

Formative Assessment Strategies in Higher Education: Impact on the Right to Education and Knowledge Retention

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Abstract

The right to education allows the construction of significant learning in the student through the implementation of a formative evaluation that involves improvements in academic quality and links all forms of learning in the classroom. Therefore, this article will explore how formative assessment strategies, how continuous feedback and self-assessments influence learning and knowledge retention in university students, with a special focus on the right to education; In this way, it aims to analyze the impact of the implementation of formative assessment strategies in higher education and on knowledge retention. In essence, the article deepens the right to education as a fundamental principle that allows the guarantee of knowledge for people and with it, access to social and cultural settings; In dialogue with this, formative evaluation is defined as a process of collecting and managing information to improve student learning. Thus, the methodology implemented is a documentary review in academic databases, so that recent studies are found that link data on the impact of formative evaluation on the right to education, which makes it possible to contribute significantly to the forms of learning in higher education. As a result, the importance of implementing a formative evaluation that allows students to connect with education and, through it, access information and academic knowledge valuable for life is discussed.

Keywords: Right to education, Formative evaluation, Learning, autonomy, self-reflection.

INTRODUCTION

The right to education is a fundamental principle enshrined in numerous international treaties and conventions, guaranteeing all individuals access to quality, inclusive, and equitable education. According to Acosta (2018), the right to education represents an opportunity for development and access for all young people, as well as equitable access to teaching, culture, and reflection. In this context, the right to higher education translates not only into the availability of educational opportunities but also into the provision of effective means for students to reach their full academic potential.

Higher education faces significant challenges today, including the need to adapt to a constantly changing digital environment and to serve a diverse student population with varying needs and expectations. Formative assessment, by providing continuous and timely feedback, helps students navigate these challenges, developing critical and self-regulative skills essential for lifelong learning (Nicol, 2020). Additionally, formative assessment has the potential to reduce performance gaps between different groups of students by offering personalized and adaptive support that meets individual needs. Therefore, Brookhart (2017) highlights that this is particularly important in the context of the right to education, as it ensures that all students, regardless of their socioeconomic background, have the opportunity to achieve academic success.

That being said, one of the most effective tools for achieving this goal is formative assessment, which includes strategies such as continuous feedback and self-assessments. Moreover, formative assessment strategies have proven crucial in developing academic and professional competencies in university students. According to Black and William (2009), through these strategies, students receive constant feedback on their performance, allowing them to identify their strengths and areas for improvement in a timely manner. In

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other words, formative assessment enables teachers to identify shortcomings and gaps in teaching, thereby building actions that allow for improvements and social transformations within the community.

To delve deeper, formative assessment is characterized by its focus on the learning process, providing students with continuous and constructive feedback on their performance. This feedback allows students to identify their strengths and areas for improvement, and adjust their study strategies accordingly (William, 2011). Additionally, self-assessment promotes self-reflection and self-management of learning, essential skills for success in higher education and beyond (Panadero & Broadbent, 2018).

As a background, recent research has shown that formative assessment strategies not only improve academic performance but also increase student motivation and engagement. A study by Hattie and Timperley (2007) found that formative feedback has a significant impact on academic performance, surpassing many other educational interventions. Similarly, Andrade (2019) emphasizes that self-assessments promote deeper and more lasting learning by actively engaging students in their own learning process.

Furthermore, Nicol and Macfarlane (2006) state that self-assessment fosters self-reflection and self-management of learning processes, essential skills for success in higher education and beyond, contributing to the formation of effective practices in the student's immediate context. In this way, higher education students can identify ways of learning that will serve them in applying knowledge appropriately, thus constituting improvements and efficient actions in reality. With this, guaranteeing education for all students enables the equal implementation of activities and behaviors that promote social well-being and cultural welfare.

Formative assessment is presented as a fundamental tool for the continuous improvement of learning within the educational environment. Perez (2023) highlights that, beyond being a set of techniques, formative assessment embodies an educational philosophy that places student learning at the core of the educational process. This philosophy promotes practices such as effective feedback, self-assessment, and peer assessment, which allow students to recognize both their strengths and areas for improvement. This perspective is complemented by emphasizing that specific and timely feedback is considered one of the most influential interventions in education, as it not only enhances academic performance but also increases students' self-confidence and motivation. This dynamic of formative assessment facilitates learning that is more tailored to individual student needs, fostering an environment where continuous reflection and strategy adjustment become routine practices for academic success.

Thus, this article focuses on how formative assessment strategies can influence learning and knowledge retention, especially in the context of the right to education. Case studies from different academic disciplines will be analyzed, with a particular focus on the right to education, to assess the effectiveness of these strategies in improving academic performance, knowledge retention, and self-reflection. Additionally, the discussion will include how implementing these strategies can contribute to ensuring quality and equitable education for all students, in line with the principles of the right to education.

