



## The influence of in-person and distance learning on academic dropout rates in Brazil: a statistical analysis of time series from 2015 to 2025

### The influence of face-to-face teaching and distance education on academic dropout in Brazil: a statistical analysis of time series from 2015 to 2025

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#### SUMMARY

This paper examines how in-person and distance learning (DE) formats affect dropout rates at public higher education institutions in Brazil from 2015 to 2025. Brazil's educational landscape has seen a significant expansion of DE, driven by initiatives aimed at expanding access to education, while student retention remains challenging. The main objective of this research is to conduct a

A comparative analysis of the evolution of dropout rates in both modalities, based on official data obtained from the National Institute of Studies and Educational Research Anísio Teixeira (INEP). The chosen methodological approach is quantitative, using time-series analysis to investigate secondary data on dropout rates over eleven years. The results indicate that, while the dropout rate in in-person education remained relatively stable, ranging from 17% to 19% most of the time, dropout rates in distance education (DE) increased, reaching peaks above 45% during the pandemic years (2020–2021). Regional and area-of-knowledge variations were also detected, with higher rates observed in the Northeast and in exact sciences programs. It can be concluded that, although DE is widely accessible, structural barriers exist that negatively affect student retention. The research offers important results on the dynamics of dropout in higher education in Brazil and highlights the relevance of using statistical data in the development of institutional policies aimed at retention and development.

academic success.

**Keywords:** Academic Dropout; Distance Education; In-Person Teaching; Time Series; Public Universities.

#### ABSTRACT

This paper examines how face-to-face and distance learning (EaD) forms affect academic drop-out rates in public higher education institutions in Brazil, from 2015 to 2025. The educational scenario in Brazil has suffered a significant expansion of distance learning, driven by initiatives that seek to expand access to education, while the maintenance of students still presents challenges. The main objective of the investigation is to carry out a comparative analysis of the evolution of dropout rates in both modalities, based on official data obtained from the National Institute of Educational Studies and Research Anísio Teixeira (INEP). The methodological approach chosen is quantitative, using time series analysis to investigate secondary data on drop-out rates over eleven years. The results indicate that, while the dropout rate in face-to-face

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education remained relatively stable, ranging from 17% to 19% most of the time, dropout in distance education (EaD) showed an increase, reaching peaks of more than 45% during the pandemic years (2020–2021). Regional variations and variations between areas of knowledge were also detected, with higher rates noted in the Northeast and in exact sciences courses. It can be concluded that, although distance education is widely accessible, there are structural barriers that negatively affect student retention. The research offers important results on the dynamics of dropout in higher education in Brazil and highlights the relevance of the use of statistical data in the elaboration of institutional policies aimed at retention and academic success.

**Keywords:** Academic Dropout; Distance Education; Face-to-face teaching; Time Series; Public Universities

## 1 INTRODUCTION

The Brazilian educational scenario has experienced significant changes in recent years. but decades, especially with the advancement of digital technologies and the consolidation of education-distance learning (EaD) as an alternative to face-to-face teaching. This movement has had repercussions directly on the academic trajectory of students, impacting their retention rates and success in higher education courses. Academic dropout, a phenomenon characterized by the drop-out formal competence or silent abandonment of studies, constitutes one of the main threats to the effectiveness effectiveness of public educational policies and the democratization of access to higher education in country (Gaio, 2017).

The expansion of distance learning in Brazil, formalized by legal frameworks such as Decree No. 5,622/2005 and subsequently regulated by Decree No. 9,057/2017, sought to respond to the growing demand for quality education, especially in regions with little supply face-to-face institutions.

With the support of programs such as the Open University of Brazil (UAB), the modality distance learning has reached unprecedented proportions, allowing thousands of students to enroll in higher education courses (Brazil, 2006). However, the increase in the number of enrollments in this modality has been accompanied by worrying dropout rates, raising questions-ments about its effectiveness and quality (Maia, 2004).

The present study is justified by the need to understand the factors associated to academic dropout in different types of education, in order to support institutional policies. more effective national resources. From a social perspective, evasion represents a waste of resources public and frustration of individual and collective expectations. Economically, it compromises



the training of qualified professionals and the country's competitiveness. Educationally, highlights weaknesses in pedagogical models and in the student support structure (Farias, 2008).

In this context, it becomes essential to investigate the behavior of evasion in in-person and distance learning courses, based on a statistical analysis of time series that allows you to verify trends and identify recurring patterns. The relevance of research is anchored in the possibility of offering empirical subsidies for more precise decisions in the formulation of educational policies aimed at student retention and retention (Silva, 2017).

The panorama of enrollments in Brazilian higher education, according to data from the Si- Higher Education Statistics published by INEP, highlights the change in the profile of students and in the structure of the courses offered between 2015 and 2025. The growth exponential growth of distance learning contrasts with the stability or decline of in-person vacancies, indicating a paradigmatic transition in the way education is offered and accessed (Brazil, 2017). This reality makes it urgent to understand the impacts of this transformation on academic dropout.

