

ORIGINAL ARTICLE

The low academic performance of Brazilian students in the Pisa: is it the fault of undergraduate courses in the distance learning modality?

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ABSTRACT

This article investigated whether the results obtained by Brazil in the International Student Assessment Program (Pisa), regarding the academic performance of students, are related to teacher training carried out remotely. A qualitative and of the type descriptive research approach was conducted. Regarding the technical procedures, documentary research was chosen. For this purpose, data from the National Institute of Studies and Educational Research Anísio Teixeira (Inep) were considered in order to evaluate the results of the Pisa and Ideb assessments; from the Brazilian Distance Education Association; from the Organization for Economic Cooperation and Development, the Ministries of Education and Science, Technology and Innovation; and from the ONG Todos pela Educação. The results revealed that the average grades of students did not decrease as the number of graduates in distance learning undergraduate courses increased. Furthermore, the average scores of students in the Reading, Science and Mathematics domains in the Pisa assessment were lower than when the first distance learning undergraduate classes began to graduate.

Keywords: Distance Education; undergraduate courses; institutional assessments; academic performance; Pisa.

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O baixo desempenho escolar dos estudantes brasileiros no Pisa: a culpa é das licenciaturas na modalidade EaD?

RESUMO

Neste artigo, foi verificado se os resultados obtidos pelo Brasil no Programa Internacional de Avaliação de Estudantes (Pisa), referentes ao desempenho escolar dos estudantes, estão relacionados à formação docente a distância. Foi realizada uma pesquisa de abordagem qualitativa, do tipo descritiva. Quanto aos procedimentos técnicos, optou-se pela pesquisa documental. Para isso, foram considerados os dados do Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira (Inep), a fim de avaliar os resultados das avaliações do Pisa e do Ideb; da Associação Brasileira de Educação a Distância; da Organização para a Cooperação e Desenvolvimento Econômico; dos Ministérios da Educação e da Ciência, Tecnologia e Inovações; e da Organização Não Governamental Todos pela Educação. Os resultados revelaram que as médias das notas dos estudantes não diminuíram à medida que cresceu o número de concluintes nos cursos de Licenciatura a distância. E, ainda, que as notas médias dos domínios da Leitura, Ciências e Matemática dos alunos na avaliação do Pisa estavam mais baixas do que quando começaram a se formar as primeiras turmas de licenciatura na modalidade a distância.

Palavras-chave: Educação a Distância; licenciaturas; avaliações institucionais; desempenho escolar; Pisa.

El bajo rendimiento académico de los estudiantes brasileños en Pisa: ¿es culpa de las carreras de pregrado en la modalidad a distancia?

RESUMEN

Este artículo investigó si los resultados obtenidos por Brasil en Programa de evaluación de estudiantes internacionales (Pisa), en cuanto al rendimiento académico de los estudiantes, están relacionados con la formación docente realizada a distancia. Se realizó una investigación de enfoque cualitativo y del tipo descriptivo. En cuanto a los procedimientos técnicos, se optó por la investigación documental. Para ello, se consideraron datos del Instituto Nacional de Estudios e Investigaciones Educativas Anísio Teixeira (Inep) para evaluar los resultados de las evaluaciones Pisa e Ideb; de la Asociación Brasileña de Educación a Distancia; de la Organización para la Cooperación y el Desarrollo Económico, los Ministerios de Educación y de Ciencia, Tecnología e Innovación; y de la ONG Todos pela Educação. Los resultados revelaron que las calificaciones promedio de los estudiantes no disminuyeron a medida que aumentó el número de graduados en cursos de pregrado

a distancia. Además, las puntuaciones promedio de los estudiantes en las áreas de Lectura, Ciencias y Matemáticas en la evaluación Pisa fueron más bajas que cuando comenzaron a graduarse las primeras clases de pregrado a distancia.

Palabras clave: Educación a Distancia; cursos de pregrado; evaluaciones institucionales; rendimiento académico; Pisa.

1. Introduction

Distance Education (EaD) is the educational modality that has experienced the most significant expansion in Brazil over time, according to the National Institute for Educational Studies and Research Anísio Teixeira (Inep). Inep presented data from the 2021 Higher Education Census, which indicates that “between 2011 and 2021, the number of entrants in undergraduate distance education courses increased by 474%. During the same period, the number of entrants in face-to-face courses decreased by 23.4%” (Inep, 2022).

