Systematic review: design and planning of didactic sessions in higher education

Revisión sistemática: diseño y planificación de sesiones didácticas en educación superior

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Abstract

Recent research has highlighted key approaches to the design and planning of teaching sessions in higher education. This study conducted a systematic review of the Scopus database to identify and analyze the most relevant and effective strategies, focusing on innovative practices and their impact on learning. From an initial search of 44 papers, 13 were selected using inclusion and exclusion criteria. The results revealed a significant evolution in teaching planning, underscoring the importance of integrating flexible pedagogical models, emerging technologies, and a culturally contextualized approach. However, a persistent dissonance was evident between faculty members' theoretical conceptions and their classroom practices. In conclusion, the most effective practices combine pedagogical theory, technological innovation, ongoing teacher training, and active student engagement, thus promoting more meaningful learning adapted to the current needs of higher education.

Keywords: education, design, planning.

Resumen

Investigaciones recientes han resaltado enfoques clave en el diseño y planificación de sesiones didácticas en la educación superior. En este sentido, este estudio realizó una revisión sistemática en la base de datos Scopus para identificar y analizar las estrategias más relevantes y efectivas, enfocándose en prácticas innovadoras y su impacto en el aprendizaje. A partir de una búsqueda inicial de 44 trabajos, se seleccionaron 13 investigaciones mediante criterios de inclusión y exclusión. Los resultados obtenidos revelaron una evolución significativa en la planificación didáctica, subrayando la importancia de integrar modelos pedagógicos flexibles, tecnologías emergentes y un enfoque culturalmente contextualizado. Sin embargo, se evidenció una disonancia persistente entre las concepciones teóricas del profesorado y sus prácticas en el aula. En conclusión, las prácticas más efectivas combinan teoría pedagógica, innovación tecnológica, formación docente continua y una participación activa del estudiante, promoviendo así un aprendizaje más significativo y adaptado a las necesidades actuales de la educación superior.

Palabras clave: educación, diseño, planificación.

Introduction

The planning of the teaching-learning process in higher education is crucial for ensuring effective education and student engagement. At this stage, planning serves as a fundamental tool for constructing quality education and improving policies in higher education (Carriazo et al., 2020). The objective is to develop basic competencies—specifically, achieving outcomes—by creating a conducive learning environment with scaffolding and both summative and formative assessments (Atkinson & Bregazzi, 2022). Furthermore, authors such as Barbier & Colognesi (2024) emphasize the management of content, the use of teaching resources, and the planning of teaching-learning activities.

The disruption caused by COVID-19 led to the incorporation of teaching in virtual environments, resulting in significant changes in teaching and learning, such as increased participation and trends toward flexibility, among others. However, there remains a need to foster the development of independent knowledge through research and flexibility (Oigara, 2024). Additionally, challenges in virtual environments affect infrastructure, connectivity, as well as the digital skills and competencies of educators (Mora et al., 2024). Furthermore, Hari et al. (2025) highlighted innovative and engaging learning experiences, such as virtual reality, which positively impact pedagogical application (Lee et al., 2020; Jia & Qi, 2023).

In this context, the roles of both teachers and students in mediated contexts will be addressed. For instance, according to Ben-Chayim et al. (2020), the teacher acts as a mediator, supported by a virtual assistant, adapting their instructions to asynchronous activities, where students actively participate and learn from both the teacher and their peers. This includes motivation, learning objectives, and the use of digital resources. Conversely, the student's role entails greater responsibility for their learning, developing self-regulation and soft skills (Ruiz & Roncancio, 2023), such as effective communication, collaborative learning, and autonomous learning, which are essential for management in virtual environments (Nicmane & Baltusite, 2022).

Table 1

Stages: design, planning, development, and evaluation in higher education

Scenarios	Concept
Design	Curriculum design aligned with objectives and competencies. Campus design, including educational programming and master planning.
Planning	Development planning with the Institutional Development Plan. Early integration of assessment planning.
Development	Implementation of models. Competency-based teacher development.
Evaluation	Use of evaluation frameworks. Assessment of development for continuous innovation.

