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APPROACHES AND CONCEPTIONS OF TEACHING AND LEARNING: TOWARDS THE SCHOOL OF EXCELLENCE

Enfoques y concepciones de enseñanza y aprendizaje: hacia la escuela de excelencia

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ABSTRACT

From the literature review emerges the premise that, to foster quality teaching, teachers must be aware of their approaches and conceptions of teaching and learning, as well as their pedagogical practices and corresponding outcomes. This awareness allows teachers to critically reflect on their practices, identify strengths and areas for improvement, and adapt their teaching strategies to better meet the individual and collective needs of students. This reflective text aims to highlight the importance of teachers' teaching approaches and conceptions, as well as the impact they have on students' learning approaches. In this holistic approach, it is proposed that teachers opt for more comprehensive and inclusive teaching approaches, capable of triggering deeper learning approaches in students. The importance of understanding students' conceptions of their learning situations and acting to enhance teaching contexts where they experience deep learning approaches has also been emphasized, necessarily implying a student-centered approach. Awareness of teaching and learning approaches and conceptions is a fundamental pillar to ensure quality teaching and provide meaningful and enriching educational experiences for students. This research is justified by the need to promote excellence in teaching and learning through processes in which the successive transmission and acquisition of cognitive content occur in a sharing environment in the teacher-student relationship, fostering academic success and students' concentration on more qualitative and meaningful learning. Some suggestions for educational practice are indicated.

Keywords: education and learning; approaches and concepts; educational practices; teaching; schools.

RESUMEN

De la revisión de la literatura surge la premisa de que, para fomentar una enseñanza de calidad, los profesores deben ser conscientes de sus enfoques y concepciones de enseñanza y aprendizaje, así como de su praxis pedagógica y los resultados correspondientes. Esta percepción permite a los profesores reflexionar críticamente sobre sus prácticas, identificar puntos fuertes y áreas de mejora, y adaptar sus estrategias de enseñanza para satisfacer mejor las necesidades individuales y colectivas de los estudiantes. Este texto reflexivo tiene como objetivo evidenciar la importancia de los enfoques y concepciones de enseñanza de los profesores, así como el impacto que ejercen en los enfoques de aprendizaje de los alumnos. En este enfoque holístico, se propone que el docente opte por enfoques de enseñanza más comprensivos y amplios, capaces de desencadenar enfoques de aprendizaje más profundos en los alumnos. También se destacó la importancia de comprender las concepciones de los alumnos sobre sus situaciones de aprendizaje y actuar para mejorar los contextos de enseñanza en los que experimentan enfoques de aprendizaje profundo, lo que implica necesariamente un enfoque centrado en el alumno. La conciencia de los enfoques y concepciones de enseñanza y aprendizaje es un pilar fundamental para garantizar una enseñanza de calidad y proporcionar

experiencias educativas significativas y enriquecedoras para los alumnos. Esta investigación se justifica por la necesidad de promover la enseñanza y el aprendizaje de excelencia a través de procesos en los que la transmisión y la adquisición sucesiva de contenidos cognitivos ocurran en un ambiente de intercambio en la relación entre profesor y alumno, fomentando el éxito escolar y la concentración de los alumnos en aprendizajes más cualitativos y significativos. Se ofrecen algunas sugerencias para la práctica educativa.

Palabras clave: educación y aprendizaje; enfoques y conceptos; prácticas educativas; enseñanza; escuelas.

1. Theoretical rationale

Education is a complex domain, reflecting temporal metamorphoses, and educational practices of each era are rooted in its interests, in the conception of the world and the human being they wish to shape (Felix *et al.*, 2024). Culture, social, political, economic, and philosophical debates define an excessively elitist traditional education, still prominent, where the global quest for the democratization of education brings with it an ideological charge, as the future of humanity depends on the education of these individuals in the present (Woods & Copur-Gencturk, 2024).

From this premise, understanding the approaches and conceptions that underpin educational practice is essential to refine teaching methods and foster meaningful learning, providing a comprehensive view of the foundations supporting the teaching and learning process (Araújo, 2023). By reflecting on the foundations that sustain this process, teachers can develop a more conscious and informed approach, aligned with the needs and characteristics of students.

From the literature review on the teaching approaches adopted by teachers and the learning approaches used by students, it is evident that, although it is recognized that there is no ideal teaching method, there are many factors that can be reinforced, and others forgotten, to increase the quality of student learning (Murtonen *et al.*, 2022). In this context, Piletti and Rossato (2011) argue that it is imperative to analyze student behavior to identify their learning needs, as well as the repertoire they bring to teaching situations and the consequences that can influence their behavior. Thus, it is possible to determine the stimuli that reinforce students' desirable behavior. The authors also emphasize that it is up to the teacher to describe the students' repertoire and, based on that, plan the necessary strategies for them to achieve the intended objectives.

With the recent COVID-19 pandemic, educational institutions around the world were forced to adapt to a new reality, suddenly resorting to new teaching and learning methodologies, and consequently, to new technological tools for e-learning. Reality has exposed us to the need to design educational content and

experiences adapted to this new classroom context, where teachers experience new ways of teaching, giving students the possibility of expanding new learning experiences, representing an important advance for education. Additionally, the analysis of approaches and conceptions also contributes to the development of a critical perspective on education, prompting the questioning of traditional approaches and the search for more effective and meaningful practices. Thus, Semper and Iriso (2022), invoking innovation in education, state that instead of resorting to methodologies brought from outside into the classroom, for innovation to happen, they propose that it emerges within each educational act. This act is specific to, and from then on, promotes novelty on three different levels: in the educational act itself, which is always singular; in the individuals involved in this educational activity, where growth is understood in terms of the intensification of personal relationships; and in the educational methodologies that arise from this interaction, allowing the placement of educational activities at the service of the integral development of the person.

