Active Methodologies in Higher Education: Use and Domain Analysis of Teaching Practice in Undergraduate Management Programs

Metodologias Ativas na Educação Superior: Análise do Uso e Domínio na Prática de Docentes de Cursos de Administração

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ABSTRACT

The objective of this study was to analyze the use and mastery of active learning methodologies by faculty members of undergraduate management programs, as well as their perception of the contribution of these methodologies to the development of students' competencies. This quantitative research was conducted with 73 professors from three Brazilian universities – two located in the Northeast and one in the South of the country. Data collection was carried out using a structured questionnaire. Descriptive statistical methods and non-parametric tests were applied for data analysis. The results revealed that the level of mastery of active methodologies is higher than their actual use in the classroom. A high level of similarity was observed among the institutions regarding the use of these methodologies. At the same time, significant differences were identified only for dynamic concept maps and the news panel concerning mastery. The average ratings were high concerning the contribution of active methodologies to the development of competencies. It is recommended that further studies be conducted with students to understand their perceptions of the impact of these practices on academic and professional development.
Keywords: Active Methodologies; Teaching Practice; Competences; Undergraduate Management Program; Higher Education.

RESUMO

O objetivo deste estudo foi analisar o uso e o domínio de metodologias ativas por docentes de cursos da área de Administração, bem como a percepção sobre sua contribuição no desenvolvimento de competências dos estudantes. De natureza quantitativa, a pesquisa foi realizada com 73 professores de três universidades brasileiras — duas localizadas na região

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RESUMO

Nordeste e uma na região Sul do país. A coleta de dados foi realizada por meio de um questionário estruturado. Para a análise, foram aplicados métodos estatísticos descritivos e testes não paramétricos. Os resultados revelaram que o nível de domínio das metodologias ativas é superior ao seu uso em sala de aula. Observou-se alta similaridade entre as instituições quanto ao uso dessas metodologias, enquanto diferenças significativas foram identificadas apenas para os mapas conceituais dinâmicos e o painel de notícias em relação ao domínio. Quanto à contribuição das metodologias ativas para o desenvolvimento de competências, as médias obtidas foram elevadas. Recomenda-se a realização de estudos com os estudantes, a fim de compreender suas percepções sobre os impactos dessas práticas na formação acadêmica e profissional.
Palavras-chave: Metodologias Ativas; Prática Docente; Competências; Administração; Ensino Superior.

Introduction

A knowledge society evokes the idea that humanity has endured for millennia thanks to its intellectual and adaptive capacity. We are currently experiencing the introduction of new paradigms driven by disruptive and uncertain changes. In this context, the demands on our relationship with knowledge have become increasingly evident, necessitating constant updates and the adaptation of conceptual and attitudinal foundations. It necessitates acting with creativity and resilience in society (Granado-Alcón, Gómez-Baya, Herrera-Gutiérrez, Vélez-Toral, Alonso-Martín, & Martínez-Frutos, 2020).

According to Silva, Bispo, and Coelho (2024), some challenges related to higher education in the future include revitalizing an institutionalized culture in the learning environment—where the teacher is seen as the sole knowledge holder and students remain passive—, increasing curricular flexibility to meet labor market dynamics, enhancing student-teacher interaction in learning processes, addressing faculty's lack of qualifications regarding teaching and learning complexity, and developing methodologies that promote meaningful and experiential learning.

Schlichting and Heinzle (2020) argue that the integration of different fields of knowledge and multidisciplinary teamwork necessitates the use of active learning methodologies. Traditional disciplinary boundaries no longer constrain the cons-

truction of knowledge or professional practice. Numerous studies support this need by emphasizing that understanding faculty perspectives is crucial, as their adoption and effective implementation of active learning methodologies directly impact student educational outcomes (Theobald, Hill, Tran, Agrawal, et al., 2020). Although studies such as that by Crisol-Moya, Romero-López, and Caurcel-Cara (2020) examine faculty perceptions of active methodologies in university contexts, there remains a scarcity of specific investigations focused on the field of Business Administration. The researchers themselves propose that future studies should be conducted using alternative research designs.

The need to qualify professionals capable of mobilizing competencies to meet market and societal demands raises the following question: **How can the use of teaching methodologies contribute to the development of competent individuals?**

Teaching methodologies support instructional practice in developing student competencies, particularly active methodologies that position learners as active agents in their own learning through interaction with teachers and peers (Martínez--Clares & González-Morga, 2018). These methodologies promote student-centered learning, making the process more meaningful and reflective (Silva, Santos, & Bispo, 2017; Silva, Bispo, & Santos, 2021).

These methodologies can range from simple classroom activities, such as "think-pair-share" and quick quizzes, to more complex projects, including case studies, simulations, and collaborative research work (Braun, Bremser, Duval, Lockwood, & White, 2017).

The effectiveness of active learning lies in its ability to promote deeper understanding and knowledge retention as students actively construct their own learning experiences rather than passively receiving information (Yannier, Hudson & Koedinger, 2020).

Vergara, Paredes-Velasco, Chivite, and Fernández-Arias (2020) highlight that one of the significant challenges faced by teachers is bridging the gap between theory and practice, which may contribute to reducing school dropout rates. Schlichting and Heinzle (2020) emphasize the principles of inter- and multidisciplinarity, as well as comprehensive training, as fundamental elements for enabling students to perform effectively in their real-world contexts. Active methodologies encourage the solution of real-world problems by applying knowledge from multiple fields.