Note. Source: Scopus 2025

This approach ensures that institutions can effectively design, plan, develop, and evaluate their processes to meet educational demands and improve quality. First, curriculum design involves aligning educational objectives and competencies (Carvajal-Ortiz et al., 2019). Initially, models and methods of the curriculum are defined, ensuring they meet the indicators set by the academic unit and the institution’s vision.

Another important point is the significance of infrastructure, which includes the programming of spaces and detailed planning to create suitable environments for the teaching process (Terro et al., 2021).

A further relevant point is the planning of development, which involves the creation of the Institutional Development Plan (PEDI), in addition to assessment planning, integrating design and measures for evaluating learning outcomes.

A third point concerns the development and implementation of models, which encompasses stages of initiation, review of complex processes, and fosters complex and innovative thinking in students (Akhmetzhanova & Emelyanova, 2021). On the other hand, competency-based curricula involve assessing the competencies acquired by students and ensuring that the teaching-learning process is delivered effectively. Reliably, the evaluation stage aids in systematically assessing the effectiveness of educational processes, both at the undergraduate and graduate levels (Tavares et al., 2021). In summary, although there is information regarding the stages of design, planning, development, and evaluation in higher education, it remains limited in the Scopus database.

To address the treatment of concepts and learning resources, it is grounded in the Theory of Learning in Higher Education (THEL), which identifies five variables: gender, age, opportunity, knowledge, and mediator confidence (Awaah, 2025). These dimensions are characterized by students' conceptions and preferences, considering students' approaches and regulatory strategies. Additionally, it involves providing teaching-learning resources, such as manuals, visual materials, and audiovisual aids, to adapt to students' learning styles (Clarke, 2018).

For the design of learning sessions, it is important to consider aspects such as strategies and resources for flipped learning, peer instruction, and collaborative learning, which contribute to the success of the educational experience. Firstly, flipped learning strategies and resources constitute a pedagogical approach where traditional in-class activities are developed through video lessons, allowing learning sessions to be utilized for active learning. To this end, it is essential to identify and analyze the most relevant and effective approaches and strategies in the design and planning of teaching sessions in higher education, highlighting innovative practices and their impact on student learning (Kwon, 2021; Mansor & Nasir, 2024).

Flipped learning resources include videoconferences—Zoom, Meet—reading assignments, as well as in-class activities: active learning, project-based learning (PBL), collaborative learning, which encourage debate, practical activities, and critical thinking (Andargeery et al., 2024; Moreno & Martínez, 2022). On the other hand, technological tools such as management systems—Moodle and Blackboard—content repositories, and online assessments enable tracking of student progress (Baig & Yadegaridehkordi, 2023).

Collaborative learning strategies and resources constitute an approach that allows students to achieve learning objectives in online environments, facilitating the use of technological tools such as Learning Management System (LMS) platforms, communication and collaboration tools, and open educational resources (Carrera et al., 2024). Nonetheless, an integrated pedagogical approach is identified, focusing on three attributes: collaborative team, interdependence, and self-sufficiency (Dick et al., 2022). Authors such as Herrera-Pavo (2021) emphasize benefits such as the joint construction of knowledge and the development of essential skills. This relates to interaction, leading to deeper learning processes (Porkodi et al., 2023).

In relation to existing literature, the following question arises: What are the most effective trends and approaches in the design and planning of teaching sessions in higher education, according to studies published in Scopus? Additionally, the following objective is proposed: to conduct a systematic review of the literature in the Scopus database.