This growth is observed across various undergraduate programs, including Teacher Education courses, which are the focus of this article. The Census indicated that, in 2021, of the 1,648,328 enrollments in these programs, 61% were in distance education (EaD) (Inep, 2022). In light of this data, Inep asserts that it is necessary to evaluate whether EaD is the model desired for the training of educators. According to the agency, EaD would be suitable only for a second degree in Teacher Education, when the professional already possesses prior initial training and experience in pedagogical practice (Inep, 2022).

In 2023, the Ministry of Education (MEC) stated that the government intends to prohibit Teacher Education programs from offering 100% of their coursework in the EaD modality. Currently, six out of ten teachers are trained through distance education. The concern regarding the training of Brazilian teachers was expressed by the agency in a press conference shortly after the presentation of the results obtained by Brazil in the 2022 Programme for International Student Assessment (PISA) by the Organization for Economic Cooperation and Development (OECD). The survey revealed that Brazil ranks among the 20 lowest countries in the world in the domains of mathematics, science, and reading.

These statements are concerning, as distance education (EaD) is already well established in Brazil and is offered by serious higher education institutions (IES) committed to quality education. In this regard, the Brazilian Association of Distance Education (ABED) stated in an interview with the Higher Education Journal that the oversight of course quality is the responsibility of the Ministry of Education (MEC). According to ABED, “if the established evaluation policy is not functioning, it needs to be reviewed. What does not make sense is to prohibit distance education courses” (Moreira, 2023, online). This prohibition of distance education programs is also questioned by the Uninter University Center:

The majority of those who have participated in discussions at the Ministry of Education (MEC) so far are opposed to distance education (EaD), including professional councils, “whose affiliation is with the Ministry of Labor and not with MEC; they should oversee professional practice, not educational training.” According to him, suggestions from these entities are welcome and discussed, but not prohibitions (Moreira, 2023).

ABED perceives a discrimination against distance education (EaD) and against those who study or intend to study in this educational modality. According to the association, the government’s prohibition of distance education courses “will impact nearly 50% of students enrolled in EaD courses, which translates to 2 million students, with 870,000 pertaining to teacher education programs, added last minute to the MEC ordinance” (ABED, 2023).

This signifies a reduction in opportunities for access to higher education, as EaD has expanded the number of available spots at this level of education. In this regard, Borges (2015) argues that EaD has a democratizing character and plays a crucial role “in the historical process of democratizing higher education in our country, substantiating its vacancies, advancing access issues, and further integrating public and private higher education institutions throughout the national territory” (Borges, 2015, p. 91).

To provide context for this research regarding the relevant regulations, it is important to mention that in March 2024, the National Council of Education (CNE), an advisory body to the Ministry of Education (MEC) responsible for organizing national curriculum guidelines, issued Opinion CNE/CP No. 4/2024, establishing guidelines that restrict teacher education programs (Licenciaturas and Pedagogy) to a maximum of 50% of their coursework being delivered in a distance education format. At that time, the document had been approved internally by the CNE and was awaiting official ratification by the MEC to take effect.

Consequently, on May 27, 2024, the MEC published a dispatch approving Opinion CNE/CP No. 4/2024. On June 3, 2024, the Official Gazette of the Union (DOU) published Resolution CNE/CP No. 4, dated May 29, 2024, which now establishes, with the force of law, the National Curriculum Guidelines for the Initial Training at the Higher Education Level of Professionals in Basic Education Teaching.

The regulation establishes, among other points, that teacher education programs (Licenciaturas) will have a minimum duration of four years, with 3,200 hours of coursework, of which at least 50% must be conducted in-person. Consequently, distance education (EaD) in teacher education courses will now account for up to 50% of the total coursework, with at least half of the program delivered in a face-to-face format. One of the justifications provided by the MEC for this new proposal is that the practical components of teacher education programs have been compromised. However, it is important to note that within this 50% of total coursework, theoretical subjects are also included. The main changes ratified by the MEC are detailed in Table 1.

Table 1 - Changes for Teacher Education Courses in the Distance Education Modality

Change	Description
Inclusion of In-Person Coursework in Distance Education	Distance education teacher education programs must have 50% of their total coursework offered in person. That is, of the 3,200 hours (for programs with a minimum duration of 4 years), 1,600 hours must be conducted face-to-face.
Curriculum Structure	The programs must have a curriculum structure divided into four cores: basic education, specific training in the area of study, supervised internship, and extension.
Pedagogical Training Course for Non-licensed Graduates	Increase in the minimum coursework load for pedagogical training for non-licensed graduates to 1,600 hours.
Second Degree in Education	Programs must have a minimum coursework load of 1,200 to 1,800 hours.

