ISSN 1982-5587

Research articles

The Programa Adventista de Avaliação da Educação Básica (PAAEB): an analysis of Brazilian elementary education

O Programa Adventista de Avaliação da Educação Básica (PAAEB): uma análise no ensino fundamental brasileiro

Eliana Gonsalves da Silva Ribeiro[1], Cristina Zukowsky-Tavares[1]*

[1]Centro Universitário Adventista de São Paulo (UNASP), Engenheiro Coelho, SP, Brasil

HOW TO CITE: RIBEIRO E. G. S.; ZUKOWSKY-TAVARES, C. The The Programa Adventista de Avaliação da Educação Básica (PAAEB): an analysis of Brazilian elementary education. **Revista Ibero-Americana de Estudos em Educação**, Araraquara, v. 20, e19734, 2025. e-ISSN: 1982-5587. DOI: https://doi.org/10.21723/riaee.v20i00.1973402

Abstract

The Adventist Basic Education Assessment Program (in Portuguese, PAAEB) is an external assessment of the Adventist Schools Network in Brazil. Based on the results of the 5th-grade Portuguese and Mathematics tests of the PAAEB applied in 2022 in the city of Brasília, Brazil, a pedagogical intervention plan was organized. To this end, a mixed-method action research approach was conducted, aiming to compare the students' performances in the 2022 assessment (pre-intervention) with the results of 2023 (post-intervention). A paired measures t-test was used to verify the significance of the differences between the performance averages on the two occasions. The results indicated a lower performance in the second application of the PAAEB test. In addition, semi-structured interviews were conducted with two teachers participating in the project. The quantitative analysis infers the need to monitor and test the students throughout the academic year (5th grade). The qualitative analysis, additionally, revealed gains such as student and teacher engagement following the intervention.

Keywords: PAAEB; Basic Education; Elementary School; external assessment.

Resumo

O Programa Adventista de Avaliação da Educação Básica (PAAEB) é uma avaliação externa da Rede de Escolas Adventistas no Brasil. A partir dos resultados das provas do 5º ano em Língua Portuguesa e Matemática do PAAEB aplicado em 2022, na cidade de Brasília, Brasil, foi organizado um plano pedagógico de intervenção. Para tanto, uma pesquisa-ação de abordagem mista foi regida, objetivando-se comparar os desempenhos dos estudantes na avaliação de 2022 (pré-intervenção) com os resultados de 2023 (pós-intervenção). Um teste t de medidas pareadas foi utilizado para verificar a significância das diferenças entre as médias de desempenho nas duas ocasiões. Os resultados apontaram um desempenho inferior na segunda aplicação da prova PAAEB. Complementarmente, entrevistas semiestruturadas foram realizadas com duas professoras participantes do projeto. A análise quantitativa infere para a necessidade de fazer um acompanhamento e testagem dos estudantes ao longo do ano em curso (5º ano). Já a análise qualitativa desvelou ganhos como engajamento discente e docente a partir da intervenção.

Palavras-chave: PAAEB; Educação Básica; Ensino Fundamental; avaliação externa.

INTRODUCTION

The pursuit of academic excellence and consequently academic success fosters the need for interventions in the deficient areas of student performance in a broad and effective manner. The existence of large-scale assessments can expand on the creation of analysis and intervention practices contributing towards the educational culture (Menezes; Kistemann Junior; Vilardi, 2020).

Amid protests regarding the quality of education the present theme emerged on Brazilian political agendas in the late 1980s. From the 1990s onwards large-scale assessments were

***Corresponding author:** cristina.zukowsky@gmail.com

Submitted: October 09, 2024
Reviewed: April 03, 2025
Approved: June 03, 2025

Financial support: Centro Universitário Adventista (UNASP) and Associação de Igrejas e Escolas Adventistas em Brasília – DF (APLAC).
Conflicts of interest: There are no conflicts of interest.

Ethics committee approval: 6.012.258.
Data availability: Not applicable. Study conducted at Centro Universitário Adventista de São Paulo (UNASP), Engenheiro Coelho, SP, Brasil.

established in Brazil with the implementation of the Basic Education Assessment System (in Portuguese SAEB) with the aim of obtaining reliable data on the quality of education which led to reforms at the time. Every year the use of these external assessments is strengthened in the educational field in order to monitor the Brazilian education's performance and contribute to improving its quality (Basso; Ferreira; Oliveira, 2022; Calderón; Borges, 2020; Menezes; Kistemann Junior; Vilardi, 2020; Lima; Luce, 2022; Silva et al., 2021; Souza; Silva, 2022).

The need to improve students' proficiency aiming for quality education has motivated debates and research on the subject. According to Silva et al. (2021) education has positive impacts on social cultural and economic areas. According to the author education not only contributes to the individual development of students but also has broader effects on society culture and the economy. This statement suggests that investing in education is fundamental to the progress and well-being of a nation. Seen as strategic for the country an education system's quality must be assessed altogether with educational opportunities and equity that is social justice (Silva et al., 2021).

In light of the above the use of data from a systematic assessment provides guidance for educational policy actions. This data allows resources and efforts to be allocated accurately to areas of greatest need in addition to defining redefining or adjusting strategies. Having results is essential for evaluating and improving school practices while also informing society of the conditional goals in a school action plan (Calderón; Borges, 2020; Silva et al., 2021; Menezes; Kistemann Junior; Vilardi, 2020; Souza; Silva, 2022). In addition it is also possible to encourage educational agents to take measures that allow the reduction of identified gaps (Lima; Luce, 2022).

Given the contributions of educational assessments movements to implement assessment programs in Brazilian states grounded in results-based management models have progressively emerged (Souza; Silva 2022). In a literature review conducted by Passone and Roncoli (2022) on school accountability studies in Brazil it was identified that this theme reflects the lives of teachers from payments based on results and various sanctions accountability responsibility for the results obtained and the work performed to low-consequence accountability in which the teacher carries out a reflective understanding of pedagogical practice and their teaching methods refusing to publish results rank and encourage competitiveness (Passone; Roncoli, 2022).