In this new reality, the school urgently needs to shift its axis of teaching and learning concepts towards a model of excellence. Within this premise and the literature review, the theoretical foundation also refers to the consensus that the approaches adopted by teachers in their educational practices linearly influence the options of approaches used in student learning. There is a need to promote an approach to teaching that is less focused on content and more focused on the perspective of student learning (König *et al.*, 2020; Paiva & Lourenço, 2017). According to Araújo (2023), this shift in focus will allow us to understand the crucial importance of conceptions in education, as they provide a theoretical foundation that guides pedagogical practices and directly influences how teachers approach students' learning. In this regard, a study by Woods and Copur-Gencturk (2024) mentions that teachers who employed student-centered teaching reported more gains in pedagogical knowledge for themselves than teachers who used direct instruction.

2. Approach to teaching

According to Bastable *et al.* (2019), the educational process is the combined result of systematic actions, logical sequences, scientifically grounded and planned, structured in two major interdependent teaching and learning interventions. This process is associated with a continuous cycle that also involves two interdependent protagonists: the teacher and the student. Together, they develop teaching and learning dynamics whose result leads to mutually desired behavioral changes. The authors also mention that these changes promote student growth, and teacher development should also be recognized. In this sequence, the educational process can be perceived as the structure of a shared and perceptible approach to teaching and learning.

From the analysis of the teaching process, Kember and Kwan (2000) formulated, among others, the following questions: Is it feasible to identify qualitatively distinct teaching approaches? Do the conceptions that teachers hold about teaching influence their teaching approaches? Do teaching approaches have any impact on the learning approaches adopted by students?

Prosser and Trigwell, since the early 1990s (Prosser & Trigwell, 1997, 1998, 2000; Trigwell & Prosser, 2004), have been conducting research to find solutions to the questions formulated above. These researchers conducted a study following the phenomenographic approach, involving twenty-four teachers from undergraduate courses in University Teaching Sciences, who were interviewed about their teaching experiences in one of their first-year classes. It is worth noting that, from a phenomenographic perspective, teaching and learning approaches have a relational nature, meaning that the approach chosen by a teacher depends on their relationship with a particular teaching and learning context. The researchers' aim was, therefore, to understand, from the interviews, how the teachers in the sample approached teaching in that particular context. The interviews were transcribed and their content was analyzed to identify the teaching approaches of the teachers in question and their conceptions of teaching and learning. The teachers' explanations were also examined according to the strategies and intentions associated with them. The final analysis of the results suggested the existence of four types of intentions and three strategies which, combined, give rise to five qualitatively distinct teaching approaches (A, B, C, D, and E; Prosser *et al.*, 1994; Trigwell & Prosser, 2004). It was thus found that teachers' teaching approaches are composed of an intentional and strategic element, similar to what was observed with students' learning approaches (Prosser *et al.*, 1994; Prosser & Trigwell, 2000).

The five teaching approaches were then separated into two different sets: (1) Approaches A, B, and C, focused on the teacher or the interaction between the teacher and the student, portraying teaching with the intention of knowledge transmission; and (2) Approaches D and E, student-focused and characterized by teaching to facilitate students in developing their knowledge. Each set reveals its internal structure, with no intentions or strategies present in both sets simultaneously: approaches A and B share a strategy, approaches B and C share an intention, and approaches D and E share a strategy. Thus, no intermediate approaches were identified, such as approaches to enhance students' concepts but implemented with teacher-centred strategies (Trigwell & Prosser, 1996).

The teaching approaches mentioned, as well as their intentional and strategic elements, are presented in Table 1.

Of the twenty-four participating teachers, thirteen were categorized as having chosen approach A, six as approach B, three as approach C, and only one each as having chosen approaches D and E (Prosser *et al.*, 1994). The majority of teachers adopted approaches to transfer information or concepts to students, primarily using teacher-centred strategies. In contrast, a minority adopted approaches to

TABLE 1
INTENTION AND STRATEGY COMPONENTS OF THE FIVE TEACHING APPROACHES (A-E)

Intention	**Strategy**		
	Teacher-centered	**Teacher/student interaction-focused**	**Student-focused**
Information transmission	A		
Concept acquisition	B	C	
Concept development			D
Concept change			E

Source: Adapted from Trigwell & Prosser (2004)

help students develop or modify their understanding of fundamental ideas, using student-centred strategies.

The studies carried out by Prosser and Trigwell (2000) state that teachers' approaches to teaching consist of an intentional and a strategic element and can be described in five types of approach, namely:

Approach A - The teaching strategy is focused on the teacher with the intention of transmitting content to the students. Teachers who adopt this approach prefer a teaching strategy centered on themselves, aiming to convey information about the subjects they teach. They place significant emphasis on facts and skills while undervaluing the relationship between the teacher and students. In this approach, there is no emphasis on enhancing students' prior knowledge, and they are not given a dynamic role in the teaching and learning process. The teacher who chooses this approach is primarily concerned with providing students with extensive notes to help them achieve good results in assessment tests.

