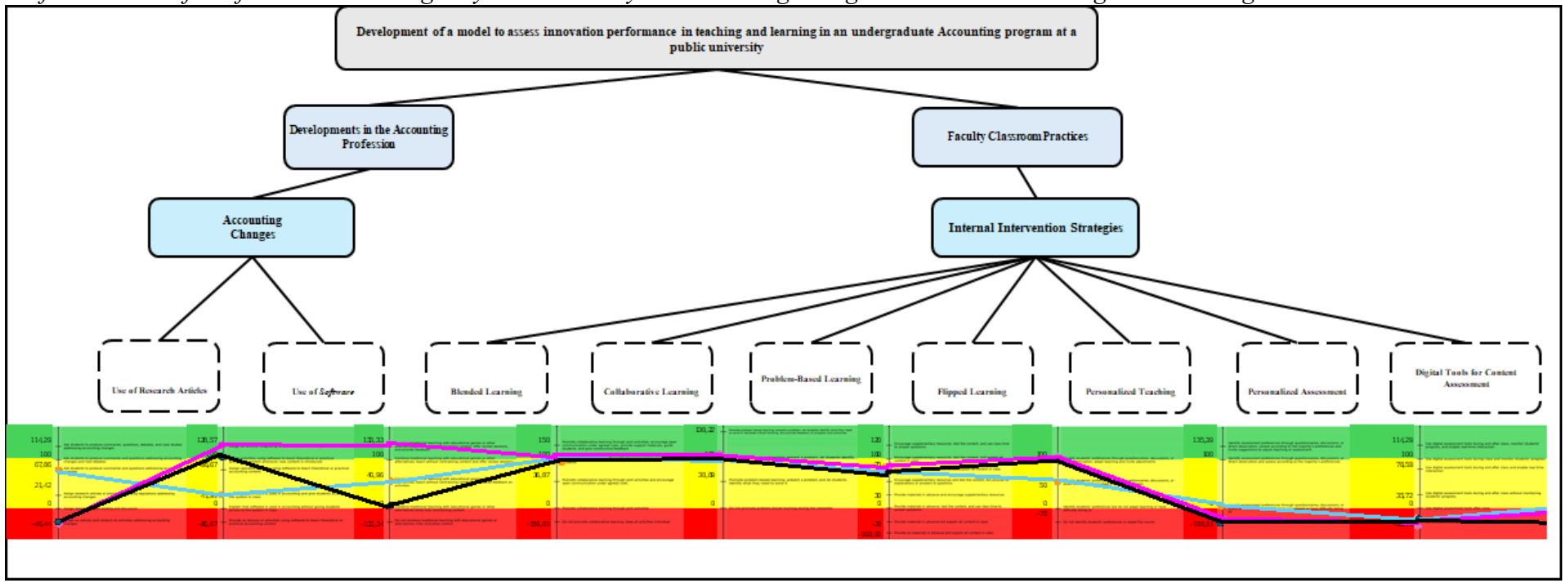
Source: Prepared by the authors.

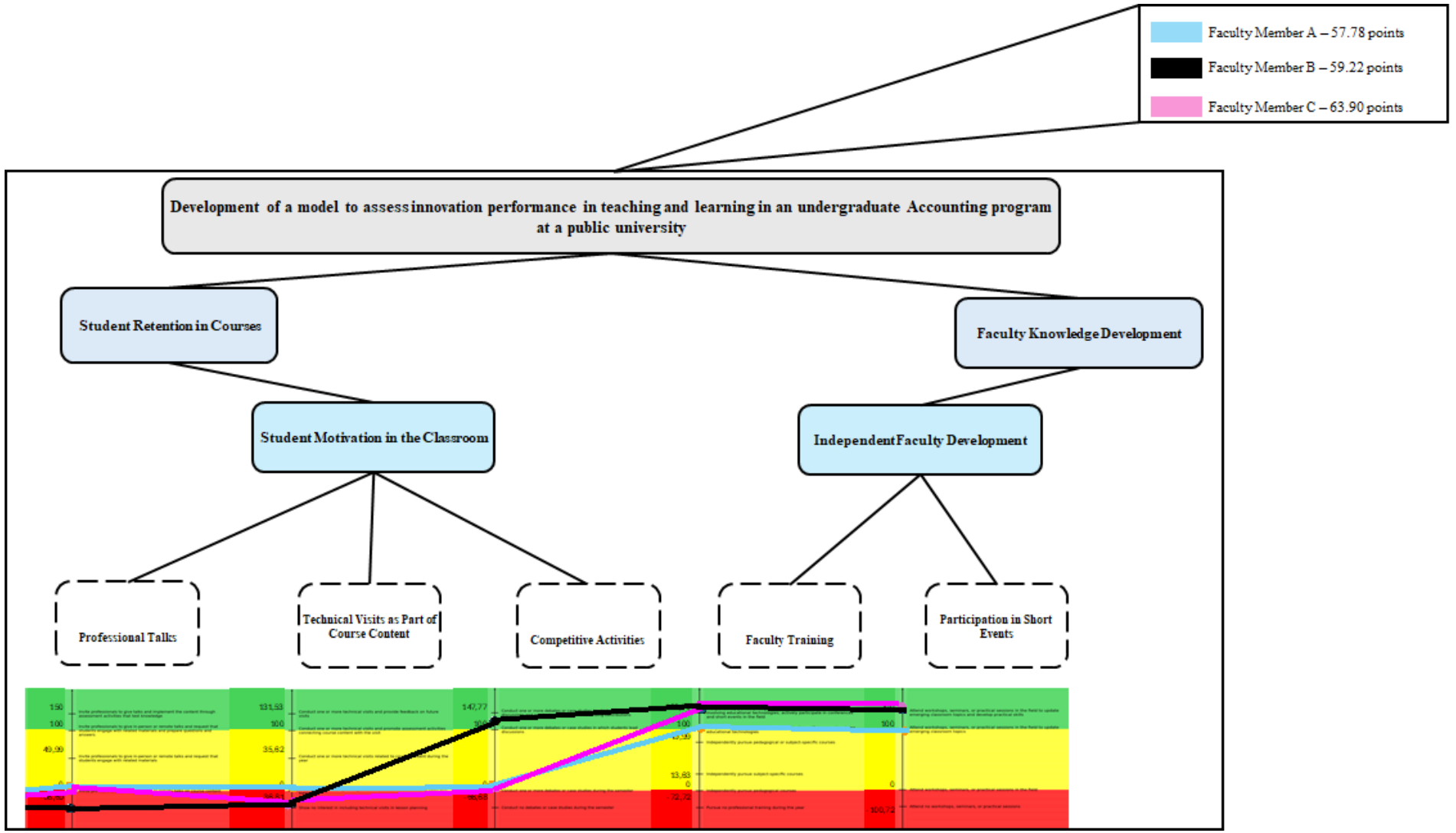
The lower part of Figure 9 shows how *Macbeth* software converted the faculty members' semantic judgments into compensation rates of 60% for the EPV "Use of Scientific Articles" and 40% for the EPV "Use of Software" within the FPV "Updates in the Accounting Profession – Accounting Changes."