Methodology

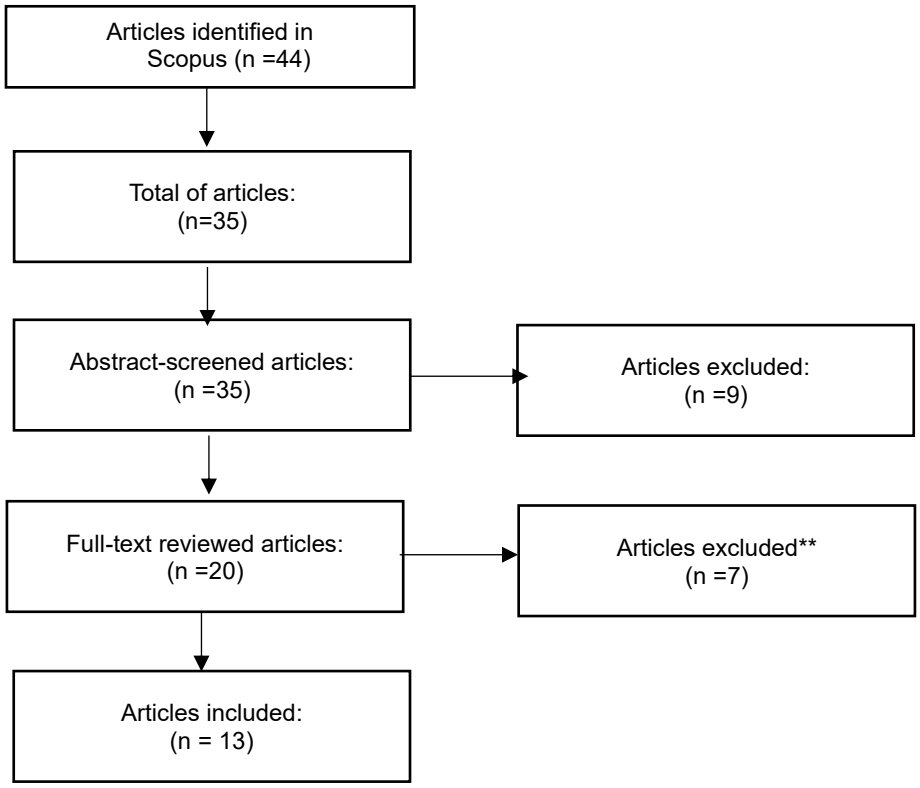
This research was of a basic type—systematic review—as it was framed within a qualitative approach. It was conducted using the indexed database Scopus. The design was non-experimental, documentary, and retrospective, supported by PRISMA 2020 guidelines. For the formulation of the research question, the PICO method was employed: P = population in higher education; I = intervention: design and planning of teaching sessions; C = comparative: not applicable; O = outcomes: trends, strategies, applied methodologies, impact on learning.

In addition, inclusion and exclusion criteria were established. Initially, peer-reviewed articles published between 2018 and 2025 in English, Portuguese, or Spanish, related to higher education, were considered. Conversely, studies that were not peer-reviewed, outside the specified time range, in different languages, or focused on basic and non-university education were excluded.

The primary source of information was the Scopus database, and the following search string was utilized: ("didactic" OR "instructional" OR "educational" OR "teaching") AND ("session" OR "class" OR "course" OR "module") AND ("design" OR "planning" OR "development" OR "structure") AND ("higher education" OR "tertiary education" OR "university" OR "post-secondary education") AND ("curriculum" OR "syllabus" OR "learning outcomes" OR "assessment") AND ("pedagogy" OR "andragogy" OR "learning theory" OR "instructional strategy"). Filters were applied for the years 2018-2025, document type as scientific articles, and areas related to social sciences, education, and humanities.

The PRISMA selection process allowed for the identification of 44 articles in the Scopus database. Initially, duplicates were removed, and the relevance of titles and abstracts was assessed, reducing the number of articles to 35. Subsequently, 9 articles were excluded for lack of relevance to the stated objective. A more thorough eligibility assessment was then conducted by reading the full texts of the remaining 35 articles, applying the predefined inclusion and exclusion criteria, which led to the exclusion of an additional 22 articles. Ultimately, the process concluded with the identification of 13 articles that met the pre-established criteria.