Approach B - The teaching strategy is focused on the teacher with the intention of enabling students to acquire the concepts of the discipline. Teachers who adopt this approach choose a strategy centered on themselves, similar to Approach A. However, in this situation, they express the intention of contributing to students acquiring the concepts of the contents being taught, without overlooking the relationship between these concepts. These teachers acknowledge that students can learn concepts and their relationships if these are clearly conveyed in the classroom, without assigning a dynamic role to students in the teaching and learning process.

Approach C - Teacher/student interaction strategy with the intention of enabling students to acquire the concepts of the discipline. In this approach, teachers choose a strategy centered on teacher/student interaction with the goal of assisting students in acquiring the fundamental concepts of the discipline, along with understanding the relationship between these concepts. Teachers put effort into explaining the

contents to be learned, with the primary objective of transferring information accurately to the students. This approach differs from the previous ones in that students structure their knowledge about the contents through dynamic participation in the teaching and learning process.

Approach D - Student-focused teaching strategy with the intention of having students construct the concepts themselves. Teachers who adopt this approach emphasize strategies focused on students with the goal of assisting them in increasing and broadening their previous conceptions and worldviews. They acknowledge that a strategy centered on students is crucial, as students are the ones who need to develop their own conceptions and organize their knowledge. These professors express the intention of teaching students to learn the contents of the discipline through the use of examples related to the student's experience and by demonstrating the principles that must be learned.

Approach E - Teaching strategy focused on students with the intention of making them change their own concepts. In this approach, teachers choose a student-centered strategy with the goal of assisting students in changing their ways of seeing the world or their conceptions about the phenomenon they are studying. The emphasis is on focusing their concentration more on the learning process than on their own performance. In this approach, students are required to rebuild their knowledge to construct a new vision of reality and develop new conceptions about their surroundings. Teachers, in turn, encourage self-regulation of learning in students, provide space and time for interaction and discussion of the problems they face, allocate class time to challenge their ideas, promote debate, and use assessment to estimate conceptual changes, as well as to level students.

Sheppard and Gilbert (1991) conducted studies where they attempted to uncover the relationship between teaching methods and student learning. They found that teachers who, in their teaching practices, adopt approaches similar to those designated as D and E, encourage students to adopt deep learning approaches. Prosser *et al*. (1994) emphasise that student-centred teaching enhances academic achievement, as it takes into account the presentation and development of alternative conceptions of knowledge, supported by discussion. These authors also note that teaching directed at students' existing conceptions is more likely to foster learning based on a personal meaning orientation, thereby improving the quality of learning outcomes.

Proving the aforementioned approaches, Paiva and Lourenço (2017) mentions that the description of approaches to teaching has commonalities with students' approaches to learning, namely the intentional and strategic elements. Thus, although the presence of a causal relationship between them is not indicated, the teachers' approaches to teaching A and B seem to reveal common characteristics with the superficial approach to learning. Approaches D and E to teaching, in turn, seem to manifest common characteristics with the deep approach to learning.

Faced with this observation, Prosser *et al*. (1994) questioned whether teachers who choose to teach approaches A and B, focusing on mere knowledge transmission, would foster superficial learning approaches in their classrooms. In search of answers, Trigwell & Prosser (1996) initiated a project that employed quantitative methodologies, deeming it impractical, both pragmatically and economically, to continue this study using qualitative methods. Prosser and Trigwell, drawing on the results obtained from qualitative studies, developed an inventory, the ATI (Approaches to Teaching Inventory), to evaluate the intentions and strategies previously identified in phenomenographic studies, now through a self-report instrument. This inventory includes items developed based on teachers' behaviors in each of the described approaches (Prosser & Trigwell, 2000, 2006; Trigwell & Prosser, 1996, 2004). The items were extracted from interviews conducted with teachers, aiming to reflect each category of intention and strategy. After repeated statistical analyses of the instrument data, the ATI was reduced to 22 items, organized into two types of teaching approaches: a student-centred approach, to promote conceptual changes (comprehensive approach), and a teacher-centred approach, to transmit information (transmissive approach). To promote quality teaching, teachers must know their conceptions of teaching and learning, their approach to teaching, and their respective results (Schwartz & Goldstone, 2016). It is also important to understand students' conceptions of their learning and to act in order to develop teaching and learning contexts in which students experience deep learning approaches. This necessarily implies opting for a student-centered approach (Prosser & Trigwell, 2000). The concepts of deep and shallow learning, which developed between the 1970s and 1980s of the last century, are well-established in the current educational discourse. However, it is argued that this dichotomy is a simplification, and a more comprehensive understanding of the concepts and their interconnections with the overall teaching and learning situation is needed (Biggs, 2014; Thurber, 2021).

Based on these concepts, there is an urgent need to readjust and adapt them to the new post-pandemic educational reality. Even more urgent is the need to discover how online pedagogies serve the interests of both teachers and students, allowing for stable levels of involvement and results for all participants in the educational process. Although there is a diversity of resources, we cannot help but question the impact of these new teaching and learning methodologies on teachers and students. Biesta (2019) indicates that some of the most popular forms of technology-mediated education (e.g., TED talks, MOOCs, YouTube instructional videos) are carried out in a more or less traditional way, where someone speaks and explains for others to watch, listen, and learn. Consequently, continuous reflection is essential to keep pace with social, technological, and cultural changes, ensuring that educational practice aligns with the demands of contemporary society (Araújo, 2023).

Allen *et al*. (2020) advocate for a more systematic, shared, and strategic approach to building the knowledge base on online learning in teacher education. This will require increased coordination and collaboration among researchers so that studies can be oriented towards addressing the challenges of online teaching and learning.