Following this process, a performance profile was developed for one course taught by a faculty member who participated in designing the model. The profile makes it possible to measure and calculate a score for innovation in the course's teaching and learning process. The performance profile is shown in Figure 10.

Figure 10

Performance Profile of the Courses Taught by Three Faculty Members Regarding Innovation in Teaching and Learning.





Source: Prepared by the authors.

Using active learning methods in the classroom helps students develop the attributes they need to meet the demands of the labor market (Abou-El-Sood, 2024). In the interviews, faculty members in the undergraduate Accounting program said they now find it difficult to hold students' attention amid other distractions in the classroom:

Account 5: Students have more interesting things to pay attention to. Their phones, anything, really, rather than listening to me talk for an hour and a half in class. So, for me, the biggest drawback is that sometimes I can't engage students just by talking.

Account 6: But now, with all these advances in technology, AI, and everything else, and with the change in student profiles, I personally don't know where we're heading. Today's students have no patience. They come to university, sit down, and can't stand listening to a teacher deliver material for 50 minutes or an hour and a half anymore.

Faculty members need to make an effort to understand the needs of each class and adapt their teaching methods to hold students' attention. Consistently relying on traditional instruction, in which the teacher controls the content and students simply receive it, is therefore poorly suited to current student profiles. Among the three faculty members, C, the youngest in their higher education teaching career, received the highest score, 63.90. By contrast, A, with more than 20 years of classroom experience, received the lowest score, 57.78. B's intermediate score of 59.22 suggests both an effort to innovate in the classroom and some resistance to taking that process further. For all three, consistently using active learning methods remains a challenge. It requires ways to understand the particular class they teach, as well as a willingness to put those methods into practice.

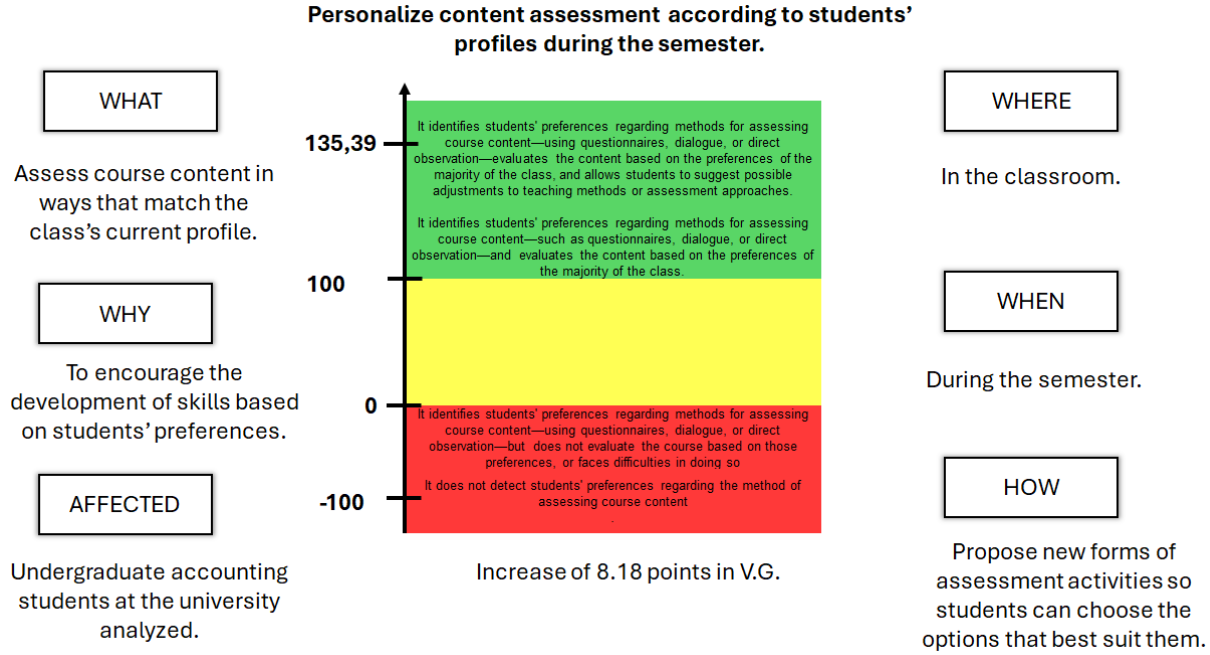
In considering innovative teaching methods for the undergraduate Accounting program, Santikarn and Wichadee (2018) emphasize that students are more willing to accept such methods when the teacher's choice is appropriate to the subject matter and the classroom setting.

4.3 Recommendations Phase

According to Ensslin *et al.* (2018), the final stage of the MCDA methodology makes it possible to identify improvements and understand the results that implementing them could achieve. The recommendations proposed in this study therefore address an EPV for which innovation in the course's teaching and learning process is at a problematic performance level: the descriptor "Tailor assessments of course content to the students' profile during the semester." Implementing actions such as designing assessments suited to the class's profile would help establish innovative methods that meet the needs of students entering the undergraduate Accounting program. These actions would increase the model's overall score by 8.18 points from its current value of 59.22. Figure 11 presents the proposed recommendations.

