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Students' Perceptions of Meaningful Learning: A Systematic Literature Review

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Abstract: This study aims to synthesize research findings on students' perceptions of meaningful learning and the contextual factors that influence them. Using a *systematic literature review* (SLR) approach, 19 empirical articles published between 2015 and 2025 were reviewed from indexed databases such as Scopus, Web of Science, and Google Scholar. The inclusion criteria required that studies explicitly addressed students' perceptions of meaningful learning across different educational levels. The analysis revealed that students perceive meaningful learning as a process that is relevant to real life, fosters active engagement, enhances intrinsic motivation, and connects with personal goals and future aspirations. Contextual factors shaping these perceptions include student-centered strategies, interactive learning environments, the integration of technology and multimodality, cultural and linguistic backgrounds, as well as relational support from teachers and institutions. Overall, meaningful learning contributes positively to students' motivation, learning satisfaction, and academic achievement. Nevertheless, challenges remain, including the need to deepen students' reflection, align perspectives between students and educators, and develop more comprehensive instruments to measure the multidimensional aspects of meaningful learning.

INTRODUCTION

Currently, meaningful learning is increasingly emphasized in education, as it enhances students' motivation and engagement (Polman et al., 2020; Vallori, 2014), deepen understanding and supports knowledge retention (Agra et al., 2019; Novak, 2002; Vallori, 2014), fosters conceptual change (Novak, 2002; Paul, 2012), and facilitates the development of 21st-century skills (Syaiful et al., 2024). The labor market now requires graduates to be adaptive and able to contribute to society. One way to achieve this is through meaningful learning as a vehicle to improve the quality and relevance of education (Polman et al., 2020; Syaiful et al., 2024). In addition, meaningful learning is regarded as an educational innovation, since traditional models that rely heavily on rote memorization are considered less

effective in preparing students to face real-world problems (Vargas-Hernandez & Vargas-Gonzalez, 2022; Paul, 2012; Vallori, 2014).

However, the definition of "meaningful learning" often remains ambiguous, both theoretically and practically. The term has a variety of definitions and implementations depending on the perspectives of educators, researchers, and students, and is strongly influenced by learning contexts and goals. Teachers, for instance, may interpret meaningful learning as anything from merely understanding subject matter to connecting it with students' everyday lives (Polman et al., 2020). The ways in which teachers link classroom content with students' experiences, the real world, or future aspirations also vary (Polman et al., 2020). Meaningful learning can occur at different stages (Shuell, 1990) and is shaped by complex interactions among students, teachers, and the learning environment (Shuell, 1990). There is no single standard method for fostering meaningful learning; rather, instructional strategies must be adapted to the characteristics and needs of learners (Polman et al., 2020; Priyanto, 2024). Teachers are also encouraged to be reflective and flexible in their approach selection, so that the learning process is genuinely experienced as meaningful by students (Polman et al., 2020; Priyanto, 2024). Moreover, meaningful learning is dynamic and evolves along with students' experiences (Shuell, 1990).

In this context, it is essential to gain a deeper understanding of students' perceptions of meaningful learning, since their perspectives are key to how the concept is defined and experienced in educational practice. To date, no systematic synthesis has been conducted to consolidate existing findings. Therefore, this article aims to conduct a systematic literature review to integrate research on students' perceptions of meaningful learning across diverse contexts and educational levels.

Research Questions

1. How do students perceive meaningful learning?
2. What contextual factors influence students' perceptions of meaningful learning

RESEARCH METHODS

This study employed a *systematic literature review* (SLR) method to identify, analyze, and synthesize research that discusses students' perceptions of meaningful learning. The review was limited to publications from the past ten years (2015–2025), in order to capture recent developments while also representing the evolution of the concept of meaningful learning. Literature searches were conducted across several indexed databases, including Scopus, Web of Science, and Google Scholar, using keywords such as "meaningful learning," "student perception," "student perspective," and "education." Inclusion criteria comprised original empirical studies written in English or Indonesian that explicitly addressed students' perceptions or interpretations of meaningful learning across different educational levels. Non-empirical articles (e.g., editorials, narrative reviews without systematic analysis, or opinion pieces) as well as studies outside the field of education were excluded. Data from the selected articles were analyzed thematically to identify patterns, differences, and gaps in findings related to students' perceptions of meaningful learning across diverse contexts and educational levels.