But will this phase of confined teaching lead us to adopt traditional ways, as Biesta (2019) points out? Or will new conceptions of teaching, learning, and mutual engagement emerge that will foster broader types of teaching approaches among teachers and trigger deeper approaches to learning in students? It is up to all those involved in educational activities to structure these pathways. A recent study by Hederich-Martínez *et al*. (2022) about learning patterns with teachers in training states that the observed transformations are as expected: as they advance in their careers, reproductive tendencies and repetitive tasks disappear to give way to a deeper, more reflective, and critical approach to knowledge.

3. Learning concepts

When students start a certain school year, they reveal great variation in how they perceive learning. Their conceptions of learning encompass past experiences (Prosser & Trigwell, 2000) and determine the quality of learning outcomes (Schwartz & Goldstone, 2016). Learning conceptions are the different ways individuals express their thoughts about learning, for themselves, their improvements, or any other dimension (Murtonen *et al*., 2022). Thus, it is important to understand the reasons and strategies underlying student learning. This information on study behavior is a fundamental tool for individual psychological intervention, as it helps students understand their learning process and allows for possible changes to improve the quality of their learning (Paiva & Lourenço, 2017).

Marton (1975) conducted studies to investigate causal relationships between levels of cognitive processing and the ways in which students experience learning in general, namely their conceptions of learning. The results showed certainties about the existence of two levels of processing, one superficial and the other deep, which can be modified by changing the learning conditions. Likewise, they proposed that different students demonstrate varying levels of processing, even when exposed to stable learning conditions. The author concluded that the choice of a certain level of processing over the other seems to depend on the students' conceptions of learning and their conceptions as students. Similarly, Paiva and Lourenço (2017) emphasizes the importance of knowing students' conceptions about how they learn to develop teaching and learning contexts that students experience as engines of deep learning approaches.

In the phenomenographic line, Säljö (1979) carried out an investigation with the purpose of recognizing individuals' conceptions of learning based on interviews.

Respondents were challenged to answer the following question: "What does learning mean to you?" The study revealed that many subjects responded by considering that learning is a particularly reproductive activity. Others were aware of the influence of the learning context on how to learn and what to learn. A certain number of participants also referred to an evolutionary process in the way they perceived learning in their school careers. The author concluded that conceptions of learning seem to be related to the firm adoption of a superficial approach to studying in the first case and a deep approach in the second. Known requirements of different learning contexts are related to approaches.

Later, Säljö (1979) extended his initial distinction between a reproductive conception and an interpretive conception of learning to include five more particular conceptions of learning: (i) learning how to increase knowledge; (ii) learning to memorize; (iii) learning how to acquire facts and procedures that can be applied; (iv) learning to abstract from meaning; and (v) learning as an interpretive process to understand reality. This set of conceptions represents a sequence or hierarchy of development that Säljö (1979) supports in two ways: first, some of the interviewees made observations related to a transition process they experienced between high school and university; secondly, it maintained the assumption of a parallelism between the results achieved in this investigation and a description of the exposed intellectual development.

Van Rossum and Schenk (1984) confirmed Säljö's (1979) conceptions of learning with results indicating that 75 % of the students who expressed the first three conceptions opted for a superficial approach in the reading of texts. However, practically all students who expressed the last two learning concepts invoked a deep approach when reading the text. Additionally, there was a separation between the third and fourth conceptions of learning. Thus, it was concluded that the superficial approach is related to the first and second conceptions of learning, and the deep approach to the fourth and fifth. The third conception appears as an intermediate between the two sets (Marton & Säljö, 1997).

In the same study, the authors mentioned the existence of a relationship between the ways of experiencing general learning (learning concepts) and the ways of experiencing learning based on reading a text (learning approach). This relationship prototype has been confirmed by other researchers. In Sacristán's (2013) understanding, every pedagogical experience and every didactic action presuppose the purpose of mediating, correcting, and stimulating the experience of the encounter between a subject that exercises a series of functions on the subject that holds content or develops different capacities, in such a way that these functions and capabilities are transformed and enriched, which, in general, we call learning. For this meeting to be fruitful, the content has to be meaningful, relevant, and challenging, a characteristic that is more likely to be present if the encounter has also been properly mediated and if it is motivating.

Martin and Ramsden (1987) demonstrated the existence of a direct relationship between students' conceptions of learning and their academic performance at the end of the school year, a finding also supported by other more recent studies (Lourenço & Paiva, 2015; Tsai *et al*., 2016). Students with lower scores expressed the learning concepts identified as learning through memorization and learning to acquire facts and procedures that can be applied, while students with higher scores expressed the concepts of learning as an abstraction of meaning and learning as an interpretive process to understand reality. In turn, Eklund-Myrskog (1997), in a study conducted in Finland, concludes that learning conceptions are context-dependent. Säljö (1988) had previously argued that learning conceptions are relational phenomena and not intrinsic attributes of individuals' minds. In a study conducted by Marton *et al*. (1993) on university students' conceptions of learning, five conceptions similar to those defined by Säljö were identified, with an additional sixth one added (Marton & Säljö, 1997), namely:

A. Increasing one's knowledge;

B. Memorization and reproduction;

C. Application;

D. Understanding;

E. Seeing things differently;

F. Changing as a person.

The first conception of learning views the act of learning as something quantitative, where students engage in learning activities with the sole purpose of expanding their knowledge. In the second conception, still, within the quantitative perspective, the educational process also aims for the faithful imitation of learning material, to repeat it in summative assessments and other future evaluations. Learning includes the acquisition stage, but also the application stage, that is, the ability to do something, namely, to repeat the learned material. The third conception expresses an inherent conviction: the intention to receive and accumulate knowledge to apply it in actions. The emphasis, therefore, is on application, not limited to the rigorous reproduction of learned material in summative assessments. To apply means to reacquire what has been learned and use it in practice. In the fourth conception, where learning is understood as comprehending something, learning is considered a comprehensive process, encompassing the use of acquired knowledge and the ability to integrate this knowledge into other contexts. The foundation of the learning process is thus centred on the student, not on extrinsic knowledge. In the fifth conception of learning, the student plays a more active role with the study material, focusing on the process of change, as the student transforms their way of thinking about the world. In this conception, the results of learning are not confined to the study situation, allowing the student to gain new perspectives on the surrounding

phenomena. The sixth conception is related to the previous two, and as highlighted by Marton *et al*. (1993), includes the student not only as an agent of acquiring, retaining, and applying knowledge but also as a recipient of the consequences of this learning. It also represents a capacity to face reality holistically, influencing the perception of oneself. The student sees themselves as a more capable individual and as an agent of their learning.

Thus, studies on students' differences in learning and in their way of experiencing reality gained new development in the phenomenographic theory called the Theory of Variation, which emphasizes its focus on the structural aspect of conception (Marton & Pang, 2006). This shift can be seen as a return to the original questions about learning from which phenomenographic studies began. In studies from the 1970s, researchers focused their attention on describing the variation they were able to detect (experience) between the different ways people used to experience different phenomena. Today, researchers continue to focus on the various aspects of the world experienced by students. They point out, however, that this centralization in the mapping of structure is not between conceptions but within conceptions (Marton & Pong, 2005).

Regarding the assessment instruments within the SAL (Students Approaches to Learning) paradigm, it is important to highlight the effort to operationalize students' study behavior. In this context, the Study Behavior Questionnaire (SBQ; Biggs, 1987a) stands out, which aims to evaluate various dimensions of study behavior (Biggs, 1987a): academic aspiration, academic interest, academic neuroticism, internality, study and organizational techniques, reproduction strategy, dependency, meaningful assimilation, assessment anxiety, and openness.

Successive investigations by Biggs enabled the validation of the initial version of the SBQ, which underwent continuous revisions, culminating in a new version called the Study Process Questionnaire (SPQ) (Biggs, 1987b) for university students, and a version for secondary school students called the Learning Process Questionnaire (LPQ; Biggs, 1987c). The SPQ aimed to assess ten aspects of study behavior. However, the initial factor analyses allowed Biggs to group the scales into three factors related to study process dimensions: Reproduction, Internalization, and Organization (Biggs, 1978).

The author concluded that the questionnaire items are associated with a Value-Motive-Strategy structure, meaning a set of items for each of the factors. This finding led to the development of the 3 x 3 Value-Motive-Strategy Model of Study Process, designed to address students' questions when facing various learning activities (e.g., Why am I studying this subject? How will I achieve the objectives?).

Regarding Factor I – Reproduction – students view study as a means to achieve a goal. In terms of strategies used by students, the objective is to avoid academic failure, focusing on the essential contents of the curricula. Students do not assign

any special meaning to the knowledge they acquire, merely reproducing it during school evaluations (Biggs, 1988b).

Regarding Factor II – Internalization – the primary values are self-realization and personal growth. Students show an interest in their learning subjects, seeking to develop their skills and motivations, and dedicating energy to their studies in line with their intrinsic interests (Biggs, 1990). The strategies used by students aim to give meaning to the studied content, thus relating various learning materials.

Lastly, Factor III – Organization – in terms of structure, is less defined. An emerging value in this factor is competition, with the university being seen as a place where students can demonstrate their attributes (Biggs, 1984). Motivated by success and driven by the need to achieve academic excellence, these students adopt valid strategies, being methodical in their work, with the goal of meeting the proposed academic targets, and rigorously adhering to deadlines (Biggs, 1987a).

In both versions (SPQ and LPQ), Biggs differentiated three dimensions of the study process, which he redefined as Utilization, Internalization, and Success. Each of these dimensions reveals a cognitive (strategic) and an affective (motivational) component (Biggs, 1979). The underlying theoretical basis rests on the suspicion that students have stable but diverse motives for studying or learning and consequently use various strategies to achieve them. The three dimensions of the learning or study process and the relationship between strategies and motives present in the SPQ and LPQ can be summarized as follows (Biggs, 1984, 1988a):

Utilization Dimension - Students reveal two interrelated motives for studying: the first relates to the genuine reasons for their choice of university, and a closer, although not entirely satisfactory, motive is to avoid failure (Biggs, 1990). The learning strategies used by students aim to avoid academic failure by focusing on the essential content defined in the curriculum presented by the teachers. Students study the minimum necessary, reproducing knowledge in exams or tests without attributing personal meaning to it (Biggs, 1979, 1988a).

Internalization Dimension - The students' motivation is intrinsic. They choose to attend university as a form of personal fulfillment and engage deeply with the content of their learning. They are concerned with developing their interests and competencies (Biggs, 1990). In terms of strategies, they adopt in-depth readings of learning materials, interlinking subjects into a meaningful conceptual structure, with academic success potentially being achieved only when the learning objectives defined by the students coincide with those formulated by the teachers (Biggs, 1984).

Success Dimension - The motivation of these students aligns with a competitive life choice, aimed at achieving high academic performance (Biggs, 1979, 1984). Their cognitive strategies are geared towards meeting these standards. Consequently, they

organize themselves, distributing their study time in the best possible way, such as by meeting assignment deadlines (Biggs, 1979).