Therefore, a documentary search is conducted to gather case studies and previous research on the impact of formative assessment in processes that guarantee the right to education. For this purpose, academic databases such as Scopus, Google Scholar, ResearchGate, Dialnet, Redalyc, and Scielo are used to identify articles and generate an appropriate discussion to contribute significantly to the topic. In this way, the aim is to provide a solid analysis for identifying effective strategies in guaranteeing the right to education.

As a result, the findings determine that formative assessment allows students to effectively engage with their own learning process, ensuring continuous reflection and equitable access for all students. Additionally, the benefits of formative assessment on the right to education include increased student motivation, improved self-esteem, and confidence in their own learning process. This improves communication between teachers and students and enables the early identification of special needs or additional support for students who require it.

Development

The following section addresses two aspects: first, it provides a description of the research found regarding formative assessment to guarantee the right to education, highlighting the research objective, methodology, and key findings that contribute to the current discussion. The second aspect to consider is the theoretical framework on the main categories of the study, such as formative assessment and the right to education, analyzing factors like knowledge retention, self-reflection, and continuous feedback. In this order, the goal is to conceptualize the research objective, thereby solidifying the discussion and the analysis of results and possibilities.

Background

To begin, Cornejo and Almonacid's (2024) study aims to expose how formative assessment contributes to achieving goals for inclusive education in the classroom. A bibliographic search is conducted to identify relevant studies on the topic that deepen the analysis and discussion, ultimately proposing improvements in the academic space and teaching strategies. As a result, the article underscores the importance of rethinking evaluative processes as they serve as innovative means to enhance academic quality and help students reflect on their learning, identify knowledge gaps, and allow teachers to reinforce teaching practices.

Similarly, the study by Yepes and Gutierrez (2022) states that its objective is to guide the foundation of formative assessment as a mentoring process for teaching and learning, in relation to school approval and dropout rates in recent years. A qualitative study is conducted using grounded theory; questionnaires, interviews, and case studies are applied to understand formative practices, strategic diversification, and comprehensive evaluation. The study concludes that assessment involves educational effectiveness and functionality as it enables follow-up and improvement actions in the classroom. Therefore, it is essential for teachers to apply formative assessment, allowing students to reflect autonomously, enhancing leadership skills and essential competencies.

The study by Beriche and Medina (2021) delves into the implementation of formative assessment in higher education to propose functional methodologies for building meaningful learning and adequate professional practice performance. A documentary analysis integrating the inquiry and systematization of theoretical-scientific backgrounds is carried out. The study concludes that implementing formative assessment components is crucial for raising awareness, decision-making, and continuous improvement in the classroom. This way, professional students acquire knowledge that helps them face the reality and conflicts of their immediate context.

Additionally, Torres' (2024) study explores the impact of continuous formative assessment in teaching calculus for professional education, focusing on student motivation and academic performance as related elements to guarantee education. A qualitative comparative study is implemented with a group of students subjected to formative assessment along with control groups, complemented by interviews to identify teaching and learning perceptions. The study highlights significant improvements that reveal learning gaps, academic performance, and motivation as fundamental elements in constructing methodological innovations and professional practices in higher education.

Formative assessment has emerged as an essential strategy for enhancing educational quality and fostering inclusion in the classroom. Sadler's (1989) theory emphasizes that effective feedback should not only inform students about learning objectives but also guide them in applying this information for continuous improvement. In line with this vision, Rao & Banerjee (2023) argue that self-assessment plays a crucial role in self-regulated learning, as it allows students to reflect on their performance and develop personalized strategies to achieve their academic goals. This combination of effective feedback and self-assessment significantly contributes to inclusive education, ensuring that all students, regardless of their initial skill level, have the opportunity to actively participate and progress in their learning. Implementing these formative practices not only improves academic performance but also promotes greater equity in the classroom by addressing students' individual needs and supporting their holistic development.

Considering the previous studies, it is analyzed that implementing assessment processes that encourage students to engage in continuous improvement actions is essential. Moreover, it helps them apply their knowledge practically and appropriately in reality. Therefore, these studies are considered because they provide theoretical and analytical depth on the importance of constructing assessment approaches that include all students in the academic phenomenon without exception. The goal is to create spaces that ensure the right to education, allowing individuals to become part of knowledge, transform it through reflection, and build new, solid social and cultural practices.