Figure 11

Recommended Actions to Improve the Course's Teaching and Learning Performance on the EPV "Tailor Assessments of Course Content to the Students' Profile During the Semester"



Source: Prepared by the authors.

4.4 Discussion of Results

Applying MCDA to evaluate innovation in teaching and learning yielded relevant results. The multiple criteria used and validated by the decision-makers enabled a performance evaluation tailored to the dimensions of accounting education at the university where the three faculty members work. They expressed satisfaction with the ability to measure innovation and receive recommendations for improving the teaching methods they currently use in the classroom.

Certain teaching practices used by all three faculty members were regarded as essential to students' education. All three reported using collaborative learning, which they associated with student interaction and the exchange of knowledge and experience that this approach enables.

The integration of digital tools into personalized assessments of course content still calls for innovative actions that can identify a class's preferences during a given semester. Betakan *et al.* (2024) argue that creating a strategic learning environment makes learning more effective while sustaining factors such as students' extrinsic motivation.

5 CONCLUSIONS AND RECOMMENDATIONS

The findings of this study are consistent with the literature on contemporary challenges in undergraduate Accounting education, including the predominance of curricula that emphasize theory over practice, as noted by Betakan *et al.* (2024).

Faculty members in the undergraduate Accounting program at the institution studied recognize the importance of adapting teaching methods to the changing profile of students entering the program. However, there was no management framework for understanding the teaching and learning approaches used by the program's faculty members.

Performance evaluation was therefore selected to assess faculty members' use of innovative teaching methods in the classroom. This made it possible to identify the criteria needed to support the evaluation of innovation in teaching and learning among the institution's permanent Accounting faculty.

An intervention tool based on the MCDA methodology was selected to design the performance evaluation model because this methodology can address multiple criteria in a highly complex setting. The tools used provided both theoretical and practical support for innovation in higher education in Accounting. The model was developed with the validation of the decision-makers who participated in the process. It thus incorporated aspects they considered relevant to the setting studied, resulting in a tool that supports faculty members' decisions about innovation in their teaching and learning practices.

The model showed that faculty members see the use of active learning methods as central to innovative teaching, particularly as incoming students' profiles have changed and students have become more easily distracted. For faculty members in the Accounting department, the barriers to effective learning are therefore linked to the teaching methods used in the classroom.

Consistent with the case study findings, the literature points to a need for innovative methods in Accounting education but reveals a gap in the development of models tailored to a particular setting rather than replicated from other contexts. The model designed in this study helped validate faculty members' views on implementing active learning methods, demonstrate current performance, and recommend actions for improvement.

Future research could include more faculty members, as performance profiles were developed for only three teachers at the higher education institution studied. A broader group could reveal additional areas of concern and criteria to consider when evaluating innovation in teaching and learning methods.

REFERENCES

Abou-El-Sood, H. (2024). Integrating QuickBooks® in financial accounting classrooms: Evidence from the UAE. *Accounting Education, 34*(3), 1–21. https://doi.org/10.1080/09639284.2024.2323038

Akçayır, G., & Akçayır, M. (2018). The flipped classroom: A review of its advantages and challenges. *Computers & Education, 126*, 334–345. https://doi.org/10.1016/j.compedu.2018.07.021

Arianpoor, A., & Abdollahi, A. (2024). A new challenge in accounting education: Convergence of maturity model, education and evaluation in accounting. *Accounting Research Journal, 37*(2), 211–229. https://doi.org/10.1108/ARJ-09-2023-0240

Bana e Costa, A. C., & Vansnick, J. C. (1995). Uma nova abordagem ao problema de construção de uma função de valor cardinal: MACBETH. *Investigação Operacional, 15*, 15–35.

Bana e Costa, C. A., & Silva, F. N. (1994). Concepção de uma "boa" alternativa de ligação ferroviária ao Porto de Lisboa: Uma aplicação da metodologia multicritério de apoio à decisão e à negociação. *Investigação Operacional, 14*(2), 115–131.

Bellinga, J., Bosman, T., Höcük, S., Janssen, W. H., & Khzam, A. (2022). Robotic process automation for the extraction of audit information: A use case. *Current Issues in Auditing, 16*(1), A1–A8. https://doi.org/10.2308/CIIA-2020-043

Betakan, M. B., Owusu, A. A., & Tufuor Kwarteng, J. (2024). Determinants of learning strategies among undergraduate accounting students: A study in an emerging economy. *Cogent Education, 11*(1), 2432738. https://doi.org/10.1080/2331186X.2024.2432738

Bititci, U., Garengo, P., Dörfler, V., & Nudurupati, S. (2012). Performance measurement: Challenges for tomorrow. *International Journal of Management Reviews, 14*(3), 305–327. https://doi.org/10.1111/j.1468-2370.2011.00318.x

Byrne, M., Flood, B., & Willis, P. (2002). The relationship between learning approaches and learning outcomes: A study of Irish accounting students. *Accounting Education, 11*(1), 27–42. https://doi.org/10.1080/09639280210153254

Castro, N. A. S. (2006). *A construção da pesquisa: Introdução à pesquisa científica* (2ª ed.). Cortez.

Charmaz, K. (2009). *A construção da teoria fundamentada: Guia prático para análise qualitativa*. Artmed; Bookman.