In previous studies, Silva (2016) proposed the action learning system, considering five dimensions for competence development: learning environment, teacher and student experience, learning styles, reflective practice, and active methodologies. Subsequently, Silva, Coelho, and Bispo (2024) compiled a work featuring various active methodologies, detailing their characteristics, developed competencies, application methods, and observed results from their classroom implementation.

Active methodologies facilitate the integration of students' cognitive abilities with social and behavioral attributes, promoting a connection between theory and practice and the development of competencies. Vergara et al. (2020, p. 10) studied the PQA Teaching-Learning Method (Presentation-Question-Answer) and affirmed that collaborative learning maintains student motivation and is more effective than expository methods. Thiele and Kordts (2025, p. 537) state that active methodologies "promote student learning by engaging them in their learning through reflection, discussion, investigation, creation, and application of knowledge." Mondragon, Beloki, Yarritu, Zarrazquin, and Artano (2023) reinforce that the success of active learning is linked to student empowerment and the ability to work collaboratively, an idea also shared by Schlichting and Heinzle (2020), who argue that the central role of academics is the key differentiator.

The active methodologies covered include: Problem-Based Learning, Project-Based Learning, Teaching Cases, Films, Comics, Dynamic Concept Maps, News Panels, and Dynamic Seminars. Additionally, agile methodologies such as Hackathons and Scrum are included, as their structure aligns with active methodologies and facilitates group project development (Poe & Mew, 2022; Silva, Coelho & Bispo, 2024).

Research like Silva, Dias Júnior, and Canós-Darós (2019) investigates competence development in higher education. This study examines the use and mastery of active methodologies by undergraduate programs across three Brazilian universities, as well as their perceived impact on student competencies. Its uniqueness lies in jointly analyzing practical application (use), expertise level (mastery), and professional training contributions.

The research's key contributions include promoting more effective faculty development initiatives focused on students as active agents in their learning process.

It is expected to enable higher education institutions to design continuing education programs that incorporate a range of diverse teaching strategies. The study also encourages reflection on the evolving faculty role, transitioning from content deliverers to facilitators of autonomous and collaborative learning (Bacich & Moran, 2018), while fostering student agency and participatory knowledge construction.

Furthermore, the study emphasizes the importance of developing teaching competencies that align with the demands of the workplace. Active methodologies foster essential skills such as leadership, critical thinking, problem-solving, and collaboration – crucial for both teaching practice and the training of Business Administration graduates. Educators qualified in this approach tend to adopt interdisciplinary practices, integrating areas such as finance, marketing, and human resources.

This research is expected to inspire new studies that explore pathways for teacher training better aligned with contemporary demands, as active methodologies encourage the intentional design of meaningful learning experiences. The following theoretical framework deepens the discussion about the role and impacts of these methodologies on competence development in higher education.

Theoretical Framework

Social and technological development has interconnected physical and virtual learning spaces, requiring new ways to link learning and knowledge. It has driven the emergence of student-centered didactic strategies (BES et al., 2019). Active methodologies represent this shift from teacher-centered to learner-centered approaches, understanding learning as knowledge construction mediated through interaction between historical subjects, based on their prior experiences and knowledge (Diesel, Baldez & Marins, 2017; Freire, 1996). The transmission model, focused on constant teacher lecturing, gives way to a "pedagogy of interaction," where students play an active role in the learning process. Thus, teachers assume the role of facilitators and mediators (Bes, Pereira, Pessi, Cerigatto, & Machado, 2019; Astudillo, Nogueira, & Ortiz, 2020).

The transformation of students into active participants is essential for learning quality. By adopting active learning methodologies, educators create an environ-

ment that fosters meaningful learning for students. It enables them to progress from an initial, naive understanding to more complex conceptual frameworks, aiding in idea synthesis and clarity (Canós-Darós, Félix, & Mascarell, 2020).

Freire (1996) criticizes the authoritarian and paternalistic education model, which weakens both the students' and educators' curiosity. He argues that learning should be based on problematizing reality, engaging students in real situations that challenge them to intervene in the world. This process requires active participation and the development of autonomy and self-regulation in learning (Canós-Darós, Félix, & Mascarell, 2020).

Active methodologies are recognized as significant advances in education, placing students at the center of the learning process. These strategies promote the resolution of real-world problems and integration among students. According to Coelho, Bispo, and Silva (2024), these methodologies stimulate participatory and autonomous learning, developing competencies through concrete situations. Mondragon et al. (2023) emphasize that this approach fosters the internalization of competencies and the application of knowledge across diverse social contexts.

Despite their advantages, studies like Thiele and Kordts' (2025) point to student resistance toward active methodologies, particularly due to unfamiliarity and difficulties interacting with peers. Many believe they learn less, despite demonstrating better performance on objective tests. This contradiction may relate to low metacognitive levels. Cultural factors also play a role: Norwegian students, for instance, tend to show less openness to social interaction compared to their foreign peers.

Crisol-Moya, Romero-López, and Caurcel-Cara (2020) observed that students show greater receptiveness to active methodologies when they understand their objectives and purposes beforehand. Conversely, a lack of information may compromise the learning experience (Thiele & Kordts, 2025). Furthermore, teachers' theoretical mastery of these methodologies does not guarantee their practical application, underscoring the importance of ongoing professional development (Patiño, Ramírez-Montoya & Buenestado-Fernández, 2023).