Theoretical Framework

According to UNESCO (2020), assessment is a fundamental process for developing competencies that channel learning for the various challenges faced in context. It is analyzed that the assessment activities implemented by teachers enable appropriate and productive access to knowledge in practice, ensuring that students acquire fundamental knowledge through the teaching process that guarantees rights. Regarding this, Beriche and Medina (2021) state that prioritizing formative assessment activities is necessary for building institutional organization and regulating teaching concerning the improvement of knowledge, methodologies, availability of tools, and other essential elements for academic quality. Therefore, an evaluative culture constitutes a path to guaranteeing rights and access possibilities for all individuals.

In this context, the theory of formative assessment developed by Black and Wiliam (2009) proposes that formative assessment is an integral and continuous process that is embedded in daily teaching practice. This theory emphasizes that formative assessment is not just a series of techniques but a teaching philosophy that places student learning at the center of the educational process. Furthermore, formative assessment is defined as a continuous process of gathering and using information about student learning to improve that learning (Sadler, 1989). Black and Wiliam (2009) point out that formative assessment includes several practices, such as effective feedback, self-assessment, and peer assessment. These practices not only help students identify their strengths and areas for improvement but also foster greater self-confidence and motivation to learn.

In this regard, Sadler's (1989) feedback theory suggests that for feedback to be effective, it must meet three conditions: students must understand the learning objectives, receive information about their performance in relation to those objectives, and have the opportunity to use that information to improve. This theory underscores the importance of providing specific, future-oriented feedback. Similarly, Hattie and Timperley (2007) define feedback as information provided by an agent, such as a teacher, classmate, book, or personal experience, regarding one's performance in a specific activity. Effective feedback is specific, timely, and future-oriented, helping students understand how they can improve.

Consequently, continuous feedback can have a significant impact on academic performance. According to Hattie and Timperley (2007), feedback is one of the most powerful educational interventions, with great potential to improve student learning. Along with this, self-assessment is another key practice within formative assessment. Nicol and Macfarlane-Dick (2006) argue that self-assessment fosters self-regulated learning, allowing students to take control of their learning process. Through self-assessment, students can reflect on their performance, identify areas for improvement, and develop strategies to achieve their academic goals.

On the other hand, the right to education is recognized as a fundamental human right and has been endorsed by numerous international agreements, such as the Universal Declaration of Human Rights of 1948 and the Convention on the Rights of the Child of 1989 (UNESCO, 2015). These documents establish education as a means for personal and social development and emphasize the importance of ensuring access to quality education for all. In the context of higher education, formative assessment has emerged as a key tool for improving learning and knowledge retention. Formative assessment focuses on providing continuous feedback to students, allowing them to adjust their study methods and improve their performance (Black & William, 2009). Over the years, various studies have highlighted the effectiveness of formative assessment across different educational levels and academic disciplines.

According to Zuleta (1985), education is conceived to enable students to demonstrate knowledge as a result of understanding the competencies and activities proposed by the teacher, thereby granting them access to thought and different fields of knowledge. In this regard, the academic and educational process constitutes a fundamental activity for students to access information about reality and the world, and from their space, actively participate with knowledge and professional skills. Atehortúa (2007) affirms that assessment is an essential part of the pedagogical process, which involves raising awareness of the acquired learning to then involve efficient educational processes and provide access to all students without exception. Thus, educational reflection is a functional process that allows teachers to identify educational gaps and knowledge deficiencies that obstruct learning and teaching according to students' different learning styles.

Following UNESCO (2020), quality education is defined through five dimensions: equity, relevance, appropriateness, effectiveness, and efficiency. It is affirmed that educational quality must guarantee the development of skills and abilities in all students by obtaining tools that facilitate access to knowledge. In turn, educational improvement and achieving this quality are achieved through academic discussion about the curriculum, materials, educational method, policies and programs, as well as assessment as an information system that provides teachers with the need to implement educational innovations or new activities that help students acquire knowledge, skills, and professional practices.

Based on the above, Anijovick (2017) determines that the purpose of assessment is to promote self-assessment of learning by the student, involving both teachers and students in the formation of academic quality. In this sense, Nolazo (2020) shows that continuous improvement as a fundamental factor in assessment constitutes appropriate teaching outcomes for students, allowing them to adjust their learning methods and actions carried out in the classroom. Therefore, adjustment and identification of continuous improvement are processes of feedback that promote learning and trace an educational path that transforms student competencies.

In conclusion, formative assessment is a process aimed at improving student learning by being continuous and carried out throughout the educational process. Specifically, in the context of the right to education, formative assessment is used to identify students' needs and strengths, as well as to adjust strategies that allow students to gain more knowledge to effectively address individual needs. Furthermore, formative assessment in the right to education fosters individual participation through constant activity in their learning, regulating self-assessment and self-reflection. Finally, assessment provides ongoing feedback for students' constructive reflection on their learning process, ensuring that all students have the right to education, reducing academic and educational gaps, and ultimately promoting a student-centered and learning-focused approach.