Based on the findings of Passone and Roncoli (2022) it is imperative to adopt a more collaborative and formative approach that values continuous reflection and teacher development. The use of data from systematic assessments can be directed towards improving educational practices so as to support continuous improvement without resorting to competitiveness or punishment. Using data to identify areas of need and allocate resources and efforts accurately allows schools to adjust their teaching and management strategies in an informed and effective manner. In relation to a teacher's work the goal is to infer purposeful acts when planning out the production of teaching materials activities assessments and the entire didactic routine present in a school's daily life. It requires reflections on their students' ability to contribute to initiatives based on curricular review which is meant to address identified gaps and also helps to improve the teaching and learning process (Calderón; Borges, 2020; Menezes; Kistemann Junior, 2021; Souza; Silva, 2022).

It is also important to highlight the major task of implementing educational policies that shape and deliberate on decisions about access retention and quality of education in Brazil in view of the needs presented among which the following stand out: economic challenge lack of funding school dropout opportunity distribution precarious schooling political rupture and resource restrictions (Passone; Roncoli, 2022). Therefore it is challenging to create circumstances that favor improvement for all students in a comprehensive education with excellence taking advantage of the right to education and to the democratization of education.

Although recent literature has focused on the topic of student assessments studies are still scarce and face theoretical and ideological resistance (Calderón; Borges, 2020). Especially in Brazil the theory on school effectiveness and the use of external assessments presents gaps. In addition most research is based on old data (2005 and 2007) highlighting the need for more recent studies (Monte; Vidal, 2020). There is also a lack of studies that investigate the

implications of using the results of external assessments and their effects on the educational process considering all actors involved (Basso; Ferreira; Oliveira, 2022). Another issue is the use of uniform measures to assess different education systems which can result in inaccurate assessments given that important variables such as socioeconomic profile and regional level of education are often neglected (Souza; Silva, 2022).

Based on the context presented this study aims to analyze the effect of an external assessment's result based on a pedagogical intervention in 6th grade Elementary School classes at a Brazilian religious school. More specifically the Adventist Basic Education Assessment Program (PAAEB) was adopted and applied in a private basic education institution located in the Federal District. To this end an intervention plan was developed in conjunction with the teaching staff based on the results of the PAAEB carried out in 2022. After its implementation the assessment was applied again in 2023 and the results were compared in order to understand the effects of the intervention. Based on this study we intend to offer meaningful insights into the impact of educational interventions and the use of external assessments' results. We also hope that its results can contribute to the continuous improvement of the Brazilian educational system helping to advance quality and a more equitable education. In this context it is essential to investigate how data from external assessments can be applied pedagogically with the purpose of promoting advances in teaching and learning processes as it will be explored in the next section.

LITERATURE REVIEW

The use of results in education assessment

Studies on the pedagogical use of external assessments results also known as systemic assessment or large-scale assessment have been gaining ground in literature. For Machado (2012, p. 2) "[...] external assessment is any process that evaluates the performance of schools triggered and operationalized by subjects outside the school routine" that is the person who formulates the external assessment must be someone who is not part of the environment being assessed (Borges; Sampaio; Corte, 2021; Machado, 2012).

External assessment relevance is driven by social developments such as the "World Declaration on Education for All and Framework for Action to Meet Basic Learning Needs" approved in 1990 in Thailand which sought to ensure the right to education for all and gave rise to the SAEB system in Brazil. SAEB's proposal is to monitor basic education via the National Institute of Studies and Educational Research Anísio Teixeira (INEP) every two years (Borges; Sampaio; Corte, 2021; Calderón; Borges, 2020; Lélis; Hora, 2020; Machado, 2012; Monte; Vidal, 2020; Silva; Sousa, 2022; Silva et al., 2021; Souza; Silva, 2022).

Some changes were made to the SAEB after a decade when the National Assessment of Basic Education (ANEB) and the National Assessment of School Performance (ANRESC) were established the latter popularly known as Prova Brasil aimed at students enrolled in elementary public schools in the country. In 2013 the National Literacy Assessment (ANA) became part of the system and in 2017 private schools began to be part of the assessment and its results and in 2019 all the tests were unified into a single system called SAEB thus extinguishing the other acronyms (Monte; Vidal, 2020).

Researchers have been dedicated to conducting specific investigations on the use of results in order to highlight actions aimed at establishing an appropriation and results-based culture (Calderón; Borges, 2020; Menezes; Kistemann Junior; Vilardi, 2020). Especially in Brazil several studies have focused on the theme of education and assessment. Most of them discuss external assessment and the use of results to improve proficiency highlighting as objects of attention such as: large-scale assessment the creation of SAEB the Law of Guidelines and National Education Bases (LDBEN) the National Common Curricular Base (BNCC) the International Student Assessment Program (PISA) INEP the Basic Education Development Index (IDEB) the mastery of basic skills and abilities the classification of the use of results in categories and dimensions public policies accountability policies the implementation of interventions and school effectiveness (Basso; Ferreira; Oliveira, 2022; Borges; Sampaio; Corte, 2021; Calderón;

Borges, 2020; Menezes; Kistemann Junior; Vilardi, 2020; Monte; Vidal, 2020; Passone; Roncoli, 2022; Silva et al., 2021).

Research also discusses the scope of minimizing educational inequality in Brazilian schools from results presented which provide important data on student performance. (Borges; Sampaio; Corte 2021; Menezes; Kistemann Junior 2021; Monte; Vidal 2020). In the same vein external evaluations make it possible to perceive advancements in terms of public policies (Basso; Ferreira; Oliveira 2022; Borges; Sampaio; Corte 2021; Menezes; Kistemann Junior 2021; Monte; Vidal 2020; Passone; Martins; Rosa, 2021; Silva et al., 2021).