Chen, Y. L., Lo, S., & Cheng, J. S. (2023). The impact of field-flipped courses on college students' self-regulated learning and learning performance: Take a national university in Central Taiwan as an example. *Journal of Advanced Computational Intelligence and Intelligent Informatics, 27*(2), 281–291. https://doi.org/10.20965/jaciii.2023.p0281

Contreras, F. G, Ponce, E. R, Castillo, J., & Viancos, P. (2023). Situação da oferta de Programas de Doutorado em Educação no Chile. Revista de Ciências Sociais , 29 (2), 49-72. https://doi.org/10.31876/rcs.v29i2.39962

Dada, D., Laseinde, O. T., & Tartibu, L. (2023). Student-centered learning tool for cognitive enhancement in the learning environment. *Procedia Computer Science, 217*, 507–512. https://doi.org/10.1016/j.procs.2022.12.246

Davis, S., & Albright, T. (2004). An investigation of the effect of balanced scorecard implementation on financial performance. *Management Accounting Research, 15*(2), 135–153. https://doi.org/10.1016/j.mar.2003.11.001

Della Bruna, E., Ensslin, L., & Ensslin, S. R. (2011). Supply chain performance evaluation: A case study in a company of equipment for refrigeration. In *Proceedings of the First International Technology Management Conference* (pp. 969–978). IEEE. https://doi.org/10.1109/ITMC.2011.5995992

Ensslin, L., Dutra, A., & Ensslin, S. R. (2000). MCDA: A constructivist approach to the management of human resources at a governmental agency. *International Transactions in Operational Research, 7*(1), 79–100. https://doi.org/10.1111/j.1475-3995.2000.tb00186.x

Ensslin, L., Ensslin, S., Dutra, A., Longaray, A., & Dezem, V. (2018). Performance assessment model for bank client's services and business development process: A constructivist proposal. *International Journal of Applied Decision Sciences, 11*(1), 100–126. https://doi.org/10.1504/IJADS.2018.088636

Ensslin, L., Giffhorn, E., Ensslin, S. R., Petri, S. M., & bVianna, W. B. (2010). Avaliação do desempenho de empresas terceirizadas com o uso da metodologia multicritério de apoio à decisão-construtivista. *Pesquisa Operacional, 30*(1), 125–152. https://doi.org/10.1590/S0101-74382010000100007

Ensslin, L., Montibeller Neto, G., & Noronha, S. M. (2001). *Apoio à decisão: Metodologias para estruturação de problemas e avaliação multicritério de alternativas*. Insular.

Fedajev, A., Jovanović, D., Janković-Perić, M., & Radulescu, M. (2025). Exploring the nexus of distance learning satisfaction: Perspectives from accounting students in Serbian public universities during the pandemic. *Journal of the Knowledge Economy, 16*(1), 4465–4495. https://doi.org/10.1007/s13132-024-02138-x

Fernández-Araya, S., Ortiz-Vidal, F., Silva-Salas, C., Araya-Castillo, L., Ganga-Contreras, F., Santana, A. P., & Pilar-Cortés, F. J. (2024). Critical factors of accounting learning and the methodological strategies used by teachers. *Interciencia, 49*(7), 405–414.

Franco-Santos, M., Lucianetti, L., & Bourne, M. (2012). Contemporary performance measurement systems: A review of their consequences and a framework for research. *Management Accounting Research, 23*(2), 79–119. https://doi.org/10.1016/j.mar.2012.04.001

Freire, P. (1996). *Pedagogia do oprimido* (44.ª ed.). Paz e Terra.

Ghalayini, A. M., & Noble, J. S. (1996). The changing basis of performance measurement. *International Journal of Operations & Production Management, 16*(8), 63–80.

Gunarathne, N., Senaratne, S., & Herath, R. (2021). Addressing the expectation–performance gap of soft skills in management education: An integrated skill-development approach for accounting students. *The International Journal of Management Education, 19*(3), 100564. https://doi.org/10.1016/j.ijme.2021.100564

Gray, D. E. (2013). *Doing Research in the Real World*. Sage.

Gyekye, K. A., & Amo, O. (2024). Quality of accounting graduates and employers' expectations in Ghana. *Journal of International Education in Business, 17*(3), 395–415. https://doi.org/10.1108/JIEB-07-2023-0044

Ivanytska, N., Dovhan, L., Tymoshchuk, N., Osaulchyk, O., & Havryliuk, N. (2021). Assessment of flipped learning as an innovative method of teaching English: A case study. *Arab World English Journal, 12*(4), 476–486. https://doi.org/10.24093/awej/vol12no4.31

Lalit, M., & Piplani, S. (2019). Active learning methodology–jigsaw technique: An innovative method in learning anatomy. *Journal of the Anatomical Society of India, 68*(2), 147–152. https://doi.org/10.4103/JASI.JASI_57_19

Lobo, F., & Samaranayake, P. (2020). A review of innovation in higher education: Implications for the future. *Education Sciences, 10*(10), 263. https://doi.org/10.3390/educsci10100263

Manzano-León, A., Camacho-Lazarraga, P., Guerrero, M. A., Guerrero-Puerta, L., Aguilar-Parra, J. M., Trigueros, R., & Alias, A. (2021). Between level up and game over: A systematic literature review of gamification in education. *Sustainability, 13*(4), 2247.

Micheli, P., & Mari, L. (2014). The theory and practice of performance measurement. *Management Accounting Research, 25*(2), 147–156. https://doi.org/10.1016/j.mar.2013.07.005

Mitre, S. M., Siqueira-Batista, R., Girardi-de-Mendonça, J. M., Morais-Pinto, N. M. D., Meirelles, C. D. A. B., Pinto-Porto, C., & Hoffmann, L. M. A. (2008). Metodologias ativas de ensino-aprendizagem na formação profissional em saúde: Debates atuais. *Ciência & Saúde Coletiva, 13*(Suppl. 2), 2133–2144.

Neely, A. (1999). The performance measurement revolution: Why now and what next? *International Journal of Operations & Production Management, 19*(2), 205–228.