Source: Research data, 2024.

The decision by the Ministry of Education (MEC) is applicable to teacher education programs, pedagogical training courses for non-licensed graduates, and second-degree programs in education. The text of Resolution CNE/CP No. 4 establishes a two-year period for educational institutions to adapt. In this context, the question arises: can it be asserted that the results obtained by Brazil in PISA regarding students' academic performance are related to teacher training conducted through distance education? To address this question, a study was conducted with the aim of verifying whether the results obtained by Brazil in PISA regarding students' academic performance are related to teacher training delivered through distance education.

2. Theoretical Framework

2.1 International Student Assessment Program in the Brazilian Context

To analyze students' academic performance, a model of assessment utilizing scales emerged in the United States and Europe in 1983 (Klein; Fontanive, 1995). In Brazil, the Basic Education Assessment System (Saeb) was created in 1995 with the same objective. From that point onward, "Inep uses Item Response Theory (IRT) to obtain performance scales in reading and mathematics from samples of Brazilian students" (Klein; Fontanive, 1995). It is noteworthy that the results of these assessments should be used to promote "public policies aimed at improving the quality and equity of the education provided by a country" (Fontanive et al., 2021, p. 7).

In the early 21st century, the OECD established the key competencies that schools should develop in the new century. It is important to highlight that the OECD was founded in 1961 and is an intergovernmental organization with political influence within its member countries (Lindgard;

Grek, 2007). According to the authors, PISA has become an important and influential component of the educational work of this organization.

Thus, the OECD also established a three-year cycle for the assessment of knowledge and skills of 15-year-old students, giving rise to PISA (Reimers; Chung, 2016). According to the authors, this program is an international comparative study that evaluates the performance of students at the age of 15, which is the average age at which compulsory basic education concludes in most countries. PISA provides information on students' knowledge and skills in three main domains (Figure 1).

Figure 1 - Main Domains Assessed by PISA



Source: Prepared by the authors, 2024.

In addition to these main domains, PISA also evaluates areas such as problem-solving, financial literacy, and global competence. The results allow each country to compare its students' performance with that of other countries, enabling the formulation of pedagogical strategies to improve the quality of learning.

Since its first edition in 2000, the number of participating countries has increased every year. Brazil has participated in PISA since the first year of the assessment. According to the OECD (2023), PISA's latest edition in 2022 included participation from 81 countries, comprising 37 OECD countries and 44 partner countries. This assessment can be considered the most significant in the world, not only due to its global reach but also for presenting test items that address current issues in the contemporary world, requiring critical analysis and problem-solving skills.

In 2017, PISA for Schools was introduced, an assessment by the OECD that evaluates student performance on an international scale. In 2019, it began to be administered using computers, replacing the pencil-and-paper format, and participation is voluntary. This assessment measures competencies in reading, mathematics, science, and socio-emotional skills. While the PISA assessment provides national results for international comparisons, helping to inform educational policies for governments, PISA for Schools delivers results at the school level to educators and school administrators, facilitating closer evaluation of outcomes and the identification of solutions in a context that is more aligned with reality (OECD, 2020).

PISA for Schools is administered to students aged 15 years and three months to 16 years and two months, regardless of the school grade they are in, as long as they are enrolled from the 7th grade of elementary school onward. In more developed countries, to participate in the PISA for Schools assessment, students must be in the equivalent of the first or second year of high school in Brazil.

Brazil faces issues ranging from deficiencies in the education system to school lag. Furthermore, according to Villani (2018), there is a connection between politics and statistics in Brazil, which impacts the implementation of PISA. Fontanive et al. (2021) assert that information regarding potential differences in enrollment across grades among countries is crucial, especially considering the negative reinforcement from the media highlighting the unsatisfactory performance of Brazilian students in the assessment results across the three knowledge areas evaluated, placing Brazil in a lower tier of the ranking of participating countries.