MATERIALS AND METHODS

The present study was conducted through a qualitative study by means of a documentary search analysis, in order to identify previous articles or studies on the proposed topic from the perspective of the objective, namely, the implementation of formative assessment for the construction of the right to education for all students and, thereby, the continuous feedback of learning. Therefore, in this section, the concept of documentary analysis is presented so that its processes and application techniques in the present study can be identified, and a conceptualization of the descriptive scope is also developed to adequately deepen the analysis and discussion.

To begin, documentary analysis was defined, according to Martínez and Palacios (2023), as a series of techniques and methods aimed at locating, processing, and storing information from documents, studies, or articles corresponding to previous research that, in turn, contribute to new analyses, in-depth processes, and the description of social, cultural, academic phenomena, among others. Following Bermeo et al. (2016), documentary analysis constituted a space for the search and selection of processes that sought to analyze and find answers to the problems posed, which were applicable to social reality.

In this way, these aspects were identified because they allowed the fulfillment of the purpose of documentary analysis, that is, to analyze the content of the articles found (Grajales, 2015) and, thus, to complement the

information with new perspectives and critical considerations regarding the topic. Similarly, as Morales (2015) mentioned, documentary research sought for the researcher to find strategies to critique, pose viewpoints, analyze, and reflect on the information found, and in this way, transform knowledge so that the individual could involve their knowledge in discursive and scientific processes.

Study Design

According to Guevara et al. (2020), the descriptive design defined the type of research aimed at exposing the fundamental characteristics of homogeneous sets and phenomena of reality, using systematic criteria for establishing information and the behavior of individuals or the phenomenon under study. In this case, the descriptive design sought to highlight the impact of the implementation of formative assessment with the objective of strengthening the right to education so that the student could receive feedback through the teaching and learning experience. Thus, elements that allowed the adequate implementation of formative assessment through the use of documentary analysis, observation, and discussion of theories were described.

Participants

For the present study, a total of 12 articles from academic databases such as Scopus, Dialnet, Redalyc, Google Scholar, ResearchGate, and Scielo were used.

Inclusion Criteria

To carry out the documentary search, the following aspects of each article were considered to ensure a solid analysis of the topic and the studies found on it:

Use of the proposed academic databases or indexed journals.

Studies conducted through qualitative or quantitative research involving students or teachers from higher education institutions.

Studies published between 2018 and 2024, with the exception of one study from 2007, as it constituted a relevant theoretical analysis for the present study.

Articles addressing the main categories: Formative assessment, Right to education, Feedback.

Exclusion Criteria

A total of 140 articles that did not meet the specified inclusion criteria were excluded.

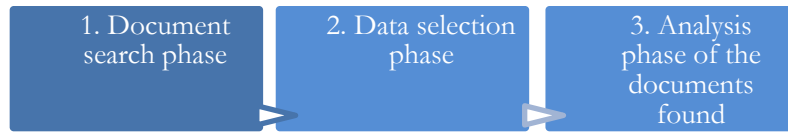
Data Collection Instruments

For the documentary search, the Documentary Analysis Matrix was considered, which included specifications for each of the studies found, in order to analyze the proposed categories for discussion and formative assessment strategies. The following aspects were considered for documentary analysis:

- Author
- Title
- Year or publication date
- Objective
- Method
- Findings or results
- Procedure

The following phases were considered for the documentary analysis:

Figure Study Phases



Source: Own elaboration

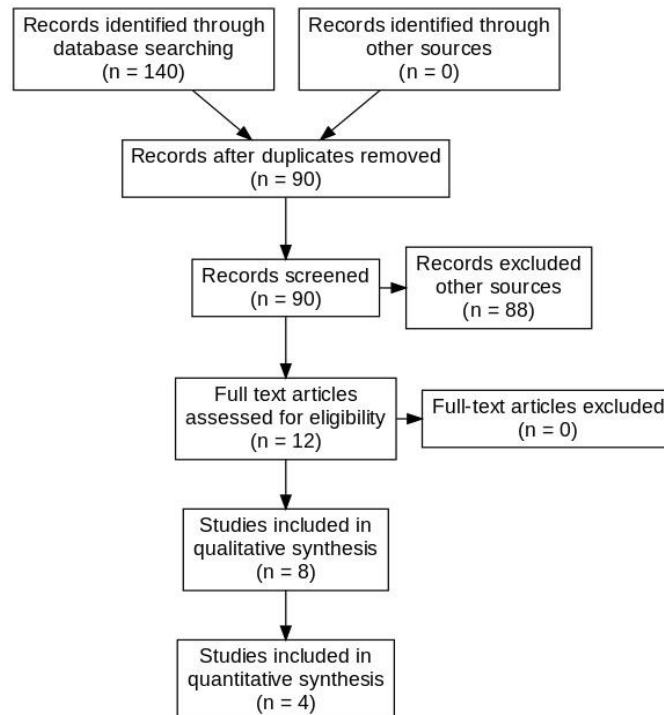
The first phase involved searching for previous studies or background on the impact of formative assessment on the construction of a right to education that includes all students within the university context. This was done using databases such as Scopus, Google Scholar, Dialnet, Redalyc, ResearchGate, and Web of Science. Additionally, the document search was conducted using categories such as Formative Assessment, Right to Education, Feedback, Self-reflection, and Self-assessment.