Ntshangase, T. C., & Mabusela, M. S. (2023). Repositioning the teaching approaches towards accounting curriculum implementation in selected South African rural secondary schools. *International Journal of Learning, Teaching and Educational Research, 22*(3), 430–447. https://doi.org/10.26803/ijlter.22.3.26

Nurkhin, A., Kardoyo, K., Pramusinto, H., Setiyani, R., & Widhiastuti, R. (2020). Applying blended problem-based learning to accounting studies in higher education: Optimizing the utilization of social media for learning. *International Journal of Emerging Technologies in Learning, 15*(8), 22–39. https://doi.org/10.3991/ijet.v15i08.12201

Omar, A. M., El Deen, A. A. M. A., Mohamed, A. S., & Teleb, A. A. (2023). Evaluating teaching performance in view of learning and innovation skills among Saudi university instructors. *Information Sciences Letters, 12*(7), 2679–2701. https://doi.org/10.18576/isl/120701

Santikarn, B., & Wichadee, S. (2018). Flipping the classroom for English language learners: A study of learning performance and perceptions. *International Journal of Emerging Technologies in Learning, 13*(9), 123–135. https://doi.org/10.3991/ijet.v13i09.7792

Strauss, A. L., & Corbin, J. (2008). *Pesquisa qualitativa: Técnicas e procedimentos para o desenvolvimento de teoria fundamentada*. Artmed.

Tasca, J. E., Ensslin, L., & Ensslin, S. R. (2012). A avaliação de programas de capacitação: Um estudo de caso na administração pública. *Revista de Administração Pública, 46*(3), 647–675. https://doi.org/10.1590/S0034-76122012000300002

Tauchen, G., & Borges, D. S. (2013). Docência inovadora na universidade: Percursos e princípios organizadores. *Perspectiva, 31*(2), 721–751. https://doi.org/10.5007/2175-795x.2013v31n2p721

Waluyo, B., Min, F., & Castillo, V. V. (2022). Teaching English online in higher education: Understanding the social climate of online academic English courses. *Australasian Journal of Educational Technology, 38*(6), 91–106. https://doi.org/10.14742/ajet.7978

Warsono, S., Sari, R. C., Kusuma Putri, L. N., & Haryana, M. R. A. (2024). The mathematics-based learning method and its impact on student performance in the introductory accounting course: Cognitive load theory. *Journal of International Education in Business, 17*(1), 45–61. https://doi.org/10.1108/JIEB-11-2022-0086

Wong, B. T. M., Li, K. C., Wong, B. Y. Y., & Yau, J. S. W. (2019). Evolution and effectiveness of e-learning in accounting education: The case of Hong Kong. *International Journal of Innovation and Learning, 25*(2), 185–196. https://doi.org/10.1504/IJIL.2019.097659

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

DATA AVAILABILITY

The complete dataset supporting the findings of this study is available from the authors upon reasonable request.

AUTHOR CONTRIBUTIONS

Roles	1º author	2º author	3º author	4º author
Conceptualization	♦	♦	♦	♦
Data Curation	♦		♦	♦
Formal Analysis				
Funding Acquisition				
Investigation	♦			
Methodology	♦	♦	♦	♦
Project Administration	♦	♦		
Resources				
Software		♦		♦
Supervision		♦		
Validation		♦	♦	♦
Visualization			♦	
Writing – Original Draft Preparation	♦			
Writing – Review & Editing	♦	♦	♦	♦

