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Evaluation of the performance of secondary school students and undergraduate in critical reading skills: a case study from Colombia.

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Abstract: Introduction: This research evaluated the performance of high school and undergraduate students in critical reading skills in the Adventist educational system in Colombia, using ICFES evaluations. I sought to understand how these results can improve pedagogical practices and teaching-learning processes. **Methodology**: A mixed methodology with sequential design was adopted. The quantitative phase analyzed the ICFES test results of a representative group of students, using ANOVA to evaluate performance. The qualitative phase complemented this analysis with semi-structured interviews and focus groups with students and teachers, exploring perceptions and strategies related to critical reading and test results. **Results:** The results highlight that standardized tests allow educators to identify areas of weakness and strength in student performance. This facilitates the design of specific improvement strategies that can be implemented in the classroom. **Discussions:** Despite criticism of standardized tests for their homogenizing approach and limited recognition of contextual diversity, they can offer significant benefits if used appropriately. They provide a measure of student performance and provide valuable information to improve educational and curricular practices. **Conclusions**: The study highlights the need to consider the diverse educational contexts and adapt pedagogical approaches to the specific realities of each group of students.

Keywords: Competencies; critical reading; standardized tests; Adventist educational system; Student performance; Curriculum proposal; Assessment; teaching-learning.

1. INTRODUCTION

The arguments around the pedagogical value of standardized tests are generally dissimilar. There is research that affirms that the implementation of these systems ignores the different contexts and realities of education systems and, therefore, it would be a mistake to assume their results as a standard for improvement for learning (Sánchez & Corte, 2013). Likewise, they are criticized that despite the fact that these measurements are designed with criteria of efficiency, effectiveness and objectivity; with this alone it is difficult to determine true quality processes in the training of students (Fernández et al. 2017; Tristán & Pedraza, 2017). On the other hand, different studies doubt that the mere use of pencil and paper will diagnose mastery in critical reading skills. In addition, according to them, these practices harm the proper development of students' learning because the only role played by young people is that of passive subjects. Likewise, they constrain the school curriculum, by pigeonholing teachers who instruct according to the demands of the tests, which are generally focused on knowledge that only requires the memory of certain facts or isolated data (Alcaraz et al., 2013. Moreno, 2016).
However, without ignoring the above, the value of these tests in gathering data and statistical information that allow comparisons to be made between regions of a nation or between countries is widely recognized. With this, they generally establish indicators that serve as a reference in the formulation of policies and reforms to the education system (Báez, 2020., Cifuente et al. 2018). In addition, as Shepard (2006) rightly observes, external examinations, when pedagogical use is made of the results, manage to profoundly

impact classroom practices. It would also allow teachers to identify some crucial points that need to be materialized in their work (Ravela, 2010). In addition, census exams provide valuable information to teachers regarding skills, knowledge, and competencies that need to be strengthened in their students (Popham, 2017).

Therefore, by investigating the performance of students in the standardized tests in the critical reading exam, it helped to identify difficulties in some student competencies; while providing tools for the improvement of the teaching-learning processes taught by teachers. At this point, it should be noted that it is wrong to assume the results, which in the case of Colombia are provided by the Colombian Institute for the Evaluation of the Quality of Education (ICFES), as simple statistical data with only informative value. This project proposed to investigate the role of teachers, students and educational institutions in presenting and managing the results of the test. Likewise, it sought that the information derived from them could provide pedagogical input in order to establish a strategy that enriches classroom practices.

This may be a weakness in the Adventist educational system to the extent that there is little bibliographic information that studies and proposes criteria for improvement based on the results of critical reading tests, both in secondary and undergraduate education, especially in education programs. Therefore, the census results obtained tend to be ignored or isolated improvement projects are carried out that have little impact on student learning. Therefore, the need arose to investigate the historical performances of the last five years of the test in order to identify constants that allow, at least, two important achievements. First, recognize possible weaknesses in the training or preparation processes of teachers, students, and educational institutions when presenting the evaluation. Second, to provide conceptual and pedagogical indications that enrich the teaching-learning processes, especially in the classroom.

2. METHODOLOGY

According to the objectives and research question, this inquiry was of the Mixed type with a sequence design. The proposed operationalization was as follows.

1. **Quantitative approach:** To evaluate the performance of students in critical reading competencies through the ICFES standardized assessments, a quantitative analysis will be carried out. In the interest of providing objective numerical data.
2. **Qualitative Approach:** To gain a deeper understanding of the reasons behind the quantitative results and to explore possible contextual factors, interviews, surveys, or focus groups will be conducted with students, faculty, and other key actors in the Adventist education system.