Second, the selection of studies that theoretically and critically deepened the subject matter was constructed based on the mentioned databases. Studies that did not provide relevant analysis were excluded, while those that, despite their age, generated a fundamental perspective for the present study were included. The selection of articles required careful observation by the researcher and the identification of ideas that needed further exploration or that could positively contribute to this article.

Third, after selecting the articles that met the inclusion criteria, the results were presented, and an appropriate discussion was conducted regarding the perspectives evidenced in the study. Additionally, an analysis was carried out on the findings that could effectively complement the discussion and thus propose improvements and implementation strategies through formative assessment.

In summary, through the use of document analysis, a discussion on the proper implementation of formative assessment in the university context was proposed, aiming to strengthen the fulfillment of the right to education and enable students to participate and be an integral part of their learning process. Therefore, academic databases that supported the information and aimed to transform the proposed perspectives were utilized. The results evidenced in the document search are presented below.

Figure: Flowchart



RESULT AND FINDINGS

The literature review identifies a wide range of studies related to the importance of formative assessment in consolidating various learnings and knowledge in education; however, studies that directly connect the construction of formative assessment processes with a focus on the right to education are scarce. Despite this, a total of 12 studies are outlined and included in the consistency matrix below, in order to identify the key elements that will be included in the discussion:

Table 1. Document Analysis Matrix

Author	Title	Year	Objective	Method	Findings
Atehortúa, R.	Assessment as Respect for the Right to Education	2007	Reflect on the transformation of assessment practices to ensure the right to education.	Document Analysis	Evaluation must become a methodological tool that indicates to both the teacher and the student how progress is being made and what corrective actions should be applied when there are no signs of progress. Evaluations should serve not as a testimony to assign or justify a grade, whatever it may be, but as a tool to make corrections to the student's mistakes so they can correct them and move closer to the truth.
Cruz y Hernández	Evaluarte: A Proposal from Formative Assessment	2021	Analyze and discuss how to transform the pedagogical practice of a 10th-grade physics teacher in relation to student assessment.	Qualitative methods for collecting and analyzing information, employing triangulation of instruments and actors to generate a better understanding of the educational phenomenon under investigation.	The results show that the change process was carried out through negotiation among the group of research teachers, which allowed for the inclusion of innovative ideas and overcoming difficulties, as well as a commitment to developing and implementing assessment tools that enabled students to see themselves as protagonists of their learning.
Cornejo Pino, C. F. y Almonacid Rivera, E. A	Formative Assessment: Reflections on Inclusive Education	2024	Formative assessment: reflections on inclusive education.	Qualitative research method of documentary analysis	Formative assessment is a response to advance the creation of inclusive educational environments in the regular classroom context due to its focus on the formative process aimed at improving learning by valuing individual particularities, embedded in a dialogic relationship.
Yepes, E. E., y Gutiérrez, J	Formative Assessment as a Mentoring Process in Teaching and Learning Towards Educational Quality	2022	Support formative assessment as a mentoring process for teaching and learning, given the high rates of failure and school dropout in recent years.	Grounded theory method; questionnaires, interviews, case studies, and focus groups were applied; developed with a population of 116 students, 33 teachers, 42 parents, and 2 graduates, totaling 193 participants.	Teachers and alumni, with their participation and experiences, enabled the construction of new meanings where it was recognized that flexible, dynamic, and participatory teaching, based on strategic planning and formative assessment, creates accessible and inclusive environments for meaningful learning.
Beriche y Medina	Formative Assessment: Its Implementation and Main Challenges in the Context of School and Higher Education	2021	Analyze the role of formative assessment as a topic of interest in educational policies in Peru.	A documentary analysis is proposed that integrates the inquiry and systematization of normative frameworks and theoretical-scientific background.	It is concluded that some fundamental components of formative assessment are identified in awareness, decision-making, continuous improvement, reflective review, self-regulation, and autonomy in learning. Furthermore, it is established that its implementation can be effective if normative provisions are balanced from schooling to higher education.
García, J., Farfán, J. y Fuertes, L.	Formative Assessment: A Challenge for Teachers in Distance Education	2021	Conduct a critical review and analysis of the most relevant literature on formative assessment in education and its implications.	Descriptive literature review with 34 references	The application of formative assessment in the classroom enhances student performance by considering reflective or discovery-based and descriptive feedback as strategies to verify the achievement levels of proposed competencies, evidenced through the productions and performances required in each learning experience.
Bizarro, Sucari y Quispe	Formative Assessment within the Framework	2019	Conduct a literature review on formative	Documentary research	Individual and collective student performance should be valued, as students