RESULTS AND DISCUSSION

The initial search yielded 31 articles that met the keyword and preliminary criteria. Of these, 19 articles were available in full text and were included in the analysis. Meanwhile, 11 articles were excluded because the full text was not accessible, and 1 article was eliminated after further screening due to irrelevance to the research focus. Thus, a total of 19 articles were included in this review.

Based on the review of the publication years of the 19 retained articles, the earliest study appeared in 2015, and the number of publications gradually increased until the most recent in 2025. In terms of geographical distribution, the studies were conducted in various contexts, including USA, Australia, Sweden, Latvia, UK, Malaysia, Indonesia, New Zealand, Ireland, Flanders (Belgia), Scotland, Norway, Greece, Spain and Mexico. This indicates that the issue of students' perceptions of meaningful learning extends beyond the boundaries of a single region. Regarding

research methodology, the studies employed diverse approaches: eleven were qualitative, four were quantitative, three used mixed methods and one was instrument development. This variation underscores the richness of methodological perspectives applied to investigate students' perceptions of meaningful learning. The summary of the included empirical articles is presented in the following Table 1.

Table 1

Author(s) (Year)	**Participants**	**Methodology**	**Key Findings**
Horn et al. (2025)	College students, USA	Qualitative (open-ended comments from NSSE Survey)	Learning perceived both inside/outside classroom; significance in self-discovery, relationships, real-world application.
Andrews et al. (2023)	Undergrad & postgrad biosciences, Australia	Mixed methods, survey	Workshops & practicals most meaningful; online less effective; language background affects perception.
Bergmark & Kostenius (2018)	15 grade-3 students, Sweden	Qualitative (drawings, interviews)	Meaningful learning linked to freedom, participation, caring, growth, and wellbeing.
Cēdere et al. (2020)	High school students, Latvia	Qualitative (Survey)	Students value STEM but seek quick results; technology important for engagement.
Eivots et al. (2024)	Postgrad business students, Australia	Qualitative (focus groups)	Value from real-world, social encounters, challenges; propose concept of "learning highs."
George-Williams et al. (2019)	Undergrad students, AUS & UK	Quantitative (MLLI survey)	Student expectations of labs decline over time; gap between student vs staff views.

Gupte et al. (2021)	Organic chemistry students, USA	Qualitative (surveys, interviews)	Writing-to-learn helps connect concepts, fosters engagement across domains.
Hsbollah & Hassan (2022)	Undergrad accounting students, Malaysia	Qualitative (PBL approach)	PBL + active/fun/tech elements promote meaningful learning & soft/technical skills.
Lestari et al. (2023)	32 grade-11 high school students, Indonesia	Classroom Action Research (Mixed Method)	Meaningful learning model improved motivation & test scores in distance learning.
Licorish et al. (2018)	14 IS students, New Zealand	Qualitative	Kahoot! improved engagement, motivation, attention, and fun in class.
Ngurah et al. (2023)	English education students, Bali, Indonesia	Instrument development & pilot test	Video production supports engagement, creativity, collaboration, and meaningful learning.
O'Neill & Short (2023)	93,743 higher ed students, Ireland	Qualitative (survey analysis)	Emphasize real-world, practical, employability-focused learning.
Van Doorsselaere (2025)	12th-grade students, Flanders	Case study, qualitative	Authentic historical inquiry enhanced motivation, relevance, and public engagement.
Buelow et al. (2018)	Vocational students, Scotland	Mixed methods	Meaningful learning shaped by teaching quality, feedback, relevance to vocational goals.
Chan & Hu (2023)	467 higher ed students, Norway & Greece	Quantitative survey	Mixed perceptions of online learning; context and discipline shape experiences.

Amat et al. (2024)	60 high school biology students, Indonesia	Quantitative survey	Biology learning meaningful when connected to prior knowledge & real-life.
Galloway & Bretz (2015)	32 high school physics students, USA	Qualitative (interviews, surveys)	Meaningful physics learning occurs via real-life examples & interactive strategies.
García-Pinar (2024)	Five third-year engineering undergraduates in Spain	Qualitative (obs., journals, interviews)	Multimodal tasks boost engagement
González-Cacho et al. (2023)	42 junior high students, Mexico	Quantitative (GAMEX survey)	Gamification improved confidence, enjoyment, but gender differences found.