Cabanillas-García (2025) emphasizes that conceptual mastery of active methodologies facilitates their use, particularly when professors can adapt them to their specific context. However, Borda, Schumacher, Hanley, Geary et al. (2020) identified a gap between knowledge and practice, indicating that theoretical understan-

ding alone cannot ensure implementation. Continuous exposure to active practices and clarification of their pedagogical purposes significantly enhances the valuation of these strategies, increasing student acceptance (Patiño, Ramírez-Montoya, & Buenestado-Fernández, 2023; Martínez & Gómez, 2025). Despite the growing adoption of active methodologies over the past two decades, some professors still face implementation challenges (Zhang & Li, 2021). Therefore, further research is needed to examine the barriers that prevent educators from utilizing these approaches, even when they possess substantial theoretical knowledge.

The use of active methodologies also fosters the development of meta-competencies such as analytical, critical, and creative thinking, along with constructive dialogue skills, stemming from collective problem-solving participation. For this purpose, professors must act as facilitators, promoting meaningful reflections and emotional experiences during classes. These strategies also enhance competencies such as problem-solving, leadership, and teamwork (Mendonça & Guimarães, 2008; Borges, Schmitt, & Nakle, 2014; Borochovicius & Tortella, 2014; Silva, Coelho, & Bispo, 2024). Consequently, students become better prepared for workplace challenges by experiencing "unlearning" processes and applying their knowledge to real-world problem-solving, which promotes meaningful learning (Cabanillas-García, 2025).

Figure 1 presents the characterization of various active methodologies used in higher education, based on the work of Silva, Coelho, and Bispo (2024).

Figure 1. Characterization of the active methodologies addressed in the study.

Active Methodology	Caracterization
Problem-Based Learning	Employs real-world problems, structured by the professor, to stimulate students to seek applicable knowledge for solving the given problem situation.
Project-Based Learning	Structures a set of problems focused on developing a final product.
Teaching Cases	A set of procedures that uses cases to develop professional competencies.

Movies	Use of films to enhance students' understanding of theory applied to practice, stimulating debate and reinforcing learning.
Comics	Planned application of practices that encourage students to develop comics, representing knowledge acquired through reflections on managerial practice.
Dynamic Concept Maps	Individual and collective use of graphic representations to connect ideas and concepts, promoting reflection. They are considered dynamic because they allow modifications based on student interactions.
News Panel	Uses current news as a starting point to address course content, linking theory with real-world events, stimulates debate and student interaction, strengthening the theory-practice connection.
Dynamic Seminars	They differ from traditional seminars by assigning varied roles to participants (e.g., evaluator, critic), enabling students to experience multiple perspectives on discussed topics.
Scrum*	A set of collaborative practices that employs iterative and incremental cycles for project management.

* *Although included in the framework, Scrum may be more appropriately characterized as an agile methodology.*

Source: Developed based on Silva, Coelho, and Bispo (2024).

The characterization of each competence is relevant in helping professors choose methodologies that are most appropriate for the intended student development. Martinez and Gomez (2025) cite other approaches, such as the flipped classroom, collaborative projects, and the "Think-Pair-Share" technique, when comparing evidence on the effectiveness of active methodologies.

The following section examines the implications of employing active methodologies for enhancing student competence development.

IMPLICATIONS OF USING ACTIVE METHODOLOGIES FOR COMPETENCE DEVELOPMENT

The term competencies initially emerged in the professional context, aiming to facilitate adaptation to workplace demands, and was later incorporated into the

educational field to guide curriculum design and teaching practices (Ayres & Cavalcanti, 2020; Silva & Bandeira-de-Mello, 2021). Definitions of competencies vary and can be classified into prescriptive, performance-oriented, or action-oriented approaches (Silva & Bandeira-de-Mello, 2021).

Incorporating competence development into the teaching-learning process means creating space for the construction of a broad and integrated range of knowledge, skills, and attitudes that directly contribute to students' professional development (Kutergina, Sanina, Balashov, & Willis III, 2020). Souza, Santos, and Murgo (2021) also emphasize the importance of active methodologies in enabling students to develop the ability to learn how to learn and manage their own learning.

The concept of competencies has continuously influenced educational curriculum decisions (Ayres & Cavalcanti, 2020), reflecting its professional relevance by encompassing attributes essential for career success. In this context, active methodologies serve as facilitators for competence development (Silva, Bispo, Rodriguez, & Vasquez, 2018). They are implemented in teaching practice through the creation of learning environments that foster teacher-student interaction, promoting motivation, engagement, and self-regulated learning. Furthermore, they enable the mobilization of specific competencies outlined in pedagogical planning, with the professor acting as mediator and facilitator of the process (Silva et al., 2018; Ayres & Cavalcanti, 2020; Varela & Menezes, 2021; Souza, Santos, & Murgo, 2021; Caetano, Maia, & Pereira, 2022).

The assessment of competence development, however, represents a challenge, particularly when aiming to measure the acquisition of knowledge, skills, and attitudes from classroom instruction (Kutergina et al., 2020). For this purpose, instruments that evaluate students' perceptions of the effects of active methodologies can be helpful (Silva, Dias Júnior, & Canós-Darós, 2019).