	of the Competency-Based Approach		assessment.		are co-participants in their evaluation, which implies feedback based on evidence, thereby generating a transformation in the assessment practice to improve learning with autonomy and reflection.
Guerra, Ortega y Benavides	The Importance of Formative Assessment in the Learning Process	2023	Address the importance of formative assessment for strengthening and motivating teaching and learning processes.	The research is of a documentary nature from the perspective of different authors, leading it towards explanatory reach.	It should be considered that the evaluations conducted with students should reveal the various skills they are acquiring. It is valid to assess memory by recalling specific information; however, at other times, it is better to evaluate how well the knowledge can be applied, as well as the student's analytical, reflective, critical abilities, and capacity to create.
Quijano, A.	School Assessment and Intellectual Disability: Towards a Formative Assessment within Inclusive Education	2022	Characterize the understanding that primary and secondary school teachers from two public educational institutions have about school assessment for students with intellectual disabilities within the framework of inclusive education.	Qualitative paradigm with a hermeneutic approach using a semi-structured interview and documentary research	According to the results of interviews regarding the search for knowledge and experiences of the teachers participating in the research, concerning guidelines such as Decree 1421 and others, it was found that the inclusion policy has not been clear to teachers. They believe that Decree 1421 relates to facilitating education for all children with disabilities by expanding access to regular school education and reducing the budget for special education.
Pascual, García y López	What Do Preschool Children Want? The Role of Formative and Shared Assessment in Their Right to Choose	2019	Promote students' right to participate in and make decisions about their own education through this type of assessment.	Qualitative analysis documentary study.	The results of this experience show that students are capable of expressing and proposing changes in their classroom, making decisions, contributing ideas about the teaching-learning process, as well as improving their commitment to their own learning and expression through the proper implementation of formative assessment. Thus, the right to education for all students is guaranteed.
Brownlie, Nicole, Burke, Katie, Laan, Lucas	Quality indicators of effective teacher-created summative assessment	2024	Evaluate the quality indicators in summative assessments created by teachers.	Analysis of quality indicators in summative evaluations.	They identify the key indicators that determine the effectiveness of summative assessments created by teachers.
Rao N.J., Banerjee, Shilpi	Classroom Assessment in Higher Education	2023	Discuss the underlying principles of classroom assessment, including approaches, purposes, and plans for summative assessment.	Review of evaluation approaches, types of evaluation items, and summative evaluation plans.	Formative assessment guides student learning, while summative assessment measures the achievement of course outcomes. Quality assessment tools are developed through an understanding of quality attributes and are used for the continuous improvement of curriculum design.

Source: Own Preparation

Based on the previous matrix, the studies found range from 2018 to 2024, with the exception of a 2007 study, as it provides a relevant analysis that deepens the understanding of the importance of formative assessment as an activity for reflection, self-assessment, and continuous improvement in the classroom. Thus, the following categories are proposed for discussion: Right to education through formative assessment, Formative assessment for self-reflection, and finally, strategies to promote the right to education through formative assessment.

DISCUSSION

To begin, the results of this study suggest that formative assessment strategies, such as continuous feedback and self-assessments, have a significant positive impact on educational equity. These strategies help level the playing field for students from diverse backgrounds, allowing them to demonstrate their knowledge and skills more fairly and equitably. According to Black and Wiliam (2018), this finding is consistent with existing literature that highlights the importance of formative assessment in promoting social justice in education. It is

essential for teachers to provide sufficient feedback so that students reflect on their learning and for teachers to create activities that meaningfully contribute to teaching.

According to Torres (2018), formative assessment in higher education calculus programs requires students to adapt theoretical understanding processes and develop problem-solving skills, enabling them to generate hypotheses and use fundamental pedagogical tools to form practical knowledge. Thus, the introduction of new strategies, such as formative assessment, which identifies gaps in students' knowledge and the methodologies implemented, allows both teachers and students to transform their methods of teaching and learning, respectively. In contrast, as Sandoval (2023) notes, Higher Education Institutions (HEIs) have not effectively integrated formative assessment activities, affecting and fragmenting opportunities to build skills such as autonomy, reflection on learning, and knowledge self-regulation.