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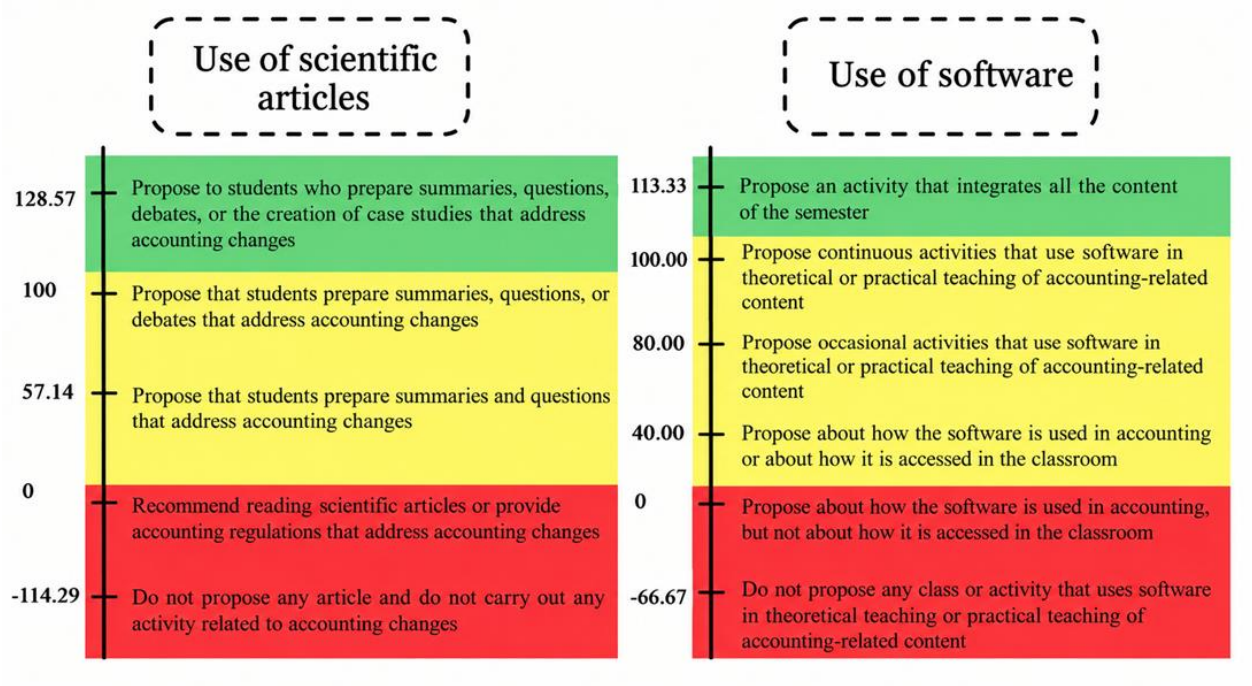
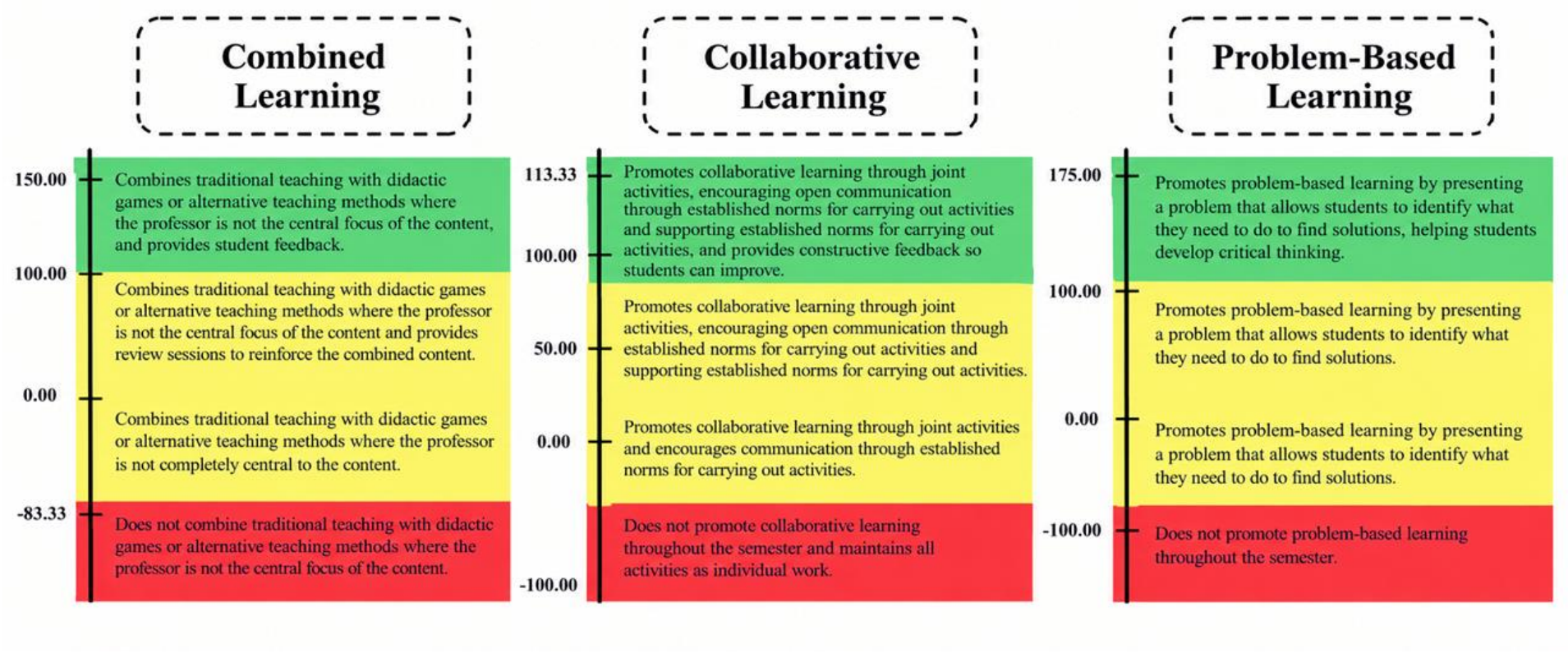
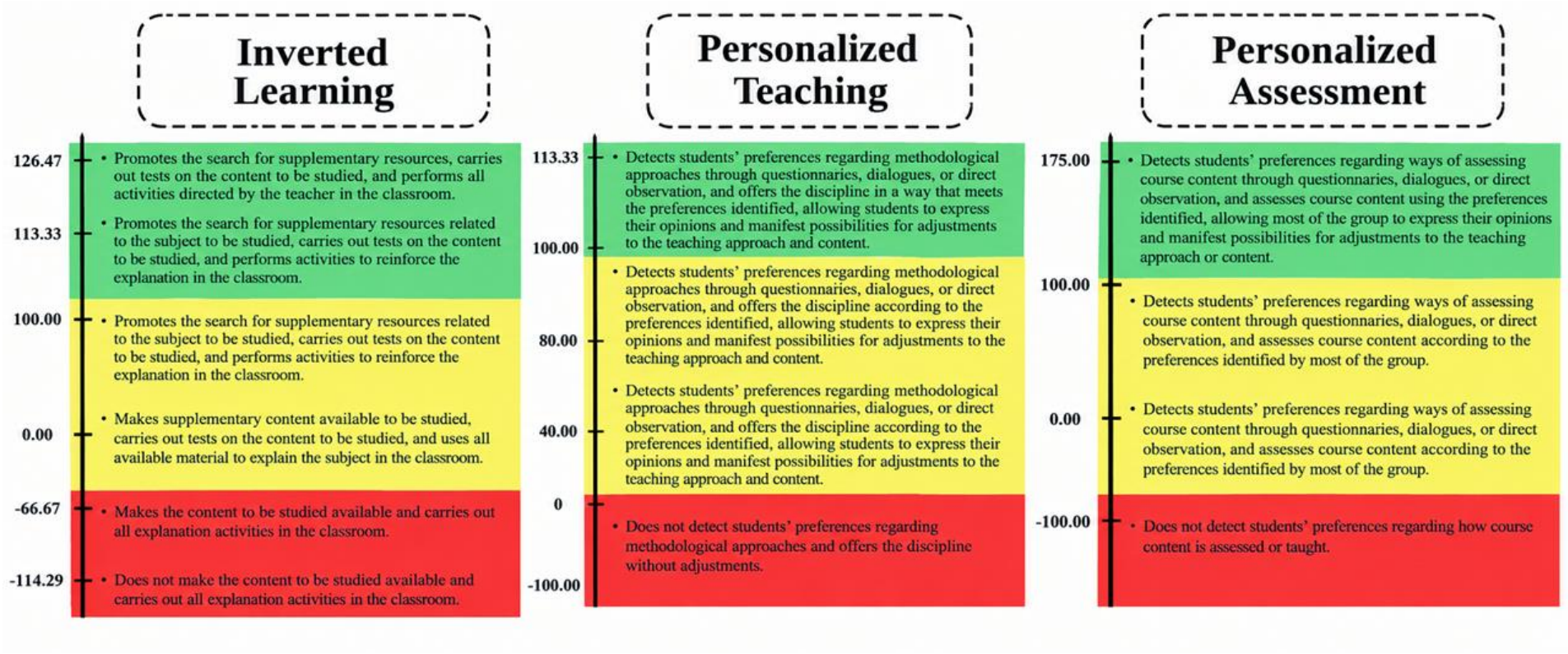
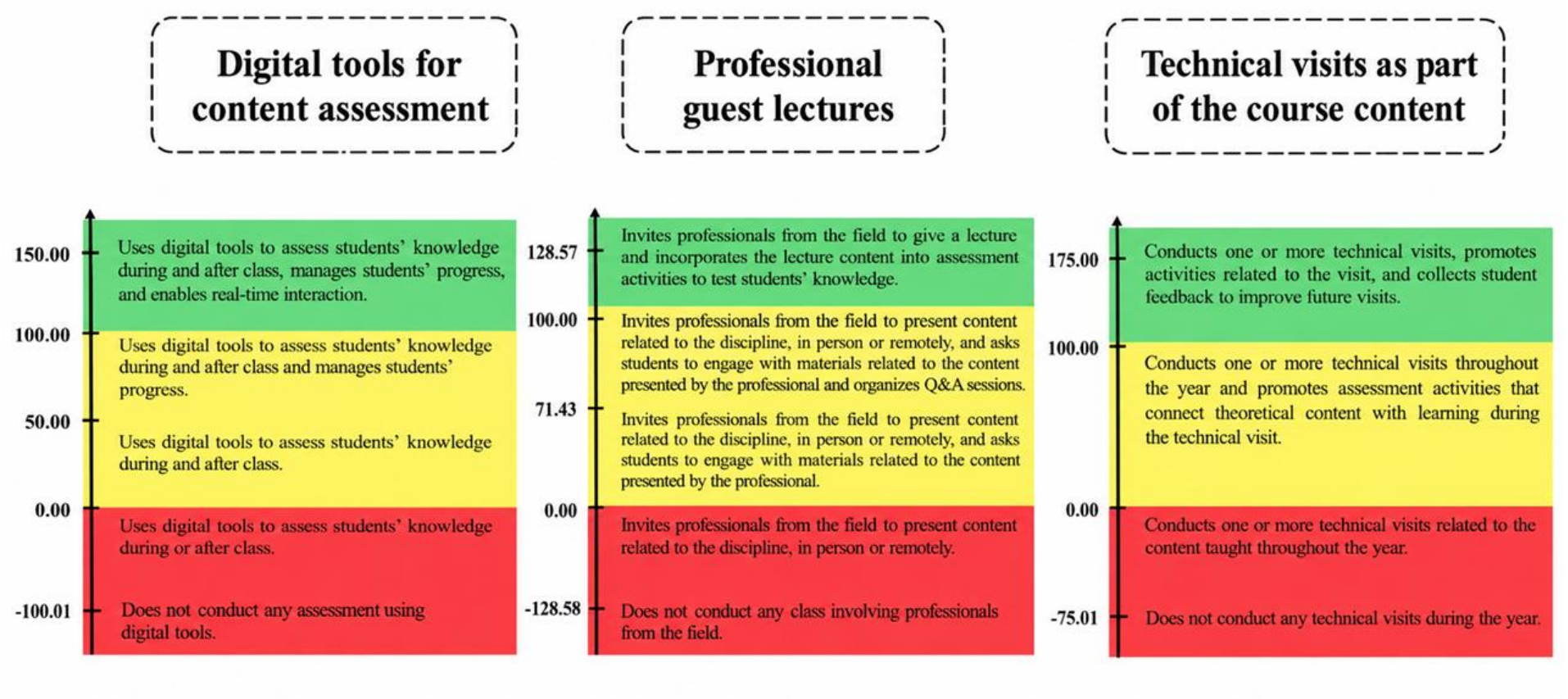
APPENDICES