Figure 1
PRISMA diagram



Results

Table 2
Main findings

Author	Database	Findings
(Guerra-Reyes et al., 2022)	Scopus	The main finding reveals a gap between university professors' theoretical didactic conceptions (constructivist, personal, and social) and their actual practices (traditional and behaviorist). This dissonance presents an opportunity to develop an integrative didactic model based on didactic ecologies, harmonizing theory, practice, and sociocultural context.

(Cruz Meza et al., 2023)	Scopus	The lack of a standard format for online didactic planning at Escom has hindered the assessment of non-face-to-face learning outcomes. After analyzing six periods, a planning model integrating Biggs, the Pedagogical Wheel, SAMR, and TPACK is proposed, facilitating coherent and meaningful assessment with technology in face-to-face and hybrid modalities.
(Shukshina & Kasko, 2019)	Scopus	The demonstration of a model training session emerges as an effective method to improve the didactic training of future teachers, enhancing social, cognitive, and functional competencies, and stimulating pedagogical creativity. Its application in an academic competency allows for the evaluation and strengthening of preparation for actual teaching, providing a basis for future recommendations in professional performance.
(Muñoz-Pére, 2023)	Scopus	The research reveals that the implementation of group dynamics in higher education fosters meaningful learning through collaborative work and active participation in content construction. It also contributes to the development of essential transversal competencies for academic performance and holistic student formation.
(Salgado-Gutierrez et al., 2020)	Scopus	Instructional design and teaching tools courses at the Faculty of Education at the Panamerican University effectively supported faculty in the transition to virtual learning. A high percentage of teachers (89.4%) felt that the content contributed to their professional development, and 87.9% felt prepared to redesign their courses, evidencing the positive impact of training in emergency educational contexts.
(De La Serna-Tuya et al., 2020)	Scopus	The implementation of instructional design and teaching tools courses by the Faculty of Education at the Panamerican University was fundamental for coping with the transition from face-to-face to virtual teaching. A high percentage of faculty reported that the content promoted their professional development (90.5%) and felt capable of adapting their courses to the virtual environment (87.2%), demonstrating the positive impact of this training in a healthcare emergency context.
(Bazán-Ramírez et al., 2024)	Scopus	The main finding is that the self-assessment questionnaire for teaching performance demonstrates high validity and reliability (α and $\omega \geq 0.94$). Significant differences were found favoring education faculty and women, who were more than twice as likely to show optimal performance. The nationality of faculty was not a relevant factor.
(Mazza & Valentini, 2024)	Scopus	The main finding of the article is that digital transformation in higher education, exemplified by the University of La Sapienza, goes beyond technological tools and requires a cultural redefinition of educational objectives. The analysis of surveys and interviews reveals predominantly constructivist, interactionist, and sociocultural didactic approaches, underscoring the need to integrate educational innovation strategies for deep and sustainable change in teaching practice.
(Guppy et al., 2022)	Scopus	The main finding of the study is the projected significant growth of blended/hybrid learning in higher education post-pandemic, with modest increases in fully online courses. Most respondents (faculty, students, administrators, and instructional designers) anticipate a transition towards more hybrid models rather than a radical shift to digital learning. This implies that educational technology will not return to its pre-pandemic state, and institutions must carefully integrate face-to-face and online modalities, considering the perspectives of all stakeholders.
(Lazarinis et al., 2025)	Scopus	The main finding of the article is the high effectiveness of a blended learning course for faculty development in higher education, with a completion rate of 91.13%. The survey revealed that the course significantly improved instructors' abilities to design and deliver online content in a pedagogically sound and engaging manner. The importance of these faculty development programs is emphasized, along with suggestions for the future design of courses aimed at enhancing online teaching skills in higher education.
(Harilal et al., 2024)	Scopus	The main finding of this study is that the integration of Cognitive Load Theory (CLT) in instructional design can reduce cognitive overload and optimize the student learning experience. The evaluation of first-year Commerce modules at a South African institution identified effective multimedia strategies for managing cognitive load. The results contribute to the development of improved instructional design frameworks and strategies, promoting more effective learning