Therefore, it is crucial for teachers to recognize the importance of improving assessment practices. As a tool that identifies gaps in the classroom, assessment projects new activities, allows teachers to identify opportunities, threats, or new proposals to implement in the classroom with future professionals. In line with Torres, Fernández (2019) states that educational experiences in the area of mathematics require formative assessment to demonstrate the viability of the educational system, leading to the implementation of shared assessment techniques, self-assessment, peer assessment, and others aimed at communicating doubts and learning about content and practices.

In this regard, Atehortúa (2007) cites pedagogue Miguel Ángel Santos, who states that when the goal of education as a right is to help balance inequality, assessment serves as an efficient means to determine how to assist those requiring this right. Therefore, implementing formative assessment, focusing on self-assessment and new improvement processes, is of great value for building not only greater learning for students involved in academic training but also for allowing individuals without formal higher education enrollment to participate through the creation of inclusion strategies.

Regarding this, Quijano (2022) proposes a formative assessment approach for students with intellectual disabilities (ID), aimed at promoting actions that help students acquire functional qualities and skills in the professional sphere. This approach ensures that they develop skills equally and generate constructive practices from their learning perspective. The author suggests including elements such as formative character and feedback, continuous assessment, guidance towards autonomy, and internalization in the subject's life. Additional actions proposed include self-reflection, adapting teaching and learning processes for students with ID, active participation, and conducting meaningful and applicable lifelong learning.

One of the most significant findings is the improvement in long-term knowledge retention. Students who engaged in formative assessment strategies demonstrated a greater ability to recall and apply key concepts months after completing the courses. In this context, Nicol and Macfarlane (2006) find this finding particularly relevant in higher education, where knowledge retention is crucial for ongoing academic and professional success, as it helps professionals apply knowledge to resolve real-world conflicts and improve contextual conditions, such as ensuring and promoting the right to education for all.

However, as Beriche and Medina (2021) mention, implementing formative assessment represents a challenge in relation to the teaching and learning processes students experience at each academic level. Thus, it highlights the need for assessments that certify training, include advancement policies, and ensure professional quality. This helps reduce educational access gaps and enhances the feedback of competencies and academic results. Nonetheless, Guerra et al. (2023) define that “teacher assessment cannot remain in simple memorization, repetition, and mechanization of concepts and contents” (p. 69). Instead, it must transcend into transforming learning that helps students apply knowledge in real-world situations.

Consequently, improvements in grades and pass rates suggest that students are not only retaining more information but also developing a deeper understanding of course materials. As a result, this research asserts that formative assessment strategies also contribute to the development of self-regulated learning skills. Students who engaged in these strategies reported a greater ability to plan, monitor, and evaluate their own learning, which is crucial for long-term success in higher education and beyond. These findings align with the

literature suggesting that formative assessment can foster self-regulation and autonomy in students (Zimmerman, 2002).

Both formative and summative assessments play an essential role in the educational process, as revealed by the studies analyzed. Research by Brownlie et al. (2024) and Rao N.J. and Banerjee (2023) provides complementary approaches to the impact of these assessments on educational quality and curriculum design.

Brownlie et al. (2024) focus on quality indicators for summative assessments developed by teachers. They highlight the relevance of identifying and applying key criteria to ensure the effectiveness of these assessments. These indicators allow not only measuring student performance but also providing continuous feedback and adjusting pedagogical practices. A thorough analysis of these indicators helps teachers create assessments that accurately reflect learning and course objectives, thus promoting better alignment between course expectations and achieved outcomes.

In contrast, Rao N.J. and Banerjee (2023) examine assessment in the classroom from a broader perspective, encompassing both formative and summative assessments. Their research emphasizes that formative assessment is crucial for guiding learning through constant feedback, enabling instructors to adjust their teaching methods to optimize student engagement and performance. Additionally, summative assessments are fundamental for measuring course outcomes and improving curriculum design. Rao and Banerjee (2023) assert that a detailed understanding of quality attributes in assessment instruments, along with meticulous design and well-developed assessment plans, are essential for ensuring effective and meaningful assessment.

The convergence of these studies indicates that both formative and summative assessments are crucial for ensuring high-quality education. While formative assessments provide necessary feedback for continuous adjustments and improvements during the learning process, summative assessments offer a comprehensive evaluation of student performance and contribute to enhancing educational programs. Integrating the findings from both studies can help develop a robust assessment framework that not only measures learning accurately but also improves pedagogical effectiveness and curriculum design.

In conclusion, applying quality indicators in summative assessments and effectively employing formative assessments can lead to significant improvements in higher education. Understanding and applying these principles will allow educators to optimize their assessment strategies, better support student learning, and develop more robust educational programs.