2.1 Data Collection Techniques and Instruments:

1. **Quantitative Data:**

to. **ICFES Results:** The results of the ICFES standardized assessments for a representative group of middle and undergraduate students from the Adventist educational system in Colombia. These data were obtained directly from educational institutions or from official ICFES sources.

2. **Qualitative data:**

to. **Interviews:** Semi-structured interviews were implemented with students and Adventist institutions. Ask about their experiences, challenges and perceptions about critical reading in the educational system.

b. **Focus Groups:** Organizes focus groups with students to discuss their learning strategies and how they approach critical reading in their courses.

2.2 Data analysis:

1. **Quantitative data:** Descriptive and comparative statistical analyses were performed to evaluate students' performance in critical reading competencies. Use statistical tools such as ANOVA.
2. **Qualitative Data:** A thematic analysis of interviews and focus groups was conducted to identify patterns and emerging themes related to critical reading in the Adventist education system.

Data Integration: Quantitative and qualitative findings were combined to get a complete picture of student performance and the reasons behind these results

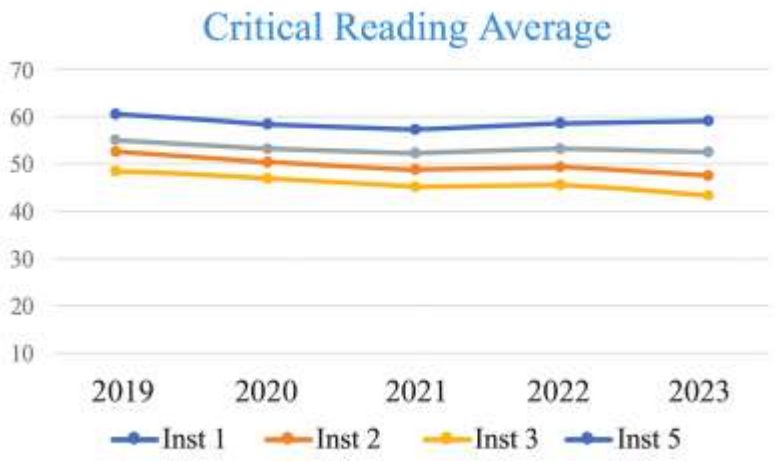
3. Results

According to the results of the ICFES tests of the last five years, the performance of the students indicates

that they present variability in their critical reading skills. The descriptive and comparative statistical analysis revealed significant differences in management between different groups of students. That is, the results tend to be significantly different depending on the institution to which one belongs. The above is evidenced in the following figure.

Figure 2.

Average of the Critical Reading Test by Educational Institution 2019-2023



Source: Own elaboration (2024).

As the figure points out, not only significant differences between institutions; but shows a trend where the laggards decrease in their annual average. This means that not only worse scores are obtained; rather, there is no short-term expectation of overcoming this gap. These indicate, among many other things, that pedagogical practices are not influencing the improvement of educational quality.

On the other hand, it was identified that the specific competencies where students show weaknesses are, particularly, in the inferential and critical component. That is, in the aspects of the test that require greater complexity and depth. Therefore, a higher level of appropriation by students. These areas represent opportunities to design pedagogical strategies that address these gaps. The above can be seen in the following figure.

Figure 3.

Results by competencies in critical reading

Source: Own elaboration (2024).

On the other hand, interviews and focus groups revealed that both students and teachers recognize the importance of critical reading. However, they pointed to challenges related to test preparation and implementing effective strategies in the classroom. Likewise, qualitative data suggest that teachers use various strategies to improve critical reading skills, although their effectiveness varies. Lack of resources and continuous training was identified as a significant obstacle. However, according to the information

collected and analyzed, there is no evidence that there are initiatives that in the medium term could significantly impact the results obtained so far in the census tests applied by the ICFES.
Likewise, despite the criticism of standardized tests for their homogenizing approach and their limited recognition of contextual diversity, the results of the research highlight their usefulness. They allow educators to identify areas for improvement and design specific strategies that can be implemented in the classroom to improve student achievement. Therefore, the study underlines the importance of using test results in a pedagogical way. It provides valuable information that can guide the planning and execution of more effective educational practices.