Thiele and Kordts (2025, p. 547) observed in their research that "overall, students' appreciation for active learning methods was above the theoretical average, confirming the idea that students value active learning methods more than lectures," contrasting with studies that indicate lower acceptance of these methods. Similarly, Martinez and Gomez (2025, p. 44) categorically state: "[...] active learning generates higher levels of student engagement and incorporates higher-order thinking skills, with better knowledge retention, thus becoming a fundamental principle of contemporary pedagogy." (our emphasis)

Developing the competencies required for professional practice in Business Administration is essential for employability (Ayres & Cavalcanti, 2020; Menezes, 2021). It reinforces the relevance of active methodologies in training more creative, versatile, self-critical, and adaptable professionals, as these strategies expose students to real-world situations, promoting student-centered learning and integrating teacher, student, and context (Silva, Dias Júnior & Canós-Darós, 2019; Ayres & Cavalcanti, 2020; Caetano, Maia & Pereira, 2022).

Based on this perspective, Silva, Dias Júnior, and Canós-Darós (2019) developed a scale to assess the implications of active methodologies on the development of five specific competencies:

- Awareness of Managerial Practice.
- Teamwork.
- Socioemotional Awareness.
- Planning and Problem-Solving.
- Systemic Thinking.

Figure 2 presents the definition of each competence and its respective characterizing descriptors.

Figure 2. Competence Framework for Active Methodologies.

Competences	Descritores
Awareness of Managerial Practice: Ability to learn about managerial action by perceiving the relationship between theory and practice, expanding knowledge of business activities and operations.	- Learning about managerial action - Linking theory to managerial practice. - Manager's perspective on business operations. - Knowledge of professional practice activities - New insights into company operations.
Teamwork: Ability to interact with peers to exchange information, solve problems, and enhance motivation for collaborative work.	- Communication skills with peers - Ability to share information effectively - Effectiveness in group problem-solving - Motivation to work in teams

Socioemotional Awareness: Ability to understand one's own and peers' attitudes to manage insecurity, resolve interpersonal conflicts, and work independently through behavioral exploration.	- Self-awareness of administrative attitudes - Awareness of peers' attitudes - Ability to manage insecurity. - Conflict resolution skills - Exploration of unfamiliar behaviors - Independent work ability
Planning and Problem-Solving: Ability to solve problems through business operations planning, idea implementation, and reflective thinking.	- Practical problem-solving skills - Business operations planning - Implementation of ideas and plans - Reflective thinking
Systemic Thinking: Ability to integrate knowledge across functional business areas to identify and analyze problems from multiple perspectives through team interaction.	- Integration of learning across areas (Accounting, Finance, Marketing, etc.) - Identification of managerial problems - Multi-perspective problem analysis in group discussions

Source: Silva, Dias Júnior, and Canós-Darós (2019, p. 8).

The competencies listed above can be evaluated after applying an active methodology in the classroom, which helps identify the strategies that most significantly contribute to competence development. The study by Silva, Dias Júnior, and Canós-Darós (2019) found that **Problem-Based Learning** was the most effective methodology for developing: Awareness of Managerial Practice, Planning and Problem-Solving and Systemic Thinking.

Methodology

The research is classified as descriptive and quantitative. The population consisted of faculty in Business Administration and related fields: 69 from UFPB, 58 from UFBA, and 172 from UNIVALI, totalling 299 potential participants. It should be noted

that UFPB has three administration programs across three university campuses. At the same time, at UNIVALI, the population included faculty from the School of Business, Education, and Communication, covering twenty undergraduate programs.

The selection of these institutions took into account the researchers' affiliation with partner institutions in a CNPq-funded research project, which facilitated access to respondents. Additionally, selecting universities located in different regions of the country contributed to sample diversity and may enhance the reach of the findings.

Participants were selected through non-probabilistic sampling, with the questionnaire distributed to faculty with accessible contact information. Only active faculty in Business Administration or related programs during the data collection period were included. Responses with missing essential data were excluded to ensure consistency and integrity of the analysis.

The initial sample included 75 respondents, with two excluded due to incomplete responses. Thus, the final number of valid participants was 73, representing 36.7% of the total population. While exclusions may marginally affect representativeness, they strengthen the robustness and reliability of results.

The data collection instrument was a structured Google Forms questionnaire, available from November 27, 2023, to June 21, 2024. The questionnaire covered participants' sociodemographic data (university, degree, teaching modality, age, sex, and marital status), along with information related to frequency of active methodology use in classrooms, professors' level of mastery of these methodologies and perceived contribution to student competence development. For measuring active methodology usage frequency, a 5-point scale was used: 1 – Never; 2 – Rarely; 3 – Sometimes; 4 - Almost always and; 5 – Alwayss.

For mastery level, a 7-point scale was used (later standardized to 5 points), where values closer to 1 indicated lower mastery and values closer to 7 indicated higher mastery.

To measure the contribution of active methodologies to competence development, the validated instrument by Silva, Dias Júnior, and Canós-Darós (2019) was employed, which comprises five constructs (competencies) and 22 associated descriptors. The assessment scale ranged from 1 to 10, where values closer to 1 indicated lower perceived contribution and values closer to 10 indicated higher perceived contribution. Data collection occurred between March and June 2024.