2.2 The Impact of Emergency Remote Teaching (ERT) on the Teaching and Learning Process

During the COVID-19 pandemic, in-person classes were suspended worldwide to prevent the spread of the novel coronavirus. To minimize academic losses, classes in 2020 were conducted through remote teaching. During this period, many difficulties in the learning process were reported by students' families, such as: parents with limited experience in assisting their children with the digital tools required for online classes and even with regard to the content of the subjects; students feeling discouraged about participating in remote classes and struggling to resolve academic questions; a lack of equipment for all household members to use simultaneously; and internet connectivity issues (Grossi; Minoda; Fonseca, 2020).

Regarding teachers, Grossi, Minoda, and Fonseca (2022) observed that they also faced many challenges in adapting to remote teaching. For teachers, technology was helpful, but the quality of learning was not the same. One concern they had was that many students did not have access to technology. Therefore, they believed in the necessity of content recovery after the pandemic (Grossi; Minoda; Fonseca, 2020). Furthermore, teachers maintained the same workload as in-person classes, transposing the in-person format to the remote context without adequate time for preparation and training for both teachers and schools, which was essential for devising the best

pedagogical strategies for that moment. Corrections and adjustments were made throughout the process as remote classes progressed.

It is a fact that during the pandemic, there were many difficulties in the teaching and learning process for all students in general, but especially for those under 18 years of age, as they belong to an age group that typically lacks cognitive maturity and the autonomy to study independently (Grossi, 2021; Grossi; Minoda; Fonseca, 2020). The outcome of this pandemic period, marked by Emergency Remote Teaching (ERT), was concerning worldwide. This was evident in the 2022 PISA report, which evaluated students in 81 countries: the OECD average in this edition was the lowest in the entire historical series (since 2000). Brazilian students scored below this average in the domains of mathematics, science, and reading. The PISA report itself suggests a probable justification for these results: “the dramatic drop in performance in many countries and the COVID-19 pandemic appears to be an obvious factor” (Inep, 2023).

This low performance cannot be attributed to Distance Education (EaD), as remote teaching is not synonymous with EaD. It was an emergency pedagogical strategy (Grossi, 2021) that adhered to the same principles as in-person education, transposed to a digital environment. Thus, it cannot be considered EaD (Grossi, 2020). EaD, unlike remote teaching, is a mode of education stipulated in the Law of Guidelines and Bases of Education (LDB) No. 9,394, of December 20, 1996, which has its own characteristics and peculiarities and is structured and organized for a disciplined and autonomous adult audience.

Therefore, it is important to discuss the results of the PISA assessment from the last year of its implementation, also based on the four pedagogical errors identified by Ricci (2021) that teachers, students, and families were subjected to during the pandemic period: 1) the transposition of the same workload and in-person content to the remote format; 2) lack of interactivity in remote classes; 3) a focus solely on results, neglecting students’ emotional imbalances; and 4) the belief that there is a disconnect between education and social development. Regarding the latter, the author explains that our society’s focus is on performance, overlooking the true purpose of education.

2.3 Teacher Training in Distance Education (EaD)

Distance Education (EaD) in its current form, mediated by technology, is still relatively recent. According to Guarezi and Matos (2012), it gained momentum in the late 1990s, when the internet began to gain popularity and computers started to enter Brazilian households. It was during this period that the use of computers for educational purposes commenced, leading to the introduction of multimedia technologies, hypertext, and videos (Guarezi; Matos, 2012). From this development, Virtual Learning Environments (AVA) emerged, which, according to Moran (2013), constitute the space for the construction of learning, both individually and collectively.

It was also in the late 1990s that associations focusing on Distance Education were established, such as the Brazilian Association of Distance Education (ABED), founded in 1995 by a group of educators interested in the study of EaD and technology in education, and the

Brazilian Teleeducation Association (ABT), created in 1991 by a team of professionals in the field of broadcasting (Guarezi; Matos, 2012).

Lopes and Faria (2013) state that in 1990, the Ministry of Education (MEC) and the Roquette Pinto Foundation jointly created the program “A Leap into the Future,” aimed at qualifying elementary school teachers by using satellite television, with live broadcasts scheduled for specific times and days.

In 1992, as noted by Pimentel (1995), the Federal University of Mato Grosso (UFMT), the State University of Mato Grosso (Unemat), and the State Department of Education established the country’s first distance education Bachelor’s degree program, specifically in Basic Education for grades 1 to 4, which officially began in 1995. At that time, the need for teacher training in Brazil was still quite significant.