A recent study (Basso; Ferreira; Oliveira, 2022) points out that results of large-scale assessments are currently being used for three purposes: to plan actions to set goals and to train professionals in the education field. In this same article the authors point out six dimensions of how results are used the most frequent being: management – referring to policy planning; training – related to providing training based on the evidence indicated in the analysis of results; and information – linked to the transparent dissemination of data to all involved. The less frequent dimensions refer to teaching material resources and salary policies (Basso; Ferreira; Oliveira, 2022).

In short systemic assessment is a tool that indicates attention points and that if well used can minimize damage and increase students' proficiency levels (Borges; Sampaio; Corte, 2021; Calderón; Borges, 2020; Lélis; Hora, 2020; Monte; Vidal, 2020; Passone; Roncoli, 2022; Souza; Silva, 2022). Therefore it is essential to understand how data extracted from these assessments can support strategic decisions and pedagogical interventions. In this context the PAAEB assessment the topic of the next discussion gains relevance.

The PAAEB

Large private education networks adopt external assessment models. In 2012 the Education Department of the Seventh-day Adventist Church for South America launched the PAAEB. The PAAEB aims to identify educational strengths and weaknesses in order to develop training monitoring and support policies for teachers and managers. To this end the program measures the academic performance of elementary school students (5th and 9th grade) and high school students (2nd grade) focusing on reading (Portuguese) and problem-solving (Mathematics) skills (Zukowsky-Tavares; Fernandes; Luz, 2017). These assessments are constructed based on the guidelines established by the SAEB and its results allow students to be classified into four performance levels: insufficient basic proficient and advanced.

Currently in Brazil over 500 schools and colleges participate annually in the different tests carried out by the PAAEB team in which skills and competencies are assessed through descriptors grouped into topics that compose the reference matrix for each subject. In Mathematics the descriptors of 5th and 9th grade students are classified into four areas: space and shape magnitude and measurements numbers and operations and information processing. In Portuguese the descriptors are classified into six areas: reading procedures implications of support relationships between texts coherence and cohesion relationships between resources and linguistic variation (Oliveira 2022). Based on the information extracted from these assessments educational institutions can develop more specific pedagogical strategies aimed at overcoming the challenges highlighted and promoting learning. In this way the study presents an intervention based on PAAEB data as detailed below.

METHODS

This study is applied in nature and designed under an action research framework which constitutes a type of empirical social research conceived and developed in close collaboration with practical actions or in the search for the resolution of collective problems. In this context researchers and participants representing the situation or problem in question engage in a cooperative or participatory manner aiming at the generation of knowledge that can contribute to the transformation of the social reality analyzed (Thiollent 2011). The characterization of the sample involved in the research is presented below as well as the procedures adopted for the application and analysis of the proposed intervention.

Sample characterization

The study involved students in the 5th and 6th grades of Elementary School II from the Asa Sul unit of the Adventist Educational Network located in Brasília. 120 students were invited but only 33 were considered eligible to participate in the research. After reflecting on the results of the 2022 PAAEB an intervention plan was created consisting of weekly classes totaling 9 hours/class focused on the identified weaknesses. After the intervention in order to compare the results a new application of the test which took place in 2023 was carried out. The impact assessment involved two groups with one of them participating in the intervention through the action plan called the "intervention group" (16 students) and the other called the "control group" (17 students).

Among the participating students there was a predominance of females. The age range ranged from 11 to 12 years old with 79% of the students in the intervention group and 70% of the control group being 11 years old. The control group had a slightly higher percentage of students aged 12. It is important to mention that the institution offers scholarships to students who prove a gross monthly per capita family income of up to 1.5 minimum wages for a full scholarship (100%) or up to 3 minimum wages for a partial scholarship (50%). In the intervention group 17% of the students receive this benefit while in the control group only 8% of the students are beneficiaries.

Remote interviews were also conducted with 6th grade Elementary School teachers in the curricular components of Portuguese and Mathematics who followed the development of the research in order to understand the teachers' reactions to the results of the external evaluations identify potentialities and limitations in the implementation of pedagogical actions and propose improvements for the educational system. The information from these interviews and the quantitative data generated by PAAEB contributed to the analysis of the results of the pedagogical intervention presented below.

RESULTS AND DISCUSSION

In order to understand the initial learning scenario of students before the intervention plan the PAAEB 2022 assessment was analyzed. Table 1 summarizes the students' proficiency allowing the comparison of the groups' performance.

Table 1. Summary of proficiency results in PAAEB 2022.

Level	Intervention group (n = 16)		Control group (n = 17)	
	Portuguese	Mathematics	Portuguese	Mathematics
Advanced	65%	70%	56%	44%
Proficient	35%	24%	38%	38%
Insufficient	0%	6%	6%	6%
Basic	0%	0%	0%	12%

Pre-intervention analysis

The proficiency results in PAAEB 2022 are summarized in Table 1 where it is possible to identify that the intervention group presented a higher proportion of students at advanced and proficient levels in both Portuguese and Mathematics. On the other hand the control group presented a higher incidence of students at insufficient and basic levels especially in Mathematics.

Thus the performance of each area of each curricular component was identified based on the PAEEB report sent to the school after the test was administered. It was found that in Portuguese "reading procedures" and "coherence and cohesion in text processing" presented greater weaknesses for this group of 5th grade students. In Mathematics the most critical areas were "space and form" and "information processing". Attention was paid to each descriptor with a performance below 60%. Therefore the focus was on "reading procedures" and "space and form".

The area of reading procedure encompasses skills that require the reader to be able to extrapolate the text to identify what is implied and not explicitly recorded. It is essential to go beyond the words to understand the overall meaning of the text in addition to the importance of distinguishing facts and opinions in narrative and argumentative texts promoting the development of the student's critical capacity to evaluate the interpretations presented by the author (Brasil, 2011). In the area of space and form it is considered that in the initial phase of geometry studies it is important for students to understand space its dimensions and forms. Geometric concepts play a fundamental role in the mathematics curriculum (Brasil, 2011). By the end of the 5th year of elementary school students are expected to recognize space in its three dimensions (length width and height) and understand that geometric figures can vary from one to three dimensions. The ability to locate objects identify movements and perceive spatial relationships using appropriate vocabulary is also fundamental at this stage of learning (Brasil, 2011).