Data analysis was conducted using SPSS version 21.0, employing descriptive analysis and non-parametric tests, including:

- **Mann-Whitney:** To identify significant differences based on sex, teaching level (undergraduate or graduate), and modality (face-to-face or distance) regarding use and mastery of active methodologies
- **Kruskal-Wallis:** To evaluate variations in use, mastery, and perceived contribution of active methodologies among faculty from different institutions
- **Wilcoxon:** To compare usage and mastery levels across different active methodologies

The results obtained are presented in the following section.

Results

This section is organized into three parts. The first section presents the profile of the research participants. The second analyzes the Level of use and mastery of active methodologies. The third examines the contribution of these methodologies to student competence development.

ANALYSIS OF THE PROFILE OF RESEARCH PARTICIPANTS

The research sample consists of 73 faculty members distributed as follows: 23 from UNIVALI, 26 from UFBA, and 24 from UFPB. Of the total, 46.60% are female and 53.40% male, with an average age of 49.7 years.

Regarding marital status, 60.30% are married, 20.50% are divorced, 11% are in stable unions, and 8.2% reported being single. The majority of faculty hold doctorates (82.20%), while 11% have master's degrees and 6.8% are specialists. Concerning children, 27.40% have no children, 21.9% have one child, 41.1% have two children, 6.80% have three children, and 2.70% have four or more children.

For teaching modality, 60.30% teach exclusively in-person, 38.40% teach both in-person and distance courses, and only one faculty member teaches exclusively distance courses. All faculty at UFPB and UFBA teach in Business Administration programs. At UNIVALI, in addition to Business Administration, 10 faculty

members also teach in International Business, Accounting, Executive Secretariat, Tourism, and Advertising and Marketing.

To better understand faculty scope, one question investigated whether they teach at undergraduate, graduate, or both levels. Results show 30.1% teach only at the undergraduate Level while 69.9% teach at both levels.

LEVEL OF USE AND MASTERY OF ACTIVE METHODOLOGIES BY FACULTY

Two questions investigated the Level of use and mastery of active methodologies among participating faculty. Initially, descriptive results are presented, including means and standard deviations, followed by an analysis of statistical tests examining significant differences in use and mastery based on institutional affiliation and faculty profile/teaching variables. Table 1 shows the overall sample results, while Tables 2 and 3 present institution-specific results.

Table 1. NLevel of Use and Mastery of Active Methodologies by Faculty.

Active Methodology	Level of Use		Level of Mastery Wilcoxon Test		Teste de Wilcoxon	
	M	SD	M	SD	Test Statistic	Sig.
Problem-Based Learning	3,06	1,13	3,73	1,18	-4,714	0,000
Project-Based Learning	2,62	1,28	3,22	1,29	-4,116	0,000
Teaching Cases	3,48	1,17	3,97	1,09	-4,116	0,000
Movies	2,99	1,24	3,91	1,18	-5,465	0,000
Comics	1,70	1,11	2,43	1,44	-5,113	0,000
Dynamic Concept Maps	2,84	1,36	3,53	1,24	-4,941	0,000
News Panel	2,41	1,38	3,11	1,42	-5,206	0,000
Dynamic Seminars	3,25	1,38	3,79	1,32	-3,841	0,000
Scrum	1,41	0,72	1,80	1,12	-4,026	0,000

N = 73 professors; M = Mean; SD = Standard Deviation; Sig. = Level of significance.

The results in Table 1 indicate that, for all active methodologies analyzed, the Level of mastery reported by professors is higher than their Level of use. The Wilcoxon test, applied to verify whether there were statistically significant differences between these two levels, revealed that all results were significant. In other words, professors demonstrate greater mastery than actual implementation of active methodologies in the classroom.

Despite this overall difference, some methodologies showed very low levels of both use and mastery, such as Scrum and the use of Comics. Conversely, the strategies with the highest levels of use and mastery were Problem-Based Learning, Case-Based Teaching, and Dynamic Seminars. These findings are corroborated by Cabanillas-García (2025, p. 5), who highlights the most widely adopted methodologies, including the flipped classroom, problem-based learning, case studies, and team-based learning.

Martinez and Gomez (2025) propose the adoption of a structured model for Problem-Based Learning (PBL), consisting of five stages: Analysis, Design, Development, Implementation, and Evaluation.

The Mann–Whitney test was also applied to examine the relationship between levels of use and mastery of active methodologies, as well as variables related to professors' profiles. The first variable analyzed was gender. Regarding the use of active methodologies, the test revealed statistically significant differences for the methodologies Films ($U = 465.000$, $\alpha = 0.02$) and Dynamic Seminars ($U = 464.500$, $\alpha = 0.02$). In both cases, female professors reported higher mean levels of use than male professors, indicating a greater application of these strategies by women.

With respect to mastery, a significant difference was found only in the Case-Based Teaching methodology ($U = 496.500$, $\alpha = 0.05$), with male professors demonstrating greater mastery than female professors.

The second variable analyzed concerned the professors' teaching scope, comparing those who teach exclusively at the undergraduate Level with those who teach at both the undergraduate and graduate levels. The results indicated significant differences in the use of Case-Based Teaching ($U = 372.000$, $\alpha = 0.02$) and Scrum ($U = 393.000$, $\alpha = 0.01$).