1. How do students perceive meaningful learning?

In general, students view meaningful learning as a process that goes beyond rote memorization, characterized by deep understanding, personal relevance, and connection to real life. In the context of science and STEM, students perceive meaningful learning as occurring when they are able to relate new concepts to prior knowledge and to everyday experiences, particularly through interactive strategies, experiments, and practical activities (Amat et al., 2024; Gupte et al., 2021; Galloway & Bretz, 2015). This finding aligns with the constructivist framework, which emphasizes that knowledge is not passively received but actively constructed by individuals through the process of linking new experiences with existing cognitive structures. This process involves reflection, reorganization, and transformation of prior knowledge in order to understand new information meaningfully (Dennick, 2016; Kalpana, 2011; Abha, 2019; Dagar & Yadav, 2016). According to constructivism, learning occurs when individuals assimilate new experiences into pre-existing cognitive schemas. If the new experiences are consistent with prior knowledge, assimilation occurs; if not, learners experience

cognitive disequilibrium, which leads to accommodation—adjusting cognitive structures to integrate new knowledge (Dennick, 2016; Kalpana, 2011; Abha, 2019).

Moreover, students' preference for experiments and practice reinforces the notion of experiential learning, in which meaningful learning takes place when students are directly engaged in real experiences, reflect upon them, and ultimately apply the acquired knowledge to everyday situations or real-world contexts (Wooding, 2019; Morris, 2019; Fowler, 2008; Burch et al., 2019; Kong, 2021; Rahmi, 2024). Kolb's experiential learning model, which is highly influential in this theory, emphasizes four stages: concrete experience, reflection, abstract conceptualization, and active experimentation. This cycle ensures that students not only engage in activities but also reflect and test knowledge in new situations (Morris, 2019; Kong, 2021; Rahmi, 2024). Several studies demonstrate that learning becomes meaningful when students actively participate in real-world experiences, critically reflect upon them, link the reflections with concepts or theories, and apply knowledge in new or everyday contexts (Morris, 2019; Fowler, 2008; Burch et al., 2019; Kong, 2021; Rahmi, 2024). Meta-analyses further confirm that experiential learning approaches yield better learning outcomes than traditional methods, as students are more capable of understanding, retaining, and flexibly applying knowledge (Burch et al., 2019; Noor et al., 2020; Rahmi, 2024).

In the humanities and social sciences, meaningful learning is perceived through reflective experiences, interpersonal relationships, and authentic assignments that carry both social and personal value (Horn et al., 2025; Van Doorsselaere, 2025). This can be explained through self-determination theory, which posits that three basic psychological needs—autonomy, competence, and relatedness—must be fulfilled in order for individuals to experience intrinsic motivation, engagement, and meaning in learning. Autonomy refers to a sense of control and freedom in the learning process; competence relates to students' belief in their ability to effectively complete tasks; while relatedness reflects feeling connected, supported, and accepted in the social environment (Ryan & Deci, 2020; Martin et al., 2018; Wang et al., 2019; Niemiec & Ryan, 2009; Guay, 2021; Bureau

et al., 2021). Research consistently shows that fulfilling these three needs enhances motivation, engagement, and learning outcomes across educational contexts, both face-to-face and online (Ryan & Deci, 2020; Martin et al., 2018; Wang et al., 2019; Niemiec & Ryan, 2009; Guay, 2021; Bureau et al., 2021).

In language learning, multimodal approaches such as video production or digital media-based tasks are perceived as enhancing creativity, collaboration, and the relevance of learning experiences (García-Pinar, 2024; Ngurah et al., 2023). These findings are consistent with multimedia learning theory, particularly Richard E. Mayer's Cognitive Theory of Multimedia Learning (CTML), which explains how people learn more effectively from a combination of words (text/narration) and images (graphics/animation) than from words alone (Mayer, 2024, 2019, 2005). Studies show that integrating visual explanations (pictures, diagrams, animations) with verbal explanations (text, narration) significantly improves conceptual understanding, especially for complex or abstract topics. Visual representations help students map and check the completeness and coherence of their understanding, while verbal representations reinforce narrative structure and logic, and can further enhance motivation and engagement through appealing and relevant visualization (Bobek & Tversky, 2016; Mayer, 1997; Butcher & Aleven, 2007).