Table 2 illustrates Portuguese and Mathematics descriptors the percentages of correct answers and the respective planned activity.

Table 2. Summary of planned activities.

Descriptor	PAAEB Code	Goal	% correct	Planned activity
		Portuguese		
1	5L1	Locate explicit information in a text.	48%	Textual Detective Mission.
6	5L6	Identify a text's theme..	40%	Flipped classroom.
11	5L11	Distinguish a fact from an opinion regarding that fact.	35%	Fact or opinion?
		Mathematics		
2	5M2	Identify common properties and differences between polyhedrons and round bodies relating three-dimensional figures to their plans.	45%	*Design thinking methodology.*
3	5M3	Identify common properties and differences between two-dimensional figures by the number of sides and types of angles	36%	World of Shapes: unveiling geometric properties.

In order to address the weakness found in descriptor 1 the activity "textual detective mission" was planned using a game-based methodology to engage students in literary investigation. To address the ability to identify textual themes (descriptor 6) the "flipped classroom" methodology was used. In this method students previously accessed resources such as explanatory videos and reading materials outside the classroom and in the classroom were able to discuss and practice the skill in focus. For example in the case of descriptor 11 the focus was on how critical thinking initially involves the clear definition of facts and opinions understanding that facts are verifiable and objective while opinions are personal beliefs. Students carried out classification activities and group discussions to distinguish between the two.

Regarding Mathematics in order to improve performance in descriptor 2 the "design thinking" methodology was used to explore three-dimensional shapes focusing on identifying the properties of polyhedrons and round bodies and the relationship with their plans. To address descriptor 3 the project "World of Shapes: unveiling geometric properties" was developed in which students explored two-dimensional figures.

Action plan

In order to carry out the planned activities a schedule was established which began in September and ended in November 2022. At the end of the intervention project the students took a second PAAEB test which took place on November 27 2023. The tests were calibrated using the same descriptors as the 2022 version. It is important to consider the challenges that students face in the transition from the 5th to the 6th grade marking the passage from the initial to the final years of Elementary School. This phase involves significant transformations such as changing teachers and adapting to a new curriculum. In addition students are entering adolescence a phase marked by intense bodily and cerebral changes and in the development of identity (Postai; Mengue 2024). Furthermore it is during this transition that factors that can lead to disinterest arise resulting in an academic performance drop and episodes of indiscipline (Amestoy; Tolentino-Neto, 2020, p. 12). In this scenario the student profile changed from 2022 to 2023 including the year and grade of the application the average age the expectation regarding participation and the characteristics of the teachers.

Post-intervention analysis

As mentioned previously the quantitative analysis of the results was carried out by comparing the students' performance before and after the intervention with the support of SPSS software version 28.0.1.0. To determine the significance of the differences between the performance means on the two occasions a paired measures t-test was performed. This test is used to compare two measurements taken on the same group of subjects at different times or under different conditions (Gujarati; Porter, 2011). The test generates a "t-value" which determines whether the difference between the means of two groups is statistically significant (Capp et al., 2020).

Mathematics

In the Mathematics curricular component test the intervention group was analyzed first as shown in Table 3.

Table 3. Intervention group – 2022 e 2023 (Mathematics).

Year	Mean	N	Standard deviation	t	p value	d Cohen
2023	28043	16	3363	-234	0033	058
2022	29504		3390			

Source: IASD Department of Education (2024).

The results in Table 3 reveal that the average grades in 2023 decreased significantly contrary to expectations which would generally predict that grades will remain the same or increase over time. Based on this observation the hypothesis was that despite the external stimuli offered students may not have been internally motivated to take the assessment with the same level of responsibility or engagement expected. This difference was confirmed through the t-test which revealed a p-value <0.05 confirming the statistical significance of the results. The observed effect (d Cohen) of approximately 0.5 to 0.6 indicates a medium effect (Hair et al., 2009). Therefore there was a reduction in Mathematics proficiency between the years evaluated.

For comparative purposes data related to students who did not participate in the intervention were also analyzed as shown in Table 4. The results indicated that there was no significant variation in the average grades of this group. This result is intriguing because unlike the group that underwent the intervention and presented a reduction in the average grades the

Table 4. Control group – 2022 e 2023 (Mathematics).

Year	Mean	N	Standard deviation	t	p value	d Cohen
2023	25466	17	4803	-0103	0919	0025
2022	25528		4896			

Source: IASD Department of Education (2024).

students who did not participate in the intervention maintained their averages unchanged. It is important to emphasize that these groups consist of different classes which may influence the results. Thus factors such as student composition learning environment and teaching methodologies may vary significantly.

Tables 5 and 6 present the comparative results between the intervention group and the control group in the years 2023 and 2022 respectively. The next stage of the analysis consisted of verifying the performance of the students who underwent the intervention in 2023 in a general way. The analysis of the students' proficiency involved the comparison between the intervention group and the control group in the same year. Initially the evolution of grades from one year to the next was compared for both groups. Then a more specific analysis was carried out for the year 2023 comparing the students who underwent the intervention with those who did not.

When comparing these students with the 2022 results a statistically significant difference ($p<0.05$) is found in Table 6. It is worth noting that there was already a difference between the groups in the previous year (2022). In 2022 students who participated in the intervention

Tabela 5. Intervention *versus* control group – 2023 (Mathematics).

Year	Mean	N	Standard deviation	t	p value	d Cohen
2023	28043	16	3363	177	0086	061
	25466	17	4803			

Source: IASD Department of Education (2024).

Table 6. Intervention *versus* control group – 2022 (Mathematics).