The study also reveals differences in the effectiveness of formative assessment strategies across different academic disciplines. While some disciplines, such as social and legal sciences, showed significant improvements in academic performance and knowledge retention, other disciplines experienced more moderate benefits. Based on this, García et al. (2021) express that it is essential for teachers to ensure the evaluation of progress in teaching according to student competencies and the thematic content, tools, and reflections proposed in the classroom. In dialogue with this, López (2017) notes that formative assessment is important because it allows students to identify their place in the learning process and make decisions about the adoption of new methodologies, thereby ensuring the acquisition of quality education.

Thus, high levels of student satisfaction are also ensured through formative assessment strategies, making them not only effective in terms of learning but also improving the overall student experience. Carless (2015) asserts that continuous and personalized feedback is particularly valued by students, contributing to increased motivation and engagement with learning. This finding aligns with previous research highlighting the importance of feedback in student satisfaction.

Moreover, the findings of this study have significant implications for policy and practice in higher education. Formative assessment strategies need to be integrated more systematically and coherently into educational programs to maximize their benefits. Following Sadler (1989), curriculum designers and policymakers should consider developing assessment frameworks that include continuous feedback and opportunities for self-assessment, ensuring that all students have access to fair and equitable education.

CONCLUSION

En conclusión, las estrategias de evaluación formativa tienen un impacto positivo significativo en el derecho a la educación y la retención del conocimiento en la educación superior, puesto que mejoran el rendimiento académico, fomentan la retención del conocimiento a largo plazo, aumentan la satisfacción estudiantil y desarrollan habilidades de autorregulación. Sin embargo, la efectividad de estas estrategias puede variar según la disciplina académica, lo que sugiere la necesidad de adaptar las prácticas de evaluación a los contextos específicos; tales hallazgos destacan la importancia de integrar sistemáticamente la evaluación formativa en los programas educativos para promover una educación más justa, equitativa y efectiva.

Entonces, este estudio ha explorado el impacto de las estrategias de evaluación formativa en el derecho a la educación y la retención del conocimiento en la educación superior, ofreciendo una visión comprensiva de cómo estas prácticas pueden beneficiar a los estudiantes y contribuir a una educación más equitativa y efectiva. Puntualmente, se concluyen siete aspectos relevantes que proponen la construcción de una evaluación formativa en aras a la educación para todos: primero, las estrategias de evaluación formativa, como la retroalimentación continua y las autoevaluaciones, han demostrado ser efectivas en promover la equidad educativa. Estas estrategias permiten a todos los estudiantes, independientemente de su origen socioeconómico y demográfico, demostrar sus conocimientos y habilidades de manera justa, nivelando así el campo de juego educativo.

Segundo, los datos obtenidos indican que los estudiantes que participan en estrategias de evaluación formativa experimentan mejoras significativas en su rendimiento académico; es decir, las calificaciones más altas y las tasas de aprobación aumentadas sugieren que estos estudiantes no solo retienen más información, sino que también desarrollan una comprensión más profunda de los materiales del curso. Tercero, uno de los hallazgos más relevantes es la mejora en la retención del conocimiento a largo plazo; pues de acuerdo con los estudios hallados, los estudiantes que participaron en estrategias de evaluación formativa demostraron una mayor capacidad para recordar y aplicar conceptos clave meses después de haber completado los cursos, lo que es crucial para el éxito académico y profesional continuo.

Cuarto, los altos niveles de satisfacción reportados por los estudiantes sugieren que las estrategias de evaluación formativa no solo son efectivas en términos de aprendizaje, sino que también mejoran la experiencia educativa general; en esa medida retroalimentación continua y personalizada es particularmente valorada, contribuyendo a una mayor motivación y compromiso con el aprendizaje. Quinto, las estrategias de evaluación formativa también fomentan el desarrollo de habilidades de autorregulación del aprendizaje. Los estudiantes que participan en estas estrategias reportan una mayor capacidad para planificar, monitorear y evaluar su propio aprendizaje, habilidades que son cruciales para el éxito a largo plazo en la educación superior y más allá.

Sexto, la efectividad de las estrategias de evaluación formativa puede variar según la disciplina académica; algunas disciplinas mostraron mayores beneficios que otras, lo que sugiere la necesidad de adaptar estas estrategias a las características específicas de cada área de estudio para maximizar su efectividad. Séptimo, los hallazgos de este estudio tienen importantes implicaciones para la política y la práctica educativa. Es esencial que las estrategias de evaluación formativa se integren de manera sistemática y coherente en los programas educativos. A su vez, el diseño de currículos y políticas educativas deben desarrollar marcos de evaluación que incluyan retroalimentación continua y oportunidades para la autoevaluación, asegurando que todos los estudiantes tengan acceso a una educación justa y equitativa.

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