Teaching practice can encourage students to develop more meaningful approaches to learning, directing their attention more to understanding subjects than to reproducing them during evaluations (Lourenço & Paiva, 2015). However, such an educational objective requires the use of active methodologies that promote different approaches to school tasks and assessment methods that emphasize content structure instead of memorizing independent subjects, among other aspects. Although the literature mentions the difficulty in encouraging students to adopt a deep approach to learning, it proposes the need to modify the context of teaching and learning to change students' perceptions of this same context (Holmbukt, 2018), being an essential step in developing educational success.

According to Biesta (2019), in order to develop learning concepts, it will be necessary to evolve and incorporate new instructional concepts. These new educational goals will have to prioritize student-centered experiences, be more open to how learning takes place, and not restrict thinking to rigid functional structures and traditional formats. The author also emphasizes that the focus should be on the student, considering their needs, previous experiences, knowledge, and motivations. Similarly, a change of mentality will be necessary, where emotional and psychological structures will be crucial to give meaning to learning in this new contextual paradigm.

Lacerda and Guerreiro (2023) mention that learning is only effectively meaningful when the teacher can interact with the subjects of the process, shifting from a vision based on teaching to one that is focused on learning. It is not merely having a superficial interaction between the subjects of the learning process but a change of attitude and conception.

Thurber (2021) states that the recent pandemic has ushered in a new era of digital learning, where subject content is more adaptable and student-focused. We have never before possessed such extensive knowledge about how students learn and how learning support processes develop, based on what we know today.

4. Teachers' conceptions about student learning

According to Shulman (2014), teachers' conceptions of student learning refer to their beliefs, ideas, and understandings about how students learn. These conceptions can cover a variety of areas, including learning theories, teaching strategies, the roles of students and teachers in the classroom, assessment of learning, and the ideal learning environment. The author highlights that teachers' conceptions can be influenced by their personal experiences, professional training, values, school culture, and educational theories they have been trained in. Understanding teachers' conceptions of student learning is important because this can affect their teaching practices, pedagogical approaches, and interactions with students.

The teacher's conceptions about how students develop their learning have great potential to structure the guidelines of their pedagogical practice. Prosser *et al.*, (1994) identified the following teachers' conceptions about their students' learning:

Conception A - Learning as a way to accumulate information to satisfy external requirements: Teachers who express this conception see student learning as an accumulation of skills, laws, facts, formulas, principles, and definitions, which add to or replace prior knowledge, using mechanisms, namely learning routines. These teachers focus on information, neglecting, however, how new information relates to existing knowledge, establishing associations with reality but always from their perspective, which may not be important for students. Teachers who defend this concept contemplate learning as the student's ability to use the information to solve exercises of the type practiced in the classroom, arguing that he will have learned some content if he manages to solve these exercises successfully;

Conception B - Learning as a way to acquire concepts to satisfy external demands: For these teachers, learning is seen as a process of developing meaning through the acquisition of the concept, the discipline itself, and knowledge about the relationship between these concepts. The concept of acquisition involves an increase, development, or construction of previous knowledge in the sense of the purposes of the discipline. As in Conception A, the learning outcome is determined extrinsically by the students; that is, the knowledge acquired mainly helps in solving problems and school exercises;

Conception C - Learning as a way to acquire concepts to satisfy internal requirements: As in Conception B, the learning process is observed as obtaining concepts of the discipline. The significant difference lies in the fact that the learning result is seen not only as a need to satisfy external requirements but as something intrinsic to the students, who are aware of the new learning and find meaning in it;

Conception D - Learning as a form of conceptual development to satisfy internal requirements: Teachers see learning as involving a mechanism for developing meaning based on the structuring of more systematic, detailed, and organized knowledge about events, in line with a specific vision of the world. Students observe events through the development of their particular meaning, not through the knowledge of the discipline itself. What distinguishes this conception from the others is the realization that the student's organization of knowledge may not be the same as that of the teacher. Similar to the previous conception, learning is a process that students enhance by using comprehension criteria established by them to verify if they have learned something; and

Conception E – Learning as a way of making conceptual changes to meet internal requirements: Teachers consider learning as the improvement of a certain meaning based on a standard scheme of vision of world events by students. These changes the way of reflecting on the discipline, reorganizing its current view of reality to generate a new one. Thus, this conceptual shift differs from Conception D insofar

as it includes the option for a new vision of the world, instead of increasing the meaning within that same vision. It is a process in which students are more aware that they have learned something new.

Prosser and colleagues (Prosser *et al.*, 1994; Prosser & Trigwell, 2000) report a strong empirical relationship between conceptions of learning and teaching. Teachers who reveal teaching concepts based on the transmission of information and who do not focus their teaching on students or their understanding also present learning concepts that are restricted to the accumulation of information by students. Likewise, teachers who manifest more complex teaching concepts jointly exhibit more structured learning concepts. Biggs (2014) suggests that factors such as cognitive style, personality, and values would differentially emphasize coding and testing strategies, resulting in different ways of studying that, in turn, would determine learning outcomes. Thus, anything in the teacher's teaching style that deviates from the primary focus, giving rise to cynicism, anxiety, or inappropriate attribution, will center the student on inferior or irrelevant cognitive activities.