Year	Mean	N	Standard deviation	t	p value	d Cohen
2022	29504	16	3390	269	0011	093
	25528	17	4896			

Source: IASD Department of Education (2024).

had a higher score in Mathematics compared to students who did not participate in the intervention. In 2023 these students maintained a higher score which resulted in a loss of statistical significance. However this difference can still be considered relevant.

Table 7 shows the descriptors' comparison results of those who underwent the intervention. Although the average of the intervention group is higher it is not statistically significant ($p>0.05$). Thus regarding performance in Mathematics it is not possible to statistically state that there is

Table 7. Analysis of the curricular component – 2023 (Mathematics).

Group	Mean	N	Standard deviation	t	p value	d Cohen
Intervention	093	16	025	053	059	0183
Control	088	17	033			

Source: IASD Department of Education (2024).

a relevant difference that is there is a mathematical difference between the PAAEB evaluation in 2022 and 2023 but not a statistical one.

Portuguese

Tables 8 and 9 show the results of Portuguese proficiency allowing comparison between the performances of students in the intervention and control groups both in 2022 and 2023. In Portuguese by applying the paired measures methodology previously used as shown in Table 8 the proficiency of students who participated in the intervention was analyzed. In 2023 the intervention did not have a significant impact on student proficiency ($p>0.05$). For comparison the same analysis was performed with students who did not participate in the intervention (Table 9).

Table 8. Intervention group – 2022 and 2023 (Portuguese).

Year	Mean	N	Standard deviation	t	p value	d Cohen
2023	26044	16	2622	-054	059	0136
2022	26427		2524			

Source: IASD Department of Education (2024).

Table 9. Control group – 2022 and 2023 (Portuguese).

Year	Mean	N	Standard deviation	t	p value	d Cohen
2023	24723	17	4481	-1170	025	0284
2022	25391		4477			

Source: IASD Department of Education (2024).

According to Table 9 the results do not indicate a significant impact on student proficiency. Statistically the observed difference is not relevant suggesting that there was no substantial change ($p>0.05$).

Tables 10 and 11 show the comparison of the average Portuguese language proficiency scores between the intervention and control groups for the years 2023 and 2022 respectively. In 2023 analyzing the students who participated in the intervention Table 10 shows a difference in scores between the groups. Although students who participated in the intervention obtained a higher average this difference is not statistically significant ($p>0.05$).

It is important to highlight that students who participated in the 2022 intervention had a difference in scores compared to those who did not participate as can be seen in Table 11. Again this difference is greater but not statistically significant ($p>0.05$). Also according to Table 11 students who underwent the intervention have had a higher result since the first application in 2022 that is the intervention was not the determining factor for the improvement in their scores.

Table 12 shows the analysis of the Portuguese language descriptors in 2023 comparing the average performance between students who participated in the intervention and those who did not participate. Finally the Portuguese descriptors were examined comparing the

Table 10. Intervention *versus* control group – 2023 (Portuguese).

Year	Mean	N	Standard deviation	t	p value	d Cohen
2023	26044	16	2622	102	031	0357
	24723	17	4481			

Source: IASD Department of Education (2024).

Table 11. Intervention *versus* control group – 2022 (Portuguese).

Year	Mean	N	Standard deviation	t	p value	d Cohen
2022	26427	16	2524	077	044	0269
	25391	17	4777			

Source: IASD Department of Education (2024).

Table 12. Curricular component analysis – 2023 (Portuguese).

Grup	Mean	N	Standard deviation	t	p value	d Cohen
Intervention	055	16	017	-114	026	0398
Control	064	17	029			

Source: IASD Department of Education (2024).

performance of students who underwent the intervention with those who did not. It can be seen from Table 12 that students who participated in the intervention performed worse than those who did not participate. However this difference is not statistically significant indicating that from a statistical point of view there is no relevant difference between the groups ($p>0.05$).

Interviews

As mentioned above semi-structured interviews were conducted with the teachers. This methodology is particularly valuable because it allows for deep and detailed insights into the experiences perceptions and pedagogical practices of the teachers (Gerhardt; Silveira 2009). Interviews were conducted in July 2024 in the school environment with two participating teachers (E1 and E2). When organizing the content analysis in the thematic modality based on the interviews with two teachers 17 context units (CU) were identified unfolding into 16 recording units (RU) and three categories: a) evaluation of the intervention plan b) profile of the participants and strategies and c) project repercussions. The participants did not have access to the research results before or during the interview.

a) Intervention plan evaluation

Os depoimentos refletem sua satisfação (UR2) e a percepção dos professores de que a integração entre teoria e prática gera resultados duradouros. É possível perceber isso na fala do E1 "[...] *se você trabalha na prática e na teoria o resultado vai ficar*" (UR1). Eles consideram as estratégias do plano de intervenção como positivas pois os métodos aplicados permitiram explorar os descritores de maneira criativa despertando o interesse dos alunos e aumentando a produtividade.

> *I think we had a better result because we were able to explore all the possibilities* [...] *in a creative way we were able to stir up students' interest* [...] *I think it was much more productive* (UR3).

E2's expectation for a better result in the second application of the PAAEB is clear when reporting how the strategies were explored as well as students' engagement stating that the work was more productive than the way he was used to. It is worth noting that the only challenge mentioned as a limitation for the implementation of the proposed pedagogical intervention plan was time. One teacher highlighted that the plan could have been more effective with a longer deadline (UR4). Another teacher pointed out that adequate preparation is hampered by the high demand for content.

> *Yes I think our biggest problem is time to prepare. We have a great demand for content* [...] *I think that working more on interpretation involving grammar perhaps within the text would be a solution for us to achieve better results* (UR5).

Participation allowed teachers to reflect on their work. It is interesting to note that when reflecting on the limitation for implementation E2 has an idea for his classroom practice aiming at improvement suggesting integrating interpretation and grammar in the context of the texts. According to Souza and Silva (2022) the adaptation of pedagogical planning when carrying out teaching actions shaped in response to the demands of assessments demands a lot from the teacher which becomes a priority in pedagogical decisions and overloads teachers.