To address this need, the modality of Distance Education (EaD) was legally established in the country by Law No. 9.394/1996. However, the accreditation of Higher Education Institutions (IES) to operate in this modality began in 1999 (Maia; Mattar, 2007). Over the years, the MEC implemented several teacher training programs in the distance modality. Among these, notable examples include Proformação, TV Escola, Mídias na Educação, ProInfo, and Formação pela Escola. In the 2000s, specifically between 2003 and 2010, various actions were established in the realm of public policies to confirm this modality as an important component of higher education (Silva, 2013).

According to Silva (2013), two significant initiatives for distance teacher training, within the context of educational public policies, were created: 1) the Pró-Licenciatura program, established in 2005, aimed at providing initial distance training for teachers working in the final years of elementary education or high school in public education systems to improve the quality of education in basic education; and 2) the creation of the Open University of Brazil (UAB), established in 2005 by Decree No. 5,800, dated June 8, 2006, as “a consortium of Public Higher Education Institutions, States, and Municipalities, coordinated by the Secretary of Distance Education of the Ministry of Education” (Maia; Mattar, 2007, p. 43), to expand higher education within the framework of the Education Development Plan.

The first course offered by the UAB in 2006 was a Bachelor’s degree in Administration, provided by the Federal University of Santa Catarina (UFSC), with face-to-face centers in ten cities across the state. In the same year, the UAB included other state universities in the country, broadening its scope (Silva, 2013). Carvalho and Pimenta (2010) note that the objective of the UAB was to primarily offer Bachelor’s degree programs and initial and continuing education courses for basic education teachers. In 2007, according to Silva (2013), the courses that were underway under the Pró-Licenciatura Program were incorporated into the UAB, the same year the document “Quality Frameworks for Distance Education” was published.

It is worth noting that in 2017, the Ministry of Education (MEC) authorized higher education institutions (IES) to expand the offering of distance higher education courses at both undergraduate

and graduate levels through Decree No. 9,057, dated May 25, 2017. This decree enabled the creation of distance education centers by the institutions themselves and the accreditation for distance education without the requirement of prior accreditation for face-to-face offerings (MEC, 2017). The decree that preceded this (Decree No. 5,622, dated December 19, 2005) required that the accreditation request from the institution be formalized by fulfilling a series of requirements.

With the 2017 regulation, institutions were able to offer distance courses without the need for a concurrent offering of in-person courses. Consequently, distance education support centers began to be established by the IES themselves, which were only required to inform the MEC of their creation. The MEC's goal was to expand access to higher education in order to meet Goal 12 of the National Education Plan, which called for raising the gross enrollment rate to 50% and the net enrollment rate to 33% for the population aged 18 to 24 (MEC, 2017). As a result, one year after the implementation of Decree No. 9,057/2017, 3,455 new distance education centers were opened in Brazil (Censo EaD 2018).

With the ever-increasing development of the internet and cyberspace, it is noted that “in the practices of distance education, the capacity for mutual influence and interaction between individuals, as well as the means and contents of knowledge, is prominently configured” (Silva, 2021, p. 5). Thus, it is important to state that “distance education for teacher training has the potential to transform teaching practices, equipping educators to adapt to the demands of contemporary society” (Dos Santos et al., 2023, p. 2331).

Distance education provides teachers access to various technologies, methodologies, and interactions, strengthening their pedagogical practices and meeting student needs. Supporting this idea, Vieira (2023) asserts that “distance education serves as a powerful tool for developing digital competencies, as it uses the digital environment as a means to conduct the teaching and learning process” (Vieira, p. 38, 2023).

3. Methodology

This research, conducted in 2024, employed a qualitative approach and was descriptive in nature. Descriptive research is defined as “the type typically undertaken by social researchers concerned with practical action. It is also the most requested type by organizations such as educational institutions, commercial companies, political parties, etc.” (Gil, 2002, p. 42).

Regarding the technical procedures, the study opted for documentary research, which utilizes “materials that have not yet undergone analytical treatment or that can still be reworked according to the research objects” (Gil, 2002, p. 45). For the documentary survey, data from ABED (2023) were considered to collect information related to distance education; data from Inep (2022) were examined to verify information from the Higher Education Census, Pisa, and Ideb; information from MEC (2007), the Ministry of Science, Technology, and Innovations (MCTI), and the non-governmental organization Todos pela Educação was gathered to collect data on distance Licentiate

courses; and data from OCDE (2020, 2023) were used to gather results on the performance of Brazilian students.