Learning approaches have become generic concepts in a new type of educational research. This can be seen as an attempt to strengthen the student's dynamic role in their learning process, increasing their understanding of the meaning of the world around them and developing a deep approach to reality (Tsai *et al.*, 2016). Thus, student metacognition shows awareness of their cognitive processes and control over them; consequently, such qualities can eventually facilitate deep learning (Holmbukt, 2018). It also contributes to creating knowledge in more engaging and stimulating learning environments, which promote more practical experiences and operational learning (Imathiu, 2018).

Pellegrino and Hilton (2012) indicate a range of skills (social, emotional, and cognitive) of teachers and parents to help students learn outside of school, being of great use to support the teaching and learning process in this post-pandemic period. Resources are grouped according to their purpose: (i) curriculum resources, including lessons, videos, interactive learning modules, and any other resources that directly support students in acquiring knowledge and skills; (ii) professional development resources, which can support teachers/parents in aiding students by orienting them to the program, developing their skills to teach remotely, or more generally increasing their ability to support students in learning more independently outside the school space; and (iii) tools that can help manage teaching and learning, including communication tools, learning management systems, or other tools that teachers, parents, or students can use to create or access educational content.

Currently, in this particular period of learning recovery, it is important to draw a holistic picture of teaching and learning activities, including establishing the link between the change management process and the online teaching and learning process. This is to overcome the learning interruption of the student and,

consequently, guarantee the normalization of all face-to-face activities. It is essential that teachers have a very realistic perception of this transition, be highly creative, and provide strategies as soon as difficulties arise (Mishra *et al.*, 2020).

5. Considerations about teachers' conceptions of teaching and learning

Studies on teachers' conceptions of teaching seem to confirm that qualitatively different teaching approaches are related to different approaches to learning by students and, of course, to different learning outcomes (Paiva & Lourenço, 2017). According to Murtonen *et al.* (2022), to achieve better learning outcomes, it is expected that teachers focus on their students' learning to support them instead of just transmitting content. A focus on student learning should be used synonymously with good teaching that recognizes and responds to student needs to promote learning.

Some studies have been carried out to analyze possible parallels between secondary and higher education regarding these aspects. Boulton-Lewis *et al.* (2001) investigated secondary school teachers' conceptions of teaching, their relationship to their conceptions of student learning, and their description of teaching strategies or practices. Four months after the start of the school year, this research group selected twenty-four secondary school teachers from public and private schools for individual interviews. These interviews aimed to evaluate their teaching approaches and corresponding conceptions of learning and teaching. One year later, a second interview was conducted with sixteen of the teachers from the initial sample to determine if there had been any changes in their conceptions of learning and teaching, given that the researchers had shared the results of the first interview with them. However, since no significant differences were detected between the interviews, the researchers decided to analyze the results of both interviews together.

The results obtained in this phenomenological study allowed the recognition of four categories of teaching concepts and four of learning concepts. In the first category of teaching conceptions - transmission of contents and skills - teaching is seen as a transfer of information, with the teacher and the subjects at the center of the process, and the students at a lower level. In the second category - development of skills and understanding - the teacher is the one who guides the learning process, and students are the primary actors who must reach a certain level of skills and understanding of the teacher. The third category - facilitation of understanding - is concentrated jointly on the teacher and the student, in which both participate in the structuring of personal meaning. In the fourth category - transformation -, the teacher, eventually occupying the background, adapts the learning situation to motivate students, offering them the opportunity to be dynamic and develop in the affective, behavioral, and cognitive planes. Boulton-Lewis *et al.* (2001) also reinforce that most of the strategies related to each teaching design are consistent with the

associated designs. It can be said that in the first conception, the teacher communicates, provides, and repeats. In the second, the teacher usually uses illustrations and tasks. Third, the teacher's behavior includes strategies in which questions and dialogue are frequent, to motivate students' reflection and understanding. Finally, in the fourth conception, the teacher uses strategies that give students the opportunity to express themselves and progress.

Thus, it is possible to infer that the four categories of teachers' conceptions of teaching correspond to the respective conceptions of students' learning: acquisition and reproduction of content and skills; development and application of skills and understanding; development of understanding; and transformation. In the first conception of teachers' learning, the student learns through repetition and reproduction. In the second, the student focuses on the practical application of the learned material. The third considers that the student has a dynamic participation, where they question, reflect, discuss, and develop personal meaning. Finally, the fourth category views the student's growth as a person through tasks involving analysis, discussion, and risk-taking.

In the majority of teachers participating in the study, there was consistency between the concepts of learning and teaching (Boulton-Lewis *et al.*, 2001). Teachers who viewed teaching as the transmission of information about their subject considered their students' learning to be the acquisition and repetition of learned material. It was observed that the limited number of teachers expressing the concepts of content and skills transmission/acquisition were foreign language teachers. On the other hand, Science and Mathematics teachers presented intermediate concepts of learning and teaching, where teaching is understood as a means of increasing understanding and skills, serving as assistance to students' comprehension, and learning is regarded as the acquisition, reproduction, and enhancement of understanding.

Regarding teachers' conceptions of teaching and learning, it can be said that both at the individual level and within the curriculum department, there is evidence of a relationship between teachers' conceptions of teaching and learning and students' approaches to learning. The research data indicate that teachers encourage the option for a superficial approach when they admit that their essential role is limited to transmitting their knowledge to their students (Boulton-Lewis *et al.*, 2001). This behavior leads to a learning model in which students are seen as lacking in knowledge, turning teaching into a one-way process, in which students are prevented from copying transparencies and merely listening to the teacher (Paiva & Lourenço, 2017). Thus, it would be beneficial to encourage teachers to rethink their conceptions of teaching and learning, making classes more dynamic and taking into account the student's points of view. The difficulty in changing deep convictions is the reason why many projects aimed at improving the quality of teaching have little impact (Murtonen *et al.*, 2022).