There are numerous criticisms about accountability policies exposure of institutions in rankings and students' classification that reveal a dark aspect of external assessments in some institutions. However it is important to recognize that the results of these assessments cannot be disregarded as they are guiding elements that indicate educational weaknesses that require attention. According to Menezes et al. (2020) the data generated by external assessments are fundamental when shaping education systems and institutions highlighting essential aspects in the quest for improving teaching and learning. Thus these assessments go beyond simply measuring performance to create school rankings and classify students; their results provide valuable support for the qualified performance of managers and teachers.

In this sense educational commitment goes beyond test results; if nothing is done to improve the situation it is essential to consider the impact on student learning. These are not merely numbers; they represent learning gaps that are highlighted by the results and that need to be

addressed. In this way assessment serves as a tool to guide ongoing development promoting a more effective educational environment that is responsive to student needs (Menezes; Kistemann Junior; Vilardi, 2020).

Furthermore lack of time can result in superficial teaching a situation in which gaps in students' knowledge are never adequately addressed. This can lead to poor performance and limited mastery of descriptors. By considering the positive example of E2 who pointed out the limitation of time and sought alternatives to manage it it is possible to integrate different components of the curriculum in order to maximize class time and ensure deeper and more meaningful learning. Therefore it is essential that the education system finds a balance that allows teachers to address these gaps effectively promoting their learning process.

When reflecting on what would be done differently if the intervention project were restarted E2 suggests continuity with more emphasis on active methodologies and playful approaches considering that 6th grade students still have quite evident childlike characteristics.

> *I think I would work with them more playfully because even though it's the 6th grade they still have this ongoing childhood phase. So I think I would work in a more playful way. I think I would sit with them in a circle so we could talk chat and do some oral interpretations. I would continue it with them making them protagonists. I think that was very positive* (UR16).

What E2 expresses when reflecting on active methodologies and playful approaches reinforces an important pedagogical perspective which is also supported by authors such as Vieira, Molina and Martins (2020). For the authors in active methodologies the student must leave passivity aside and assume the leading role in their learning process. It is essential that they learn how to learn through active practices becoming emotionally involved engaging cooperating exposing themselves discussing investigating and solving problems (Vieira; Molina; Martins, 2020). Thus the alignment between the practice reported by E2 and the theory presented by Vieira, Molina and Martins (2020) highlights the importance of methodologies that go beyond the simple transmission of knowledge seeking to engage students in a deeper way.

When asked what they would do differently if the intervention project were restarted interviewees highlighted the positive transformation observed in students throughout the process. One interviewee mentioned that students were "more aware" and "more participatory" (UR13) which indicates that after the project students became "more confident" and began to speak "with authority about what they know" (UC14). This observation suggests that the intervention project not only improved student participation but also strengthened their self-confidence and ability to express their knowledge. Even though there was no statistically significant difference the interview responses indicate that the project had an important impact on student development both in terms of active participation and personal and academic growth.

b) Participant profile and strategies

When interviewees were asked to analyze the classes involved in the study distinct characteristics were observed between the intervention and control groups which influenced student engagement and performance. More specifically it was indicated that in the intervention group there were students who presented quite varied behaviors. Some were considered restless even though they showed interest and participation especially in group activities. On the other hand other students in the same group although better behaved did not exhibit the same level of engagement showing little interest in the proposed activities (UR8).

In the studies by Menezes, Kistemann Junior and Vilardi (2020) the issue of students' lack of interest and motivation to participate was highlighted with the implementation of the SPAECE. For the authors most students do not see the importance of assessments so the school has faced the problem of students who intentionally miss the test day or take it without interest. The same was found in this research which analyzed the results of the PAAEB. Although the school has promoted actions to raise students' awareness about the importance of this assessment many students still do not give it the due relevance. As a result the school faces the challenge of dealing with unmotivated students who take the test without interest and state that they will not dedicate themselves to it since the assessment does not contribute to their grades.

The control group was described as having a higher level of learning but also presented similar agitation. However when teachers were able to capture and direct the students' focus the

results obtained were significantly better suggesting that despite the agitation there was good potential for performance when well guided (UR9). The intervention group demonstrated variations in behavior and engagement with some students being more participative and others more disinterested while the control group despite being agitated showed a high potential for learning when the focus was appropriately directed.

When asked about which points stood out positively during the process of the pedagogical intervention plan the interviewees highlighted several important aspects. One of the teachers reported his appreciation for the interventions carried out:

> [...] *These classes were great because they came out exactly as we planned* [...] *they* [students] *were involved in the process. So it was really good* (UR10).

Another teacher highlighted the effectiveness of the flipped classroom methodology.

> *I really liked the way we worked in the flipped classroom because they searched for information to bring and present. And when they became protagonists in their universe of knowledge I realized that even the language they used to speak to their colleagues was more at their level. So they are able to pass on information. They learn by researching and they also learn by passing on knowledge* (UR11).

According to E2 this approach made students become protagonists in their learning process by using a more accessible language among themselves in addition to the practice of researching and sharing knowledge which was considered extremely effective for learning (UR11). Finally E2 highlighted the creative class as a positive point and mentioned that this approach always provides better results regardless of the profile of the class whether it is more well-behaved or restless (UR12).

The flipped classroom methodology is an approach in which students take a more active role in their learning rather than receiving information directly from the teacher during class. Students are encouraged to seek knowledge on their own through research or prior study at home. They then bring this information to the classroom where they discuss present and delve deeper into the content with the teacher's guidance (Vieira; Molina; Martins, 2020). This reversal makes students become protagonists of their own learning process allowing them to master the subject with more autonomy and develop skills such as research communication and critical thinking. In addition this methodology facilitates the exchange of knowledge among students as they tend to use more accessible language when communicating with each other which can improve everyone's understanding and engagement as noted by E2.

c) Project repercussions

After implementing the intervention project in the classroom teachers noticed significant changes in student behavior. One of the reports mentioned that "[...] *they* [students] *were more aware* [...] *and more participative*" (UR13) indicating an increase in engagement and attention. Another teacher noted that students became more confident: "[...] *yes they become more confident* [...]. *They speak with authority about what they know. So I think it was much better after the project*" (UC14). This increased confidence and greater clarity when expressing themselves suggest that the project had a positive impact on the way students relate to the content learned making the learning environment more dynamic and productive with the methodologies applied.