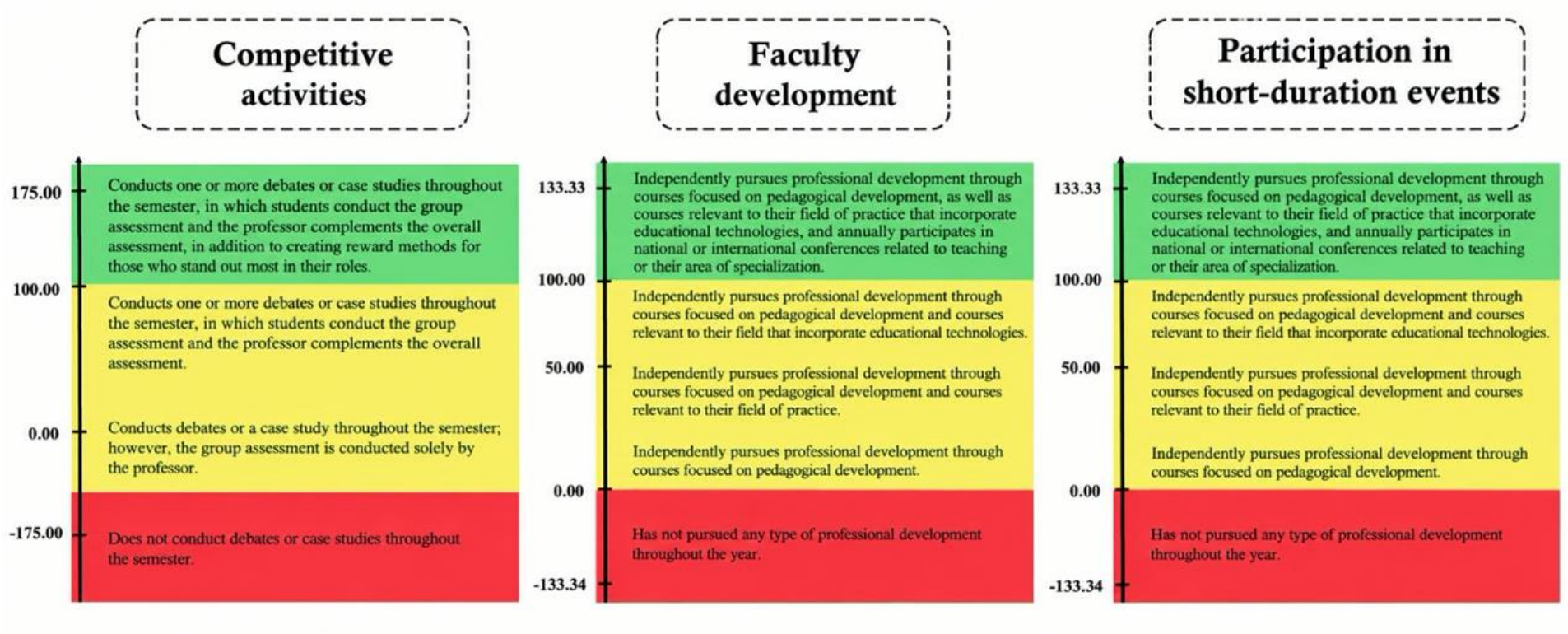
Figure 12
Model Design Criteria with the Value Function