		environments and enhancing metacognition and educational experiences in higher education.
(Prieto-Prieto et al., 2024)	Scopus	The main finding of the study is that incorporating Cognitive Load Theory (CLT) into instructional design decreases cognitive overload and optimizes student learning. The evaluation of Commerce modules at a South African institution revealed effective multimedia strategies for managing cognitive load. The results drive the development of better instructional design frameworks, facilitating more effective learning environments and enhancing metacognition and educational experiences in higher education.
(Xie et al., 2021)	Scopus	The main finding of the study is that during the transition to emergency remote teaching in 2020, instructional designers were crucial in supporting teachers and students. Their role evolved towards building relationships within the university community through resource distribution, designing workshops for faculty, providing technological support, and advocating for the needs of students and their own profession in light of the reopening and the future of distance education.

These findings emphasize the importance of integrating various theories, methodologies, and educational technologies to enrich the learning experience.

Discussion

Didactic planning in higher education has been recognized in the literature as an essential component for ensuring educational quality, promoting meaningful learning, and strengthening active student participation (Carriazo et al., 2020; Atkinson & Bregazzi, 2022). This theoretical approach resonates with the empirical results obtained. For instance, Guerra-Reyes et al. (2022) identify a dissonance between the theory and practice of university faculty, reinforcing the need for an integrative didactic model that combines constructivist approaches with the realities of the classroom.

Moreover, the importance of structured planning linked to models such as competency-based curriculum design, infrastructure, and systematic evaluation is highlighted in the literature (Carvajal-Ortiz et al., 2019; Tavares et al., 2021). In this regard, the findings of Cruz Meza et al. (2023) complement these perspectives by proposing a hybrid model of didactic planning that integrates theories like Biggs' and technological frameworks such as TPACK and SAMR to provide pedagogical coherence in both face-to-face and virtual contexts.

Regarding innovative approaches, the literature emphasizes the value of flipped learning, collaborative learning, and the use of virtual environments as responses to the challenges posed by the post COVID-19 landscape (Kwon, 2021; Oigara, 2024). This aligns with the results from Muñoz-Pérez (2023), who highlights the impact of group dynamics on the formation of transversal competencies, and with Salgado-Gutiérrez et al. (2020) and De La Serna-Tuya et al. (2020), who underscore the importance of faculty training for a successful transition to virtual education.

Additionally, the literature positions the teacher as a mediator and the student as an active agent in their learning (Ben-Chayim et al., 2020; Ruiz & Roncancio, 2023). This approach is corroborated by studies such as that of Shukshina & Kasko (2019), which emphasize how model session demonstrations strengthen teacher preparation from a holistic perspective, as well as the work of Bazán-Ramírez et al. (2024), which validates self-evaluation as a reliable tool for continuous improvement.

Finally, the digital transformation of higher education requires not only technological tools but also a profound cultural shift regarding the aims of education (Mazza & Valentini, 2024). This connects with the vision of authors like Awaah (2025) and Clarke (2018), who underscore the importance of adapting resources and methods to the characteristics and learning styles of students.

Conclusions

The systematic review has allowed for the identification of the most effective trends and approaches in the design and planning of teaching sessions in higher education, oriented toward integrative pedagogical models grounded in competency-based approaches, the inclusion of emerging technologies, and active student participation in their own learning. There is a clear alignment between theoretical antecedents and empirical findings regarding the need to articulate theory and practice, as well as to promote innovation and flexibility in planning. However, a gap in the effective implementation of these models is recognized, highlighting the need to

strengthen faculty training, institutionalize best practices, and adopt evaluative frameworks consistent with the contemporary challenges of higher education.

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