At the end of the interview the comparison results were revealed to the interviewees which came as a surprise since they had expected significant growth given that they had noticed a positive difference in the classroom. E1 informally commented that students are driven by grades and that they probably did not dedicate themselves. This perception indicates that even with the students' engagement in the proposals as noted by the teachers the lack of an immediate reward such as a grade bonification may have discouraged the students from fully dedicating themselves. This shows that the meritocratic culture where value is given based on rewards is deeply rooted in schools.

Meritocracy is a system in which individuals are to be evaluated and rewarded based on their own virtues and efforts. However meritocracy is often criticized for failing to consider the structural and social inequalities that may limit some people's access to the same opportunities

for development and success. These criticisms point out that although the concept is attractive in theory it can ignore the complex realities that influence individual success (Soares; Baczinski, 2018). This way of thinking is so deeply ingrained in society that changing it becomes an extremely challenging task considering that several practices and methodologies adopted end up reinforcing the principles of meritocracy (Soares; Baczinski, 2018). Calderón and Borges (2020) state that when analyzing Brazilian scientific production on the use of large-scale assessments in education it is clear that there are significant theoretical conflicts. These conflicts emerge when public policies related to these assessments are implemented.

Despite the many criticisms regarding the meritocratic stance in schools there is a desire and a quest for better results. There were important successes that should be highlighted: i) the analysis of external assessments' results allowed the identification of critical areas in student performance which led to the development of an intervention plan to address these weaknesses; ii) the active methodologies applied encourage student autonomy and protagonism promoting a more dynamic learning environment; iii) student engagement increased with many becoming more participatory and confident in the classroom; and iv) the experience generated valuable reflections among teachers on pedagogical practices highlighting the importance of creative and active approaches in teaching.

CONCLUSION

This study aimed to analyze and reflect on the results of the 5th-grade Portuguese and Mathematics tests of the PAAEB in 2022 to organize a pedagogical intervention plan and to reapply the test in 2023. As a result no statistical difference was identified in the results of the tests carried out after the application of the intervention plan. However in a qualitative analysis the intervention plan offered significant gains such as increased student engagement. The intervention also generated greater awareness on the part of teachers of the importance of continuous monitoring and adapting teaching strategies based on student needs and performance.

The results of this study offer significant contributions. *First* it provides an understanding of the use of external assessments as a diagnostic and pedagogical intervention tool. The construction and implementation of the intervention plan based on the results of the 2022 PAAEB allowed the identification of critical areas in student performance and offered valuable reflections on how targeted pedagogical approaches can influence academic results. *Second* it observed the challenges of teaching and learning in the final years of Elementary School. The transition from 5th to 6th grade triggers a large number of structural pedagogical and personal changes for students requiring an approach that goes beyond academic needs supporting students' social and emotional development as well. As a result behavioral variations between groups and students' lack of motivation impacted the results making it difficult to accurately assess the effectiveness of the intervention. To overcome this situation it is essential that Adventist schools find ways to engage students showing that the true value of such assessments goes beyond grades. It is also important to reinforce the idea that these assessments are opportunities for personal and academic growth and that the effort invested in them contributes to the student's overall development. *Third* it is suggested that schools dedicate an intentional plan to collectively study the results presented by external assessment instruments and plan new strategies to address alleged and concrete educational failures.

Finally this research faced some relevant limitations that must be acknowledged. *First* although qualitative results showed some improvements in student performance the quantitative differences between the intervention group and the control group were not statistically significant. This makes it difficult to state that the interventions had a substantial impact. *Second* it was the variations between the student groups that made it difficult to compare the results and differences in student behavior and engagement in the two classes may have influenced the results differently. *Third* the lack of interest in fully participating in a second application of the PAAEB was challenging. Many students did not give due importance to these assessments which may have resulted in below-expected performances hindering the analysis of the data. Despite a noticeable increase in student engagement and participation in the classroom after the interventions the lack of an immediate reward such as additional points may have discouraged some students from fully dedicating themselves. In order to

strengthen the findings of this research it is necessary to undertake new studies that analyze an intervention plan in Portuguese and Mathematics in the 5th year of elementary school implemented immediately after the first application of external assessments that is before the transition from the initial years to the final years of Elementary sShool strengthening the necessary foundations for them to face the challenges of the final years of Elementary School with greater security and stability.

REFERENCES

AMESTOY, M. B.; TOLENTINO-NETO, L. C. B. Políticas de avaliação e os organismos internacionais: uma relação necessária? **Revista Cocar**, Belém, v. 14, p. 824-837, 2020.

BASSO, F. V.; FERREIRA, R. R.; OLIVEIRA, A. S. Usolensaior das avaliações de larga escala na formulação de políticas públicas educacionais. **Ensaio: Avaliação e Políticas Públicas em Educação**, Rio de Janeiro, v. 30, n. 115, p. 501-519, 2022.

BORGES, R. M.; SAMPAIO, G. J.; CORTE, M. A. M. Usos dos resultados do SARESP na produção de conhecimento publicada em periódicos científicos nacionais (1996-2018). **Educere et Educare**, Cascavel, v. 16, n. 40, p. 385-403, 2021. DOI: http://doi.org/10.17648/educare.v16i40.24314.

BRASIL. Ministério da Educação. **Plano de Desenvolvimento da Educação**. Brasília: Ministério da Educação, 2011.