Modifying students' learning concepts does not seem to be a simple task. However, modifying teachers' conceptions of teaching seems to be even more challenging, as they tend to solidify after a few years in their career (Lacerda & Guerreiro, 2023). For a conceptual change to occur in a given educational context, Nussbaum and Novick (1982) caution that it is essential to go through a process consisting of three stages: (i) a mechanism to determine conceptual schemes that are subsequently communicated to interested parties; (ii) a moment of instability and conceptual conflict that leads participants to be dissatisfied with their current conceptions; and (iii) a stage of reconstruction and reformulation that results in a new conceptual model.

Thus, it is essential to encourage teachers to reflect on their performance in the classroom and participate in research projects on learning and teaching. Conceptual changes are only viable when teachers experience a difference between their conceptions of teaching and their practice, driven by personal reflection compared to that of other colleagues and by knowledge of alternative conceptions of teaching and learning (Lacerda & Guerreiro, 2023). As mentioned by Corcelles Seuba *et al.* (2023), one of the main challenges for a desirable educational transformation is to promote professional teacher development experiences that can favor the teacher, groups of teachers, or the school community. Learning practices among teachers, based on collaboration and mobilization, as well as professional knowledge to inquire about their practices, constitute a fundamental mechanism for identifying possibilities for improvement. Although the potential of these professional collaboration practices is recognized, observation between teachers is the least used, according to the latest TALIS report (OECD, 2019).

Reflection should be a metacognitive process that transforms gained experience into knowledge about teaching and previous experiences. Utilize this reflection to enhance future practice. In general, researchers accept that reflection is essential, as it helps teachers become more intentional in their thinking about teaching (Paiva & Lourenço, 2017).

In this post-pandemic situation, it should be noted that teachers face significant challenges in adapting to online teaching and maintaining communication with students. These challenges include the need to use multiple digital tools and resources to solve problems and implement new teaching and learning approaches. In addition to teaching objectives, teachers must also maintain contact with students, support learning and its development, and account for the social integration of different learning groups. The school blockade at various levels revealed that teacher training and competence are relevant to facing specific challenges caused by the pandemic. However, this situation may indicate the need to strengthen teachers' skills in the areas of communication and management of online teaching. It may also open up relevant new research on various teacher education systems.

Araújo (2023) mentions that, when considering these different perspectives, it is crucial to emphasize that there is no superior conception to all others. Each

approach brings valuable contributions to educational practice, and the choice of the appropriate perspective is conditioned by the context, educational objectives, and the characteristics of the students. The recognition of diversity enables teachers to adopt a more flexible and adaptable approach, allowing them to adjust their practices according to the specific needs of each learning situation. It is essential for teachers to be open to dialogue and constant reflection, questioning their own conceptions and consistently seeking to improve their practices.

6. Conclusions

In the course of this reflective text, it was mentioned that to promote quality teaching, teachers must be aware of their conceptions of teaching and learning, their pedagogical approach, and the respective outcomes. It was also emphasized how crucial it is to understand students' conceptions of their learning situations and to act to enhance teaching and learning contexts where they experience "deep learning" approaches, which necessarily implies a student-centered approach (Murtonen *et al.*, 2022). This learning should foster broad representational modes (visual, auditory, tactile, and spatial), aiming to prepare young people for adult, professional, and social life. It should promote the integration of practical and theoretical disciplines, addressing problems that impact students' lives outside of school. Despite teachers expressing intentions for their teaching that they might be unable to implement due to a lack of pedagogical preparation.

Considering that modifying the learning context involves the role of teachers, it seems important to introduce, in their training, a space for awareness and possible change in intuitive conceptions of learning and teaching. This is crucial, especially for those starting a teaching career, as they tend to perceive teaching mainly as a process of transmitting knowledge. It is important to implement continuous training for teachers aiming to increase the quality of teaching, providing them with relevant knowledge and practices for their educational and instructive actions. Integration of contributions from different theories on learning into a coherent and operational framework is essential. Teachers must master the principles of organizing the learning environment to modify and/or leverage students' learning approaches. The mastery of these principles by teachers will be guaranteed not only by mere exposition but also by direct experience, critical interpretation, knowledge of their application to real circumstances, and confrontation with the principles that naturally guide their actions.

Thus, continuous training for teachers is essential, aiming to increase teaching quality by endowing them with relevant knowledge and practices. Future teachers should have learning opportunities in professional development with assisted practices. While they can learn from research results on effective online teaching practices, the physical classroom remains the primary environment for student learning (König *et al.*, 2020).

In this way, ongoing teacher training proves to be crucial, aiming to enhance the quality of education by providing them with relevant knowledge and practices. In Araújo's perspective (2023), professional development, through learning opportunities and the sharing of experiences, enables teachers to deepen their understanding of conceptions and reflect on their practical application. The author emphasizes that it is through this reflective process that teachers can foster a more engaging, meaningful education aligned with the needs of students, empowering them to become critical, creative, and participative citizens in a constantly changing society.

Finally, this text sought to induce reflection for those involved in the educational process, raising new questions that could be explored in the future. It can also contribute to a better understanding of some factors determining the quality of student learning. Thus, there is still a long way to go in the study of teaching and learning conceptions in the Portuguese school context. This investigation is necessary to promote teaching practices contributing to meaningful learning, the promotion of educational success, and qualitative changes in students and teachers, towards a school of excellence.

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