Regarding the analysis method, the data were, after collection, read, selected, organized, and qualitatively interpreted through content analysis according to Bardin’s perspective (2016), in order to achieve the objectives of the present research (Pimentel, 2001). The unit of analysis consisted of the records of the selected documents for analysis.

4. Results and Analysis

The first results of the Program for International Student Assessment (PISA) were released in December 2001, corresponding to the year 2000. It is important to note that the assessment occurs every three years; however, its implementation was postponed in 2021 and 2024 due to the COVID-19 pandemic. Consequently, the assessment scheduled for 2021 took place in 2022, and the next assessment will occur in 2025.

Table 1 presents the average scores of Brazilian students across all three domains in all editions of PISA (these data were obtained from PISA reports), comparing them to the number of graduates in both distance and in-person degree programs. These data were sourced from the Higher Education Census for each year, available on the website of the Ministry of Science, Technology, and Innovation (MCTI), as well as from the website of Todos pela Educação, which is one of the leading educational NGOs in Brazil that works with statistical data from the Ministry of Education (MEC).

Table 1 - Average PISA Scores vs. Graduates in Distance Education Licensure Programs Year of PISA Administration

Year of PISA Administration	Average Reading Scores of Students	Average Science Scores of Students	Average Mathematics Scores of Students	Graduates in Licensure Programs by Modality		
				In-Person	Distance Education	Percentage of Distance Education Graduates Relative to In-Person Graduates
2000	396	390	356	91.091	-	-
2003	403	390	356	141.854	4.005	2,8%
2006	393	390	370	170.265	18.698	11%
2009	412	405	386	154.530	87.006	56,3%
2012	407	402	389	146.262	75.451	51,6%
2015	407	401	377	150.789	84.569	56,1%
2018	413	404	384	131.440	116.797	88,9%
2022	410	403	379	90.203	165.284	183%

Source: Research Data, 2024.

Based on the data presented in Table 1, it is observed that, across all three domains, there is a variation in scores over time, with some fluctuations but an overall trend of improvement or stability. The reading scores show an initial increase, followed by a decline and then a recovery, with stability observed since 2009. In science, there is a continuous increase in average scores until 2018, after which there is a slight decline. The analysis of mathematics scores presents an increase until 2012, followed by fluctuations with a slight decrease in 2015 and a partial recovery until 2022.

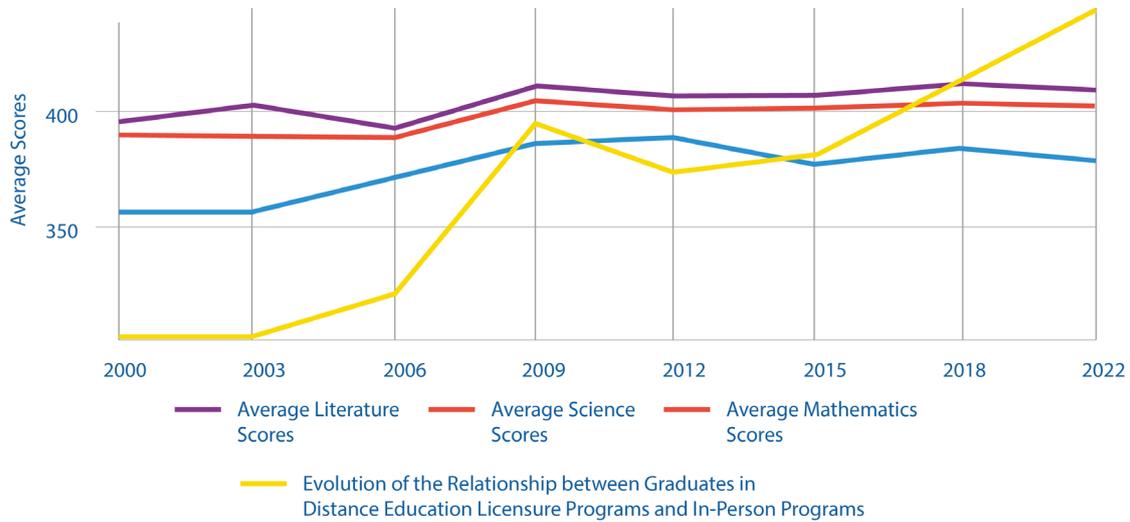
The Campanha Nacional pelo Direito à Educação (National Campaign for the Right to Education), which is a coalition within the Brazilian educational sector comprising groups and entities across Brazil, including school communities, unions, non-governmental organizations, and student groups, stated that the results of PISA “echoed widely in the press. However, the relationship between the world’s most discussed exam and the quality of education is not so simple or automatic” and emphasized that the program “must be regarded for what it is: an assessment of performance in specific areas of knowledge. Therefore, it does not capture all angles of the educational phenomenon” (Gaspar, 2019).