An analysis of the mean values revealed that professors engaged in both undergraduate and graduate teaching make greater use of Case-Based Teaching

than those working exclusively at the undergraduate Level. In contrast, concerning Scrum—although mean scores were low overall—those teaching only at the undergraduate Level reported slightly higher use than those teaching at both levels.

In terms of mastery, the only significant difference found was also for Case-Based Teaching (U = 383.000, α = 0.03), indicating that professors active at both undergraduate and graduate levels possess greater mastery of this methodology.

The third variable examined was the teaching modality. As only one instructor reported working exclusively in distance education, the Mann–Whitney test was considered only for two groups: professors working exclusively in face-to-face education (60.3%) and those working in both face-to-face and distance education (38.4%).

Regarding levels of use and mastery, only Case-Based Teaching showed significant differences for Use (U = 423.000, α = 0.02) and Mastery (U = 437.000, α = 0.03). These results indicate that professors engaged in both face-to-face and distance education use and master this methodology to a greater extent than those working exclusively in face-to-face settings.

Cabanillas-García (2025) and Mounkoro et al. (2024) emphasize that active methodologies are further strengthened through the use of AI technologies, particularly by means of tutoring, which enables personalized learning, real-time feedback, and greater adaptability to students' individual needs.

In this regard, Thiele and Kordts (2025) note that feedback plays a crucial mediating role in all methods based on social interaction. Peer feedback, in particular, is grounded in the idea that students' responses to their peers' work can be as valuable as instructor feedback in the learning process. Within active methodologies such as Case-Based Teaching and Problem-Based Learning, these collective reflections foster deeper thinking and, consequently, more meaningful learning.

To further examine the levels of use and mastery, significant differences in professors' perceptions were also investigated across the three institutions analyzed. The detailed results are presented in Tables 2 and 3 below.

An analysis of Table 2 reveals a pattern similar to that observed in the analysis of the overall sample. Three active methodologies—Problem-Based Learning, Case-Based Teaching, and Dynamic Seminars – showed mean usage scores above 3, indicating a higher frequency of application by professors.

Table 2. Level of Use of Active Methodologies by Professors.

Active Methodology	UNIVALI		UFBA		UFPB		Kruskal-Wallis Test	
	M	SD	M	SD	M	SD	Test Statistic	Sig.
Problem-Based Learning	**3,17**	0,98	3,15	1,16	2,83	1,24	1,836	0,39
Project-Based Learning	2,61	0,98	**2,77**	1,24	2,46	1,41	0,961	0,62
Teaching Cases	3,65	0,98	**3,69**	1,09	3,08	1,35	3,523	0,17
Movies	2,61	1,12	**3,19**	1,10	3,13	1,45	3,202	0,20
Comics	1,65	1,03	1,42	0,64	**2,04**	1,49	1,530	0,47
Dynamic Concept Maps	2,65	1,19	2,50	1,30	**3,37**	1,47	5,659	**0,06**
News Panel	2,30	1,36	2,19	1,33	**2,75**	1,45	2,235	0,33
Dynamic Seminars	3,22	1,44	**3,31**	1,25	3,21	1,50	0,013	0,99
Scrum	**1,61**	0,78	1,19	0,49	1,46	0,83	4,734	**0,09**

N = 73 professors; M = Mean; SD = Standard Deviation; Sig. = Level of significance.

The results of the Kruskal–Wallis test showed that, although there are variations in the mean levels of use across institutions, there are no statistically significant differences for most active methodologies. The exceptions were the News Panel and Scrum methodologies, for which marginally significant differences were observed (with significance levels between $\alpha > 0.05$ and < 0.10).

According to Martinez and Gomez (2025, p. 47), "the active learning strategy offers distinct advantages that align with different educational contexts, and the choice of the most appropriate approach depends on various factors, such as class size, curriculum content, and students' needs."

Table 3. Level of Mastery of Active Methodologies by Professors.

Active Methodology	UNIVALI		UFBA		UFPB		Kruskal-Wallis Test	
	M	SD	M	SD	M	SD	Test Statistic	Sig.
Problem-Based Learning	3,87	0,99	3,62	1,28	3,72	1,27	0,155	0,93
Project-Based Learning	3,17	1,26	**3,33**	1,24	3,14	1,40	0,272	0,87
Teaching Cases	**4,22**	0,94	3,85	1,06	3,86	1,27	1,871	0,39

Movies	3,58	1,32	3,92	1,03	**4,22**	1,14	4,303	0,12
Comics	2,54	1,34	2,05	1,33	**2,75**	1,61	2,891	0,24
Dynamic Concept Maps	3,41	1,17	3,05	1,31	**4,17**	0,99	10,465	0,00
News Panel	2,94	1,49	2,74	1,36	**3,67**	1,30	5,714	0,06
Dynamic Seminars	3,67	1,38	3,62	1,40	**4,08**	1,16	1,985	0,37
Scrum	1,96	1,22	1,64	1,00	1,83	1,15	0,767	0,68

N = 73 professors; M = Mean; SD = Standard Deviation; Sig. = Level of significance.

With respect to the mastery results presented in Table 3, statistically significant differences were found in two active methodologies: Dynamic Concept Maps and News Panels, in which professors from UFPB reported higher levels of mastery compared to those from the other institutions.

Although the mean scores for the other methodologies also varied, these differences were not statistically significant, indicating that, from a statistical standpoint, professors' mastery of these methodologies is similar across the institutions.