4. DISCUSSION

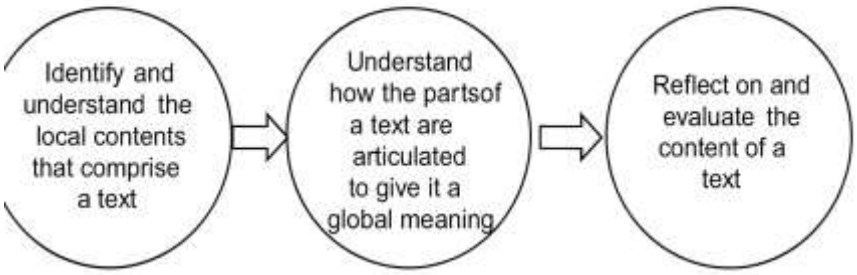
4.1 Critical reading.

Critical reading, as a competence in the national and international educational panorama, has become a priority and fundamental to form reflective people, capable of taking a critical position, with autonomy and freedom of thought, to interpret the prevailing values, discern between different points of view and unveil the intentions, imaginaries and ideologies present in the multiplicity of social texts (Serrano, E. and Madrid, A., 2007). That is why Cassany and Luna (2021) see it necessary to determine the six major conceptions of the critical in reading education, they are: Critical reading, critical thinking, critical pedagogy, critical discourse analysis, disinformation, and post-truth.
For the purposes of this research, the analysis has focused on the first conception, since it is the one that is developed within the educational field. From this aspect, critical reading is understood as the ability to decode and correctly organize all the words of a text fluently, characterizing the deep comprehension of texts and the evaluation of their content. This definition is opposed to literal reading since now the interest is to obtain useful meaning for the reader. This current suggests a higher level of comprehension, compared to the usual superficial reading. According to Cassany (2021), the development of these skills allows one to discern between truth and fantasy, opinions and empirical facts, to recover inferences, to identify the basic elements of a plot, to understand the main ideas and to summarize a piece of writing. A concrete example of this practice in the school environment is the famous text commentary, which for many years has been a relevant practice in literary and linguistic education.
In this framework, the Critical Reading test applied by ICFES (2021) in the Saber 11°, Saber TyT and Saber Pro state exams seeks to determine the degree of development of reading competence which, according to Solé (2012) are: literal, inferential and critical. These competencies, implicitly, correspond to the theory of Cassany (2013) who maintains that:

> The first would be related to the executive level, which involves the knowledge and use of written code, the recognition of letters, words, phrases and textual structures; the second contemplates both the functional and the instrumental level, through which reading allows us to respond to the demands posed by daily life, and because it emphasizes the power of reading to obtain information and access the knowledge of others; and the third is called the epistemic or critical reading level, which could also be called interpretive, in which reading is used to think about and contrast one's own thinking. It leads to the understanding that texts represent particular perspectives and exclude others; To read is to identify, evaluate and contrast these perspectives (including one's own) in a process that leads to questioning, reinforcing or modifying knowledge. This reading makes possible the transformation of thought and not only the accumulation of information (ICFES, 2023, p. 23).

However, for ICFES (2023), critical reading invites the reader to take a reflective stance in front of the text. In addition, he maintains that it is a complex process that involves understanding, analyzing, interpreting and evaluating a text. As well as, infer and reflect on its content. Therefore, when a student undergoes the standardized test designed by them, as described, three main competencies are measured, they are: literal, inferences and criticism. The foregoing, as shown in the following figure.

Figure 1
Cognitive skills to read critically.



Source: Taken and adapted from the MEN Saber 11 Guidance Guide of 2023-2 (2023).

As can be seen, the first two competencies in critical reading assessment focus on understanding the content of a text, both locally and globally. The third competence focuses on the critical approach to the text, which implies a deeper and more interpretative analysis (ICFES, 2024). The three levels for reading comprehension are related to the competencies indicated. In line with this, the Organisation for Economic Co-operation and Development (OECD), through its standardised assessment PISA (Programme for International Student Assessment), recognises critical reading as a fundamental competence. This test seeks to evaluate the training of students at the end of the compulsory education stage, approximately at 15 years of age. For the OECD (2015), "reading competence is understanding, using, reflecting on and engaging with written texts to achieve one's own objectives, develop personal knowledge and potential and participate in society" (p. 9).