Regarding the graduates in distance education (EaD) licensure programs, it is observed that there is an absence of data for the year 2000. This is the year in which the Ministry of Education (MEC) initiated the process of promoting distance education as a means to democratize access to higher education, according to the NEaD Portal of the State University of Maringá, in 2023. Only in 2001, as indicated by a comparison made in the 2009 Higher Education Census, did Brazil have 131 graduates from licensure programs, all from public institutions at the state level, stemming from the first initiatives.

The second observation concerning the data in Table 1 is that there is no correlation between the low scores of students in the three domains and teacher training through distance education. Furthermore, it is impossible to determine which students were taught by instructors with in-person training and which were taught by instructors with distance education training, as the National Institute of Educational Studies and Research (Inep) does not possess this data, nor does any other governmental body in the country. Thus, the minister’s assertion would only be meaningful if, starting from a certain year, all licensure programs were offered in the distance education modality, which does not reflect the Brazilian reality.

Through Graph 1, it can also be observed that the increase in graduates from distance education (EaD) licensure programs does not indicate a decline in students’ scores in the PISA assessments.

Graph 1 - Comparison between PISA Scores and the Growth in the Number of Graduates in Distance Education Licensure Programs



Source: Research Data, 2024.

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It is also pertinent to include here the average results of the Basic Education Development Index (IDEB), which is the primary indicator of the quality of basic education in Brazil. According to Vieira (2020), it is an assessment created by the Ministry of Education (MEC) in partnership with the National Institute of Educational Studies and Research (Inep) aimed at measuring the quality of basic education in Brazil. The assessment is conducted through the administration of tests in Portuguese and mathematics for students in both public and private schools. The IDEB evaluates student performance at the conclusion of educational stages, specifically in the 5th and 9th grades of Elementary School and the 3rd or 4th year of High School. The results are then used to calculate the index, which ranges from 0 to 10 (Vieira, 2020).

The IDEB is calculated based on the school approval rate and student performance in Portuguese and mathematics assessments administered by the Basic Education Assessment System (SAEB). This index is related to two components:

- 1º) School Approval Rate: This is obtained from data from the School Census and considers student approval, failure, and dropout rates.
- 2º) Student Performance: This refers to the scores of students in Portuguese and mathematics tests, which are standardized on a scale of 0 to 10.

The IDEB is the product of these components: $IDEB = Approval\ Rate \times Student\ Performance$. For example, if a school has an approval rate of 0.9 (90%) and an average performance score of 6, the IDEB for that school would be calculated as follows: $IDEB = 0.9 \times 6 = 5.4$. This index ranges from 0 to 10 and is used to set quality targets for basic education in Brazil. Tables 2, 3, and 4 present the average proficiency scores from 2005 to 2021, as the results from the latest assessment in 2023 have not yet been released. It is important to note that the data in Tables 2, 3, and 4 were obtained from Inep reports.



Table 2 - IDEB - Early Years of Elementary School

Observed IDEB - Early Years of Elementary School										
	2005	2007	2009	2011	2013	2015	2017	2019	2021	2023
Total	3.8	4.2	4.6	5.0	5.2	5.5	5.8	5.9	5.8	6.0
Administrative Dependency										
Estadual	3.9	4.3	4.9	5.1	5.4	5.8	6.0	6.1	5.9	6.0
Municipal	3.4	4.0	4.4	4.7	4.9	5.3	5.6	5.7	5.5	5.8
Privada	5.9	6.0	6.4	6.5	6.7	6.8	7.1	7.1	7.1	7.2

Source: Research Data, 2024.

Table 3 - IDEB - Final Years of Elementary School

Observed IDEB - Final Years of Elementary School										
	2005	2007	2009	2011	2013	2015	2017	2019	2021	2023
Total	3.5	3.8	4.0	4.1	4.2	4.5	4.7	4.9	5.1	5.0
Administrative Dependency										
Estadual	3.3	3.6	3.8	3.9	4.0	4.2	4.5	4.7	5.0	4.9
Municipal	3.1	3.4	3.6	3.8	3.8	4.1	4.3	4.5	4.8	4.6
Privada	5.8	5.8	5.9	6.0	5.9	6.1	6.4	6.4	6.3	6.3

Source: Research Data, 2024.