CONTRIBUTION OF ACTIVE METHODOLOGIES TO THE DEVELOPMENT OF STUDENT COMPETENCIES

To assess the contribution of active methodologies to the development of student competencies, professors reported their perceptions on a scale of 1 to 10, based on their experience with using these strategies in the classroom. The results are presented in Table 4 below.

Table 4. Contribution of the use of active methodologies in the development of students' competences.

Competences	Global		UNIVALI		UFBA		UFPB		Kruskal-Wallis Test	
	M	SD	M	SD	M	SD	M	SD	Test Statistic	Sig.
Awareness of Managerial Practice	8,05	1,69	7,99	1,45	7,68	2,07	**8,53**	1,37	2,810	0,25
Teamwork	7,91	1,71	7,88	1,42	7,62	2,04	**8,28**	1,57	2,379	0,30

Socioemotional Awareness	7,45	1,86	7,52	1,43	7,03	2,17	**7,86**	1,81	1,801	0,41
Planning and Problem-Solving	7,86	1,69	7,86	1,40	7,43	2,18	**8,32**	1,25	2,038	0,36
Systemic thinking	8,01	1,65	8,0	1,29	7,61	2,03	**8,45**	1,45	3,073	0,22

N = 73 professors; M = Mean; SD = Standard Deviation; Sig. = Level of significance..

Taking the mean as a reference, it is observed that professors, in general, consider active methodologies to make a significant contribution to the development of student competencies. At UFBA, the higher standard deviations indicate greater variability in perceptions, suggesting that professors at this institution do not share a cohesive view regarding the impact of active methodologies.

In contrast, professors at UFPB reported the highest mean scores and the lowest standard deviations, indicating a more uniform and positive perception of the contribution of active methodologies. The Kruskal–Wallis test revealed no statistically significant differences among the perceptions of professors from the three institutions regarding the Level of contribution of active methodologies to the development of competencies.

According to Martinez and Gomez (2025), “active learning strategies have gained even greater relevance in the modern educational context, where there is an increasing emphasis on equipping students with practical skills for a rapidly evolving workforce. One of the main advantages of active learning is its ability to foster deeper engagement with the material.”

Discussion of Results

The use of active methodologies facilitates competence development, provided professors understand their theoretical and practical foundations, as recommended by Coelho, Bispo, and Silva (2024). The research results revealed significant differences in the use of specific methodologies by female faculty, such as films and Dynamic Seminars, while male faculty demonstrated greater mastery of Teaching Cases. This finding suggests that the nature of the active methodology may generate greater

affinity or interest among specific faculty groups, indicating the need for deeper theoretical and practical exploration of this relationship.

Regarding usage preferences by gender, a study conducted in Spain by Cabanillas-García (2025) found that women tend to adopt active methodologies more readily. It suggests that analyzing these aspects can help professors choose and tailor their pedagogical practices to their affinities and teaching styles.

The research also showed that Teaching Cases were used more frequently by faculty who teach at both undergraduate and graduate levels, as well as those who work in both face-to-face and distance education settings. This methodology has been one of the most widely disseminated in Brazil (Alberton & Silva, 2018), and its broad classroom adoption may be explained by the academic literature supporting it. According to Silva and Bandeira-de-Mello (2021), using cases enables students to integrate personal experiences with academic training, thereby contributing to student-centered, action-oriented learning.

A noteworthy finding is that, across all evaluated methodologies, mastery levels were higher than usage levels. This result aligns with the study by Borda et al. (2020), conducted in the Pacific Northwest, which identified a "latency" between theoretical knowledge (mastery) and practical application (use). Cabanillas-García (2025) observed that faculty who master active methodologies and adapt them to their field and educational context demonstrate greater engagement and confidence in their application.

These findings raise an important question: Why do professors who claim to master specific active methodologies not use them in proportion to their claims? One possible explanation is a lack of confidence or security in practical application, as highlighted by Ayres and Cavalcanti (2020). These authors emphasize that systematic and continuous use of these methodologies can generate concrete, complex, and meaningful learning experiences.

Martinez and Gomez (2025) warn that resistance to adopting active methodologies may come from both students and faculty, particularly due to the additional time and preparation required for these strategies. However, given the growing emphasis on student-centered learning and technology integration in the post-pandemic context, overcoming these barriers becomes essential for the success of active learning.

When analyzing usage levels by institution, significant similarity was observed, with no statistically significant differences. The inclusion of the agile Scrum me-

thodology was justified by its proximity to active methodologies, although it showed the lowest usage levels, followed by Comics. Castelló-Sirvant, Canós-Darós, and Fèlix (2024) highlight Scrum's potential for developing competencies such as social and environmental commitment, innovation, creativity, teamwork, leadership, effective communication, and responsible decision-making. Investing in faculty training for this approach could be strategic for professional competence development.

Similarly, the use of Comics can stimulate students' creative thinking. In studies by Silva, Santos, and Bispo (2017, 2024) with Business Administration students, classroom experiences with Comics contributed to the development of competencies such as innovation, flexibility, critical thinking, decision-making, and reflective practice, while bridging the gap between theory and practice. The low usage of these methodologies may be associated with teaching practices that remain heavily theoretical, as noted by Martínez-Clares and González-Morga (2018).