Consequently, authors such as Díez and Egío (2017) propose that the definition of PISA is ambitious, due to its diversity and complexity; because it goes beyond simple decoding and recognizes that reading integrates complex cognitive aspects such as comprehension and reflection from written texts. PISA also recognizes that the act of reading is motivated by the achievement of goals or objectives, both personal and social. This definition describes a new reality, in which critical reading is conceptualized as a know-how applied to academic, social and professional contexts. In this sense, critical reading is associated with practical skills that allow the individual to function effectively in today's society. These skills include the ability to: (a) Understand and analyze information from a variety of sources. (b) Critically evaluate information and formulate one's own opinions. (c) Communicate effectively in writing and orally and (d) Solve problems and make informed decisions.

4.2 Standardized tests.

According to Demarchi (2020) and Padilla (2009), standardized tests are assessment instruments that are applied on a large scale to people simultaneously and uniformly. Technically, they are characterized by their rigor to the psychometric-basic principles, thus guaranteeing their validity and reliability, which allows the comparison of the results of different individuals and groups. According to Tristán and Pedraza (2017), standardized tests are one of the most widely used instruments in assessment. Their extensive technical and methodological development allows them to measure with a high degree of precision the characteristics or traits, both latent and observable in a focal population.

There are several theories to support standardized tests, which give theoretical support for their application, and which help to understand what influence or current has shaped their design. The most common and recognized theories in the academic environment are presented below, of which Gutiérrez and Acuña (2022) collated. Table 2 makes it possible to observe these main theories for the design of these

types of tests and that, at the same time, the description was added and expanded by the researchers.
Table 1.
Theories Underpinning Standardized Testing

Theories	Authors and date	Description
Positivism of the eighteenth century: 1. Probability theory 2. Number theory	1. Laplace (1796) 2. Gauss (1798)	1. Probability theory is a mathematical formula that helps us calculate the probability that an event will occur again in a random experiment. 2. Number theory is a branch of mathematics that studies the properties of integers and their relationships.
Nineteenth-Century Positivism: Measurement Theory	Mill (1822) and Comte (1842)	It establishes methodological rigor in the object of study (intelligence and school performance), through the observation and measurement of reality.
Classical Test Theory (TCT)	Binet (1905) and Louis Leon Thurstone (1920s)	With Binet, the first standardized tests to measure intelligence that led to the creation of the TCT were performed. This theory states that the score obtained on a test is the sum of a true component, which actually reflects the individual's skill level, and an error component, which includes random and measurement factors
1. Generalization Theory (TG) 2. Item Response Theory (IRT)	1. TG, is developed in the early 70s and 90s by Samuel Messick. 2. The TRI, by Rasch, Lord and Novick (60s) and Lord (early 80s)	These theories are put forward to improve those aspects susceptible to error and absence of measurement in TCT. TG focuses on the usefulness and validity of interpretations and decisions based on standardized test results. It considers aspects such as the representativeness of the items, the consistency of the scores and the validity of the inferences.

	The IRT seeks a probabilistic basis to the problem of measuring latent constructs that are not observable in the items, with which biases at the item level can be predicted. It is based on the idea that responses to items on a test reveal the individual's skill level and the characteristics of those items.

Source: Own elaboration (2024).

4.3 **Benefits and drawbacks of standardized tests**

A number of authors raise arguments related to the use of standardized tests. On the one hand, the benefits or utilities are considered; on the other hand, its drawbacks and limitations. As for the advantages, they refer to the following aspects:

1. Objectivity: By issuing value judgments in the form of numbers in a categorical way in the evaluations of standardized tests, objectivity is being provided and a high level of certainty is being provided, in the opinion of experts (Niño, 2022). In effect, standardized tests offer an objective measure of student performance, which reduces bias in assessment.
2. Comparability: For Díaz Barriga (2006), mass or standardized tests "allow comparisons to be made of learning improvements that are manifested in a numerical expression" (p. 584). By comparing student performance against each other, it makes it easier to identify areas that need improvement.
3. Efficiency: Efficiency is attributed to the fact that it evaluates a large number of students, valuing student learning on a massive scale, thus saving time and resources and attributing its results to the educational system to which students belong (Fernández, et al. 2017).
4. Accountability: Standardized testing can be used to hold schools accountable for their students' performance, which can lead to improved educational quality (Ravitch, D., 2020).