Combined Learning
150.00
Combines traditional teaching with didactic games or alternative teaching methods where the professor is not the central focus of the content, and provides student feedback.
100.00
Combines traditional teaching with didactic games or alternative teaching methods where the professor is not the central focus of the content and provides review sessions to reinforce the combined content.
0.00
Combines traditional teaching with didactic games or alternative teaching methods where the professor is not completely central to the content.
-83.33
Does not combine traditional teaching with didactic games or alternative teaching methods where the professor is not the central focus of the content.
Collaborative Learning
113.33
Promotes collaborative learning through joint activities, encouraging open communication through established norms for carrying out activities and supporting established norms for carrying out activities, and provides constructive feedback so students can improve.
100.00
50.00
Promotes collaborative learning through joint activities, encouraging open communication through established norms for carrying out activities and supporting established norms for carrying out activities.
0.00
Promotes collaborative learning through joint activities and encourages communication through established norms for carrying out activities.
-100.00
Does not promote collaborative learning throughout the semester and maintains all activities as individual work.
Problem-Based Learning
175.00
Promotes problem-based learning by presenting a problem that allows students to identify what they need to do to find solutions, helping students develop critical thinking.
100.00
Promotes problem-based learning by presenting a problem that allows students to identify what they need to do to find solutions.
0.00
Promotes problem-based learning by presenting a problem that allows students to identify what they need to do to find solutions.
-100.00
Does not promote problem-based learning throughout the semester.


Inverted Learning
126.47
• Promotes the search for supplementary resources, carries out tests on the content to be studied, and performs all activities directed by the teacher in the classroom.
113.33
• Promotes the search for supplementary resources related to the subject to be studied, carries out tests on the content to be studied, and performs activities to reinforce the explanation in the classroom.
100.00
• Promotes the search for supplementary resources related to the subject to be studied, carries out tests on the content to be studied, and performs activities to reinforce the explanation in the classroom.
0.00
• Makes supplementary content available to be studied, carries out tests on the content to be studied, and uses all available material to explain the subject in the classroom.
-66.67
• Makes the content to be studied available and carries out all explanation activities in the classroom.
-114.29
• Does not make the content to be studied available and carries out all explanation activities in the classroom.
Personalized Teaching
113.33
• Detects students' preferences regarding methodological approaches through questionnaries, dialogues, or direct observation, and offers the discipline in a way that meets the preferences identified, allowing students to express their opinions and manifest possibilities for adjustments to the teaching approach and content.
100.00
• Detects students' preferences regarding methodological approaches through questionnaries, dialogues, or direct observation, and offers the discipline according to the preferences identified, allowing students to express their opinions and manifest possibilities for adjustments to the teaching approach and content.
80.00
• Detects students' preferences regarding methodological approaches through questionnaries, dialogues, or direct observation, and offers the discipline according to the preferences identified, allowing students to express their opinions and manifest possibilities for adjustments to the teaching approach and content.
40.00
0
• Does not detect students' preferences regarding methodological approaches and offers the discipline without adjustments.
-100.00
Personalized Assessment
175.00
• Detects students' preferences regarding ways of assessing course content through questionnaries, dialogues, or direct observation, and assesses course content using the preferences identified, allowing most of the group to express their opinions and manifest possibilities for adjustments to the teaching approach or content.
100.00
• Detects students' preferences regarding ways of assessing course content through questionnaries, dialogues, or direct observation, and assesses course content according to the preferences identified by most of the group.
0.00
• Detects students' preferences regarding ways of assessing course content through questionnaries, dialogues, or direct observation, and assesses course content according to the preferences identified by most of the group.
-100.00
• Does not detect students' preferences regarding how course content is assessed or taught.


Digital tools for content assessment
150.00
Uses digital tools to assess students' knowledge during and after class, manages students' progress, and enables real-time interaction.
100.00
Uses digital tools to assess students' knowledge during and after class and manages students' progress.
50.00
Uses digital tools to assess students' knowledge during and after class.
0.00
Uses digital tools to assess students' knowledge during or after class.
-100.01
Does not conduct any assessment using digital tools.
Professional guest lectures
128.57
Invites professionals from the field to give a lecture and incorporates the lecture content into assessment activities to test students' knowledge.
100.00
Invites professionals from the field to present content related to the discipline, in person or remotely, and asks students to engage with materials related to the content presented by the professional and organizes Q&A sessions.
71.43
Invites professionals from the field to present content related to the discipline, in person or remotely, and asks students to engage with materials related to the content presented by the professional.
0.00
Invites professionals from the field to present content related to the discipline, in person or remotely.
-128.58
Does not conduct any class involving professionals from the field.
Technical visits as part of the course content
175.00
Conducts one or more technical visits, promotes activities related to the visit, and collects student feedback to improve future visits.
100.00
Conducts one or more technical visits throughout the year and promotes assessment activities that connect theoretical content with learning during the technical visit.
0.00
Conducts one or more technical visits related to the content taught throughout the year.
-75.01
Does not conduct any technical visits during the year.



Source: Prepared by the authors.