Regarding mastery levels, significant differences were observed in two methodologies: Dynamic Concept Maps and News Panels, with higher mastery identified among UFPB faculty. These two strategies were developed at UFPB's Research and Practice Observatory in Administration (OPPA) and are part of faculty training initiatives.

Dynamic Concept Maps emerged from faculty and student practical experiences, where students initially created individual maps that were later transformed into collective maps, discussed in small groups, and presented to the larger group. This methodology's systematization received a scientific initiation award and was published as a book chapter (Vasques & Silva, 2017). Updated application procedures can be found in Silva and Lima (2024).

The News Panel, described by Silva, Bispo, and Santos (2021; 2024), develops competencies such as analytical thinking, theory-practice articulation, flexibility, teamwork, agility, and intellectual curiosity.

The Teaching Case methodology showed high mastery averages, though without statistically significant differences between institutions. UNIVALI had the highest average, indicating widespread adoption of this practice. Project-based learning, also without significant differences, had a higher average at UFBA. Overall, UFPB stood out with the highest averages in five active methodologies, though only two were statistically significant. This result may be related to initiatives promoted

by OPPA, recognized by the ANGRAD Award for Innovation in Teaching and Learning (Bispo, 2019).

Regarding the contribution of active methodologies to competence development, results showed high averages across all institutions. UFPB faculty had the most positive perceptions, though differences between averages were not statistically significant. These findings reinforce the perspective of Alberton and Silva (2018) and Silva and Bandeira-de-Mello (2021), who highlight that methodologies like Teaching Cases accelerate experiential learning, promoting professional competence development.

A relevant point for reflection is the risk of student exhaustion and disengagement, particularly among night-shift students with less time flexibility. This may compromise the effectiveness of active methodologies when applied intensively and continuously (Ayres & Cavalcanti, 2020). From the faculty perspective, factors such as a lack of ongoing training and institutional support may also limit their use (Santos, Bonato, & Lunardi, 2022), requiring active instructor engagement in recognizing their strategic societal role (Cardoso, Souza, & Hernandez, 2020).

Studies like this help address gaps in the literature, particularly the scarcity of systematic research on the use of active methodology, as noted by Mondragón et al. (2023). Martinez and Gomez (2025, p. 51) reinforce this perspective, stating that integrating artificial intelligence and technology has become a growing trend in active learning, enabling personalized experiences and real-time feedback. However, they warn of ethical and privacy challenges that must be considered to avoid excessive technology dependence.

Thus, this study's results reinforce the importance of identifying active methodology use and mastery by higher education faculty, highlighting their implications for student competence development and outlining pathways for planning training initiatives and sharing successful teaching-learning experiences.

Conclusion

This article examined the use and mastery of active methodologies by faculty in Business Administration and related programs at three Brazilian universities, as well

as professors' perceptions of the contribution of these methodologies to student competence development.

Based on the research results, it is concluded that faculty members generally demonstrate higher levels of mastery than actual use of active methodologies. The adoption of these strategies may be influenced by factors such as the professors' teaching level (undergraduate and/or graduate) and instructional modality (face-to--face and/or distance learning). Some methodologies showed higher usage levels among female professors, while in terms of mastery, male faculty exhibited greater familiarity with the Teaching Case method. These findings warrant further investigation in future studies to verify whether this trend holds in other faculty samples.

A unique aspect of this study was the analysis of active methodology use and mastery by the university, which revealed that only some methodologies showed statistically significant differences. However, even though most did not demonstrate relevant mean differences, the data reveal important usage and mastery trends that merit detailed analysis—especially since several active methodologies exhibited low application and knowledge levels.

The presented results may serve as a starting point, as numerous aspects require discussion to enhance student competence development through intentional and qualified use of active methodologies by professors. It remains common to find faculty who primarily act as lecturers, reinforcing the need for professor training and awareness to employ these methodologies effectively and contextually.

Active methodologies shift the teaching-learning focus from the professor to the student, emphasizing interaction among historical subjects and their experiences, emotions, and prior knowledge. When unused, student development as protagonists of their education is compromised. By linking theory and practice, reflection and action, these methodologies enhance employability by engaging students with real-world situations and concrete cases. Thus, active methodologies serve as essential 'bridges' for meaningful and contextualized learning. Notably, in many higher education contexts, students report a lack of practical activities in courses, underscoring the relevance of research on active methodologies.

This study has limitations, particularly regarding sample size per institution. However, the use of non-parametric statistical tests, which are suitable for small samples, ensured the validity of the results and generated relevant insights into

the topic. Conducted across three institutions, the findings cannot be generalized but may spark interest in further diagnostics on faculty use and mastery of active methodologies. Another limitation was the reliance on self-reported questionnaires. Additional qualitative research could broaden faculty perceptions, aiding in the analysis of results.

From a practical standpoint, these findings may prompt discussions in the participating programs' Curricular Committees (NDEs), fostering initiatives to disseminate and strengthen active methodologies through faculty training, debate forums, and other institutional actions.

Future research could incorporate interviews or focus groups to further enhance the analysis of the results. Examining the implications of active methodologies on faculty and student engagement, as well as self-regulated learning development, is also recommended. Finally, new studies involving students are advised to capture their perceptions of faculty use and mastery of active methodologies, alongside the contribution of these practices to professional competence development—expanding the understanding of the impacts of active learning in higher education.

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