Among the disadvantages, the following are presented:

1. Narrowing of the curriculum: The same author Ravitch, D. (2020) states that standardized tests can lead schools to focus on teaching the content that the tests assess, which can lead to a constriction of the curriculum and the loss of learning opportunities.
2. Bias: These tests do not take into account socio-economic and cultural differences, and can generate bias in the study against countries and against certain groups of students to whom these tests are administered and could also be "motivated by an interest in educational policies" (Niño, 2022, p. 91), which can lead to discrimination in education.
3. Teaching for the test: An education based on standardized tests, "bypasses human development and the holistic configuration of students' personalities" (Ortiz & Salcedo, 2020, p. 196) and leads teachers to teach for the test, resulting in superficial learning and a lack of deep understanding of the concepts
4. Pressure on students: In recent research, they have explored the description of academic anxiety and stress levels in students, to know their influence and repercussions of these variables as conditioning factors for the results obtained from external standardized tests; which conjectures the importance of governing a process of prior preparation to face these academic tests and the difficulties that it entails (Deleón, M., & Quintanilla, M., 2020).

5. CONCLUSIONS

The Adventist education system faces constant challenges in meeting the needs of a diverse student population. One of the main challenges is the adaptation of pedagogical approaches to specific educational contexts and the implementation of strategies that consider the particularities of each group of students. The study underscored the importance of this adaptation, noting the need to personalize teaching strategies and pay continuous attention to students' individual needs. In addition, it proposes a series of improvements that include continuous training programs for teachers, the use of innovative teaching resources and the incorporation of educational technologies. As main conclusions, he explored the importance of pedagogical adaptation and presented concrete proposals for improvement for the education system.

As a first conclusion, it was emphasized that the adaptation of pedagogical approaches to the specific realities of each group of students is essential for effective and equitable education. Educational contexts vary considerably, influenced by socioeconomic, cultural, linguistic, and personal factors. Ignoring these differences can lead to a homogeneous education that does not respond to the needs of all students, resulting in inequalities in academic achievement and participation.

It is understood that contextual diversity in classrooms means that pedagogical approaches must be flexible and adaptive. For example, in a classroom where students come from diverse linguistic backgrounds, teaching methods should include strategies to support language learning and cultural integration. Personalization of teaching involves designing activities and materials that consider each student's strengths, weaknesses, interests, and learning styles. Research has shown that personalization of education can increase student engagement and improve academic outcomes (Tomlinson, 2014).

On the other hand, it was also concluded that continuous attention to the individual needs of students is a critical component of pedagogical adaptation. Educators must be trained to identify and respond to students' specific needs, including supporting those with learning difficulties, disabilities, or emotional and social needs. The implementation of individualized educational plans, which should be contemplated in the IEP, and the use of assistive technologies are examples of how schools can respond to these needs. A student-centered approach not only improves academic performance, but also promotes well-being and holistic student development (Wehmeyer & Webb, 2012).

Therefore, it was recommended that in order to address the aforementioned challenges and improve the quality of education, it is essential to implement continuous training programs for teachers, use innovative didactic resources and incorporate educational technologies. These proposals are designed to strengthen teachers' competencies and provide tools that facilitate adaptive and personalized teaching.

In other words, continuous training is considered crucial for the professional development of teachers and the improvement of educational practice. Therefore, it is proposed that educational institutions implement training programs that emphasize the development of critical reading competencies and other essential skills. Critical reading is a fundamental competency that allows students to analyze, interpret, and evaluate texts in a deep and reflective way. Training in this area should include specific pedagogical strategies, assessment techniques and the integration of various areas into the curriculum.

In addition to critical reading, continuing education should address topics such as managing diversity in the classroom, the use of educational technologies, and the development of socio-emotional competencies. Diversity management training prepares teachers to create inclusive and equitable learning environments. The use of educational technologies can transform teaching and learning, facilitating personalization and access to quality educational resources. Finally, the development of socio-emotional competencies in teachers allows them to better support the emotional and social well-being of their students, creating a safer and more welcoming environment (Mauris et al. 2022).

Therefore, the adaptation of pedagogical approaches to diverse educational contexts and the personalization of teaching strategies are essential to meet the individual needs of students and improve the quality of education. The implementation of continuous training programs for teachers, the use of innovative teaching resources and the incorporation of educational technologies are proposals that can transform the educational system. These strategies not only optimize students' academic performance, but also promote their holistic well-being and prepare educators to meet the challenges of an increasingly diverse and dynamic educational environment. Education must be an inclusive and adaptive process that

recognizes and values the diversity of young people, providing the tools and resources necessary for everyone to reach their full potential.

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