Furthermore, gamification has been shown to strengthen students' perceptions of meaningful learning by increasing confidence, enjoyment, and positive emotions, although perceptions may vary by gender (González-Cacho et al., 2023). This aligns with the concept of flow and motivational theory, which emphasize the importance of balancing challenge and ability to create optimal learning experiences. Flow, introduced by Mihaly Csikszentmihalyi, refers to a mental state in which individuals are fully immersed, focused, and enjoy the activity at hand. Flow occurs when the level of challenge in a task is balanced with the learner's abilities—not too easy to be boring, nor too difficult to induce anxiety (Yazidi et al., 2020; Husky et al., 2018; Schuler, 2007; Oliveira et al., 2022). Motivation theories such as self-determination theory and flow theory highlight that this balance is key to fostering intrinsic motivation. When students feel capable of meeting challenges, they are driven to continue learning and developing (Kaya &

Ercag, 2023; Husky et al., 2018; Schuler, 2007; Oliveira et al., 2022). Other factors that strengthen flow include having clear goals, immediate feedback, and a sense of control over the activity (Yazidi et al., 2020; Schuler, 2007; Oliveira et al., 2022).

Taken together, students consistently perceive meaningful learning as motivating, engaging, and empowering, especially when learning is authentic, collaborative, and connected to both personal contexts and real-world experiences.

2. What contextual factors influence students' perceptions of meaningful learning?

Several contextual factors were found to influence students' perceptions of meaningful learning. First, instructional strategies play a central role, as interactive, problem-based, and student-centered approaches significantly strengthen students' perception of meaning in learning (Hsbollah & Hassan, 2022; Bergmark & Kostenius, 2018). This perspective aligns with student-centered learning theory, which stresses the importance of active participation by directly involving students in the learning process while also granting them space to make decisions and take responsibility for their learning (Lee & Hannfin, 2016; Bremner, 2020; Brown, 2008; Coleman & Money, 2019; Overby, 201).

Second, learning formats and environments also matter, as students tend to perceive workshops, practical activities, and face-to-face learning as more meaningful than traditional lectures or online classes, mainly due to peer interaction and direct engagement (Andrews et al., 2023; George-Williams et al., 2019). This resonates with the principles of situated learning, which posit that knowledge and skills are most effectively acquired in authentic contexts, through real activities and social interaction, emphasizing that learning is a social process occurring within communities of practice rather than a mere transfer of abstract knowledge from teacher to student (Cobb & Bowers, 1999; Choi & Hannafin, 1995; Herrington & Oliver, 2000). Empirical studies demonstrate that applying situated learning enhances motivation, conceptual understanding, and higher-order thinking skills (Herrington & Oliver, 2000; Sadler, 2009; Ocampo et al., 2021).

Third, the integration of technology and multimodality has been shown to enrich learning experiences, as digital media, videos, and gamification enable active, collaborative, and emotional engagement (Licorish et al., 2018; Ngurah et al., 2023; González-Cacho et al., 2023). From the perspective of connectivism, this illustrates how technology enables students to build knowledge through networks of interaction, access to information, and digital collaboration (Dziubaniuk et al., 2023; Corbett & Spinello, 2020; Goldie, 2016; Husaj, 2015). Integrating technology and multimodality enhances learning in several ways: first, by creating immersive experiences through varied media (audio, visual, interactive, gamified) that increase motivation, presence, and emotional engagement (Smith-Harvey & Aguayo, 2024; Doumanis et al., 2019; Philippe et al., 2020); second, by facilitating collaboration, discussion, and social learning in line with connectivist principles (Dziubaniuk et al., 2023; Corbett & Spinello, 2020; Goldie, 2016); third, by providing access to diverse sources of information and dynamic knowledge-building via digital connections and online communities (Dziubaniuk et al., 2023; Corbett & Spinello, 2020; Husaj, 2015); and fourth, by supporting personalization and adaptability of learning, making it more inclusive and relevant to students with different backgrounds and learning styles (Xie et al., 2025; Smith-Harvey & Aguayo, 2024; Tkach et al., 2025).