Table 4 - IDEB - High School

Observed IDEB - High School										
	2005	2007	2009	2011	2013	2015	2017	2019	2021	2023
Total	3.4	3.5	3.6	3.7	3.7	3.7	3.8	4.2	4.2	4.3
Administrative Dependency										
Estadual	3.0	3.2	3.4	3.4	3.4	3.5	3.5	3.9	3.9	4.1
Privada	5.6	5.6	5.6	5.7	5.4	5.3	5.8	6.0	5.6	5.6

Source: Research Data, 2024.

With the presented data, it is observed that, concurrently with the growth of teachers trained through distance education (EaD) from the mid-2000s until 2022, there has been a continuous cycle of improvement in IDEB results between 2005 and 2021. In the early years of Elementary School, the average increased by 2 points, rising from 3.8 to 5.8 points. In the final years of Elementary School, there was a growth of 1.6 points, with scores increasing from 3.5 to 5.1 points. In High

School, an improvement of 0.8 points was noted, moving from 3.4 to 4.2 points. This improvement also includes a reduction in the number of unqualified teachers—those with no formal teaching training—in classrooms, with the distance education modality significantly contributing to this progress.

5. Final Considerations

At the end of this research, it was possible to answer the question that originated it: can it be affirmed that the results obtained by Brazil in PISA, regarding students' academic performance, are related to teacher training conducted through distance education? The answer is no, as it is unknown which modality of education the teachers of the program participants received, and the average scores of students did not decrease as the number of graduates from distance education licensure programs increased. Furthermore, the results also showed that from 2000 to 2006, when the number of graduates from distance education licensure programs represented a very low percentage compared to in-person programs, the average scores in reading, mathematics, and science were lower than in subsequent years.

Moreover, factors such as school infrastructure, educational policies, sociocultural context, and student motivation, among others, also play crucial roles in academic performance. The complexity of the educational system prevents a simple relationship between distance education and the results obtained. Therefore, it is believed that reducing the number of distance education licensure programs and/or decreasing the number of hours of courses offered online in licensure programs is not the solution for improving the quality of teacher training.

When it comes to the models of in-person and distance education, it is important to consider that both require constant evaluations for adjustments and improvements. Distance education (EaD) as it is known today, mediated by technology, is a relatively new model, given that the first courses offered were less than 20 years ago. The initial licensure courses offered in the EaD modality were still undergoing a process of readjustment.

Carvalho and Pimenta (2010) note that the early course projects were based on in-person models transposed to the EaD format, characterized by numerous in-person moments, few changes in syllabi and activities, and a lack of defined roles for teachers and other stakeholders involved in the process, among other issues. Thus, it can be concluded that the first licensure cohorts that graduated in 2003 and in the following years faced various difficulties. As stated by the authors, "any innovation, especially in education, must be carried out cautiously when experimenting with new modalities, especially those that incorporate technological elements, as is the case with EaD" (Carvalho & Pimenta, 2010, p. 121).

It should also be noted that, with the increase in the workload in distance education licensure courses, the face-to-face support centers, which are facilities set up in municipalities to assist students only in specific activities, will need to undergo adjustments to become more than just a support structure. They will have to undergo a restructuring to accommodate the entire face-to-

face workload. However, it is known that in Brazil, many municipalities do not offer in-person higher education. Moreover, many institutions will face various challenges in adapting their structures accordingly.

Thus, with the new government regulations, many students will have to abandon the dream of pursuing a degree through distance education (EaD). When a distance education program becomes unfeasible, it also undermines the inclusion of students who are suited only for this modality. The São Paulo State Department of Science, Technology, and Innovation articulates this point: “We will have to close public distance education licensure courses. We cannot offer 50% in-person instruction.” This statement refers to Univesp, established in 2012 by the State of São Paulo, which graduated more than five teachers just in the year 2023. Furthermore, this measure foresees a drastic reduction in the number of teachers trained in Brazil in the coming years.

From everything presented in this study, the thesis that the rise of teachers graduated from distance education licensure programs over the past 20 years is jeopardizing the quality of basic education in Brazil—a narrative put forth by the Ministry of Education (MEC) and reaffirmed by some institutions such as Todos pela Educação and Instituto Singularidades—can be challenged. It is possible to assert that there is no factual basis that proves this correlation.

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