CALDERÓN, A. I.; BORGES, R. M. Avaliação em larga escala na Educação Básica: usos e tensões teórico - epistemológicas. **Meta: Avaliação**, Rio de Janeiro, v. 12, n. 34, p. 28-58, 2020. DOI: http://dx.doi.org/10.22347/2175-2753v12i34.2281.

CAPP, E. *et al*. **Bioestatística quantitativa aplicada**. Porto Alegre, 2020. Disponível em: www.freepik.com/starline. Acesso em: 9 out. 2024.

GERHARDT, T. E.; SILVEIRA, D. T. **Métodos de pesquisa**. 1. ed. Porto Alegre: UFGRS Editora, 2009.

GUJARATI, D. N.; PORTER, D. C. **Econometria básica**. 5. ed. São Paulo: AMGH Editora, 2011.

HAIR, J. F. *et al*. **Análise multivariada de dados**. 6. ed. Porto Alegre: Bookman, 2009.

LÉLIS, L. S. C.; HORA, D. L. Implicações da política de avaliação na produção da qualidade educacional. **Olhar de Professor**, Ponta Grossa, v. 23, p. 1-18, 2020. DOI: http://doi.org/10.5212/10.5212/OlharProfr.v.23.2020.15537.209209225813.0525.

LIMA, L. F.; LUCE, M. B. Sistema de Avaliação Educacional de Alagoas – SAVEAL: para ou contra a democratização da/na educação básica? **Práxis Educacional**, Vitória da Conquista, v. 18, n. 49, e10490, 2022.

MACHADO, C. Avaliação externa e gestão escolar: reflexões sobre usos dos resultados. **Revista @mbienteeducação**, São Paulo, v. 5, n. 1, p. 70-82, 2012.

MENEZES, L. K. S.; KISTEMANN JUNIOR, M. A. Plano de Ação Educacional para a formação continuada de professores: uma proposta para o uso pedagógico dos dados do SPAECE. **Boletim Cearense de Educação e História da Matemática**, Fortaleza, v. 8, n. 23, p. 1268-1283, 2021. DOI: http://doi.org/10.30938/bocehm.v8i23.4828.

MENEZES, L. K. S.; KISTEMANN JUNIOR, M. A.; VILARDI, L. G. A. As possibilidades do uso dos resultados do SPAECE para subsidiar a gestão pedagógica e a aprendizagem discente numa escola de ensino médio no Ceará. **Revista Educação e Políticas em Debate**, Uberlândia, v. 9, n. 2, p. 438-455, 2020.

MONTE, A. L. L.; VIDAL, E. M. C. Avaliações de larga escala em municípios brasileiros no Catálogo de teses e dissertações CAPES. **Revista Teias**, Rio de Janeiro, v. 21, p. 101-117, 2020. DOI: http://doi.org/10.12957/teias.2020.44105.

OLIVEIRA, H. M. F. **Percepções das professoras sobre a formação continuada de análise da matriz de referência da avaliação externa de uma rede de ensino**. 2022. 189 f. Dissertação (Mestrado em Educação) – Centro Universitário Adventista de São Paulo, Engenheiro Coelho, 2022.

PASSONE, E. F. K.; MARTINS, A. M.; ROSA, S. S. Produção científica sobre avaliação e autoavaliação educacional: interfaces com a gestão escolar. **Revista @mbienteeducação**, São Paulo, v. 14, n. 3, p. 580-598, 2021. DOI: http://doi.org/10.26843/v14.n3.2021.1077.p580-598.

PASSONE, E.; RONCOLI, M. G. L. Revisão da literatura sobre os estudos de responsabilização escolar no Brasil. **Jornal de Políticas Educacionais**, Curitiba, v. 16, n. 1, p. 1-25, 2022. DOI: http://doi.org/10.5380/jpe.v16i1.84282.

POSTAI, D.; MENGUE, B. V. Transição escolar: Como o coordenador pedagógico pode atuar no processo de transição entre os anos iniciais e os anos finais do Ensino Fundamental? **Revista Acadêmica Licencia&acturas**, Ivoti, v. 12, n. 1, p. 60-78, 2024.

SILVA, I. M. *et al*. IDEB e políticas educacionais em quatro municípios da Grande Vitória. **Estudos em Avaliação Educacional**, São Paulo, v. 31, n. 76, p. 104-133, 2021.

SILVA, A. B.; SOUSA, S. Z. Motivações para a criação de avaliação educacional em larga escala por municípios brasileiros. **Educação em Questão**, Natal, v. 60, n. 64, p. 1-24, 2022. DOI: http://doi.org/10.21680/1981-1802.2022v60n64ID29326.

SOARES, K. S.; BACZINSKI, A. V. D. M. A meritocracia na educação escolar brasileira. **Temas & Matizes**, Cascavel, v. 12, p. 36-50, 2018.

SOUZA, C. B.; SILVA, R. Diálogos sobre avaliação em larga escala e suas implicações no trabalho docente. **Revista Cocar**, Belém, v. 17, n. 35, p. 1-16, 2022.

THIOLLENT, M. **Metodologia da Pesquisa-Ação**. 18. ed. São Paulo: Cortez, 2011.

VIEIRA, P.; MOLINA, V.; MARTINS, G. **Metodologias ativas**: relatos e debates das práticas do século XXI. Quirinópolis: Editora IGM, 2020.

ZUKOWSKY-TAVARES, C.; FERNANDES, A. A. P.; LUZ, E. L. Perfil docente brasileiro e relatório TALIS: o caso de uma rede confessional de ensino. **Revista e-Curriculum**, São Paulo, v. 15, n. 3, p. 693-712, 2017.

Authors contribution

EGSR: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Resources, Visualization, Writing. CZT: Conceptualization, Data curation, Methodology, Resources, Supervision, Validation, Visualization, Writing.

Editor: Prof. Dr. José Luís Bizelli
Deputy Executive Editor: Profa. Dra. Flavia Maria Uehara