Fourth, cultural and linguistic backgrounds also shape students' perceptions, as learners from different linguistic backgrounds face unique challenges as well as opportunities in finding meaning in learning (Andrews et al., 2023; Van Doorsselaere, 2025). This aligns with culturally responsive pedagogy, which recognizes, values, and leverages students' cultural backgrounds, experiences, and perspectives to create inclusive and equitable learning environments. The primary goal is to enhance engagement, belonging, and academic achievement among students from diverse cultural backgrounds by adapting curricula, instructional methods, and classroom interactions (Caingcoy, 2023; Gay, 2002; Barnes & McCallops, 2019; Guberina, 2023). The principles of culturally responsive pedagogy (CRP) emphasize acknowledging and valuing students' cultural identities, integrating them into learning, adapting instruction to

align with students' lived experiences, building positive relationships through trust, and developing critical awareness to challenge stereotypes and promote social justice (Caingcoy, 2023; Wesley-Nero & Donley, 2024; Gay, 2002; Barnes & McCallops, 2019; Guberina, 2023).

Finally, institutional and relational contexts—including feedback quality, relevance of content to future careers, and supportive teacher–student relationships—play a vital role in strengthening perceptions of meaningful learning (O'Neill & Short, 2023; Buelow et al., 2018). From the perspectives of social capital theory and relational pedagogy, social connectedness and perceived support from institutions and instructors are fundamental for creating meaningful learning experiences. Social capital refers to networks of relationships, trust, and norms that facilitate cooperation and knowledge exchange. Research shows that relational dimensions of social capital—such as trust, support, and relationship quality—strongly influence learning processes, knowledge absorption, and perceptions of meaningful learning. Furthermore, institutional support and positive relationships with teachers reinforce students' sense of belonging, motivation, and engagement (Guribie et al., 2024; Liou & Canrinus, 2020; Han et al., 2020; Bonehill & Iordan, 2025; Barkas et al., 2021). Relational pedagogy, on the other hand, positions the teacher–student relationship at the core of meaningful learning, emphasizing empathy, trust, and collaboration. Feedback quality, career relevance of learning materials, and supportive interactions play a crucial role in fostering inclusive and empowering learning environments. Strong teacher–student relationships have been shown to encourage engagement, safety, and learning experiences perceived as meaningful (Hickey & Riddle, 2021; Riddle & Hickey, 2024; Hickey & Riddle, 2023; Bonehill & Iordan, 2025). These findings affirm that meaningful learning is not only shaped by content but also by the learning environment, social interactions, and its connection to students' identities and goals.

Overall, the reviewed articles converge in viewing meaningful learning as an experience that involves connecting new knowledge with real life, enhancing motivation, and promoting active engagement. Nearly all studies emphasize the importance of authentic, collaborative, and contextually relevant learning strategies

(e.g., through experiments, practice, reflective assignments, or technology use). Methodologically, there is a strong tendency toward qualitative or mixed-methods approaches to explore students' perceptions in depth, though quantitative research is also employed to capture structured measurements.

At the same time, variations are evident in contexts and foci across studies. Some highlight meaningful learning in science and STEM (e.g., Galloway & Bretz, 2015; Amat et al., 2024), while others focus on humanities, language learning, or vocational education (Horn et al., 2025; García-Pinar, 2024; Buelow et al., 2018). Differences are also visible in media use: some emphasize direct experiences and field practice (Van Doorsselaere, 2025), others focus on multimodality and digital technology (Ngurah et al., 2023; Licorish et al., 2018), and still others explore gamification approaches while considering gender differences (González-Cacho et al., 2023). Thus, while all articles agree that meaningful learning is an active process that provides relevance and connection, its implementation, contexts, and influential factors vary across disciplines, educational levels, and methodological approaches.

CONCLUSIONS AND RECOMMENDATIONS

This systematic review demonstrates that students consistently perceive meaningful learning as a learning experience that is relevant to real life, fosters intrinsic motivation, and encourages active engagement in the learning process. Such perceptions emerge when learning is designed to be authentic, collaborative, and allows students to connect new knowledge with prior experiences and personal future goals. Contextual factors that influence these perceptions include student-centered instructional strategies, interactive learning environments, the integration of technology and multimodality, cultural and linguistic diversity, and relational support from teachers and institutions. Although the literature provides strong evidence of the positive impact of meaningful learning on motivation and academic achievement, challenges remain, including the need for deeper student reflection, alignment of perspectives between teachers and students, and the development of

more comprehensive instruments to measure the multifaceted aspects of meaningful learning.

It is therefore recommended that educators design student-centered learning through authentic, reflective, and collaborative activities relevant to real-life contexts. Technology and multimodal approaches should be optimized to support student engagement across diverse learning styles. Moreover, educational institutions should ensure relational support and inclusive learning environments, while further research is encouraged to develop more comprehensive instruments for assessing meaningful learning.

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