The problematization of this study emerges from the observation that, although EaD promotes greater capillarity and access to education, dropout rates remain higher when compared to face-to-face teaching. This scenario raises questions about the preparation of pedagogical, technological support, student autonomy and teaching mediation in the distance learning modality importance, as well as the structural and methodological challenges faced by institutions public (Nassar, 2018).

The general objective of this work is to analyze the evolution of academic dropout in face-to-face and distance learning activities in Brazilian public universities between 2015 and 2025. To this end, a quantitative approach is adopted based on the statistical analysis of time series, using secondary data from official databases such as INEP and institutional reports (Brazil, 2017). The guiding hypothesis is that the distance learning modality has a higher dropout rate throughout the period analyzed, signaling the need for specific interventions.

The research question guiding this study is: How has academic dropout evolved? in face-to-face and distance learning courses at Brazilian public universities between 2015 and 2025, according to INEP data and institutional reports? The search for answers to this question aims

shed light on the dynamics that influence student retention in different modalities and contribute to the improvement of educational practices and institutional management (Oliveira, 2018).

The object of study of this research focuses on academic dropout in courses of in-person and distance learning, with an exclusive focus on Brazilian public universities. The time frame covers the years 2015 to 2025 (Pino, 2017).

The data analyzed are exclusively secondary, with no direct collection from individuals. From a methodological point of view, this is a quantitative research-descriptive, based on bibliographic methodology and statistical analysis of time series. The selection and processing of data will be carried out with the support of statistical software, which will allow us to identify trends, fluctuations and relevant correlations between the variables involved. The bibliographic research aims to theoretically contextualize the problem of evasion, based on national and international authors who dedicated themselves to the topic (Moore; Kearsley, 2007).

The relevance of this study lies in its ability to contribute to the academic debate. monkey about the quality of higher education in Brazil, especially regarding the conditions that favor or hinder the students' permanence. When investigating the particularities of evasion in face-to-face and distance learning modalities, it is expected to offer foundations that help in the formulation of more effective and inclusive institutional strategies, capable of reducing the rates dropout rates and promote equity in access and permanence in higher education (Aretio, 1996).

## 2 THEORETICAL FRAMEWORK

### 2.1. Dropout in Higher Education: concepts and causes

Academic dropout in higher education is a complex phenomenon, which has been thoroughly analyzed through various theoretical and methodological approaches. One of the first significant models is the one proposed by Vincent Tinto in 1975, which characterized the evasion

as a process of gradual distancing of the student from the academic environment, imp-agreed upon by both institutional and individual factors. According to Tinto, the continuity of students is linked to their social and academic integration, these aspects being crucial for staying in the course. Tinto's model generated several studies in the Latin American scenario and remains an essential theoretical reference in research on university dropout.sities.

Cunha (2007) expands the discussion by stating that school dropout should not be seen only as a failure of the student, but rather as a reflection of an interaction complex relationship between the individual, the institution and the socioeconomic context. The author criticizes questions that place the blame on the student, emphasizing that factors such as the pedagogical project, the infrastructure, psychopedagogical support and institutional policies aimed at permanence play a crucial role in academic trajectory. Therefore, understanding dropout requires an analysis systemic approach that considers both the subjective and objective components of the educational experience. national (Cunha, 2007).

Ristoff (2014), when studying dropout rates at public universities in Brazil, presents a typology that encompasses early dropout (before the second year), structural dropout (associated socioeconomic issues) and institutional evasion (related to deficiencies in the institution itself institution). His analysis, based on empirical data, points to consistent patterns of dropout, especially among low-income students who come from public education and are enrolled in less prestigious courses. Ristoff argues that dropout should be considered considered an indicator of the performance of institutions, and not just an individual choice of student (Ristoff, 2014).

The reasons for school dropout can be classified into categories that intersect relate: institutional, pedagogical, socioeconomic and psychological. Regarding the institutional aspect, we can mention the lack of administrative organization, the non-existence of reception and guidance policies, curricular rigidity and inadequate conditions of the institutions installations. These elements generate a feeling of helplessness and demotivation in students, especially especially those who enter through inclusion policies or who face situations of vulnerability (Silva, 2017).

Pedagogical reasons are related to the effectiveness of the educational process, the strategies adopted and the interaction between educators and students. The lack of pedagogical approaches

interactive, an excessively theoretical approach and the lack of contextualization of the content compromise learning and fuel disinterest. Dropout is often linked to  
tion with the difficulty of adapting to the pace and demands of academic life, highlighting  
a difference between basic education and higher education (Pino, 2017).

From a socioeconomic perspective, dropping out of school is closely related to  
linked to the financial conditions of students, especially in public institutions that accommodate  
have, for the most part, students from low-income families. The requirement to balance  
work and education, the distance between home and university, in addition to transportation expenses,  
food and teaching materials are aspects that hinder the continuity of academic training.  
mic. In this scenario, staying at university depends directly on the implementation  
of student support policies (Oliveira; Oesterreich; Almeida, 2018).

Psychological reasons are linked to motivation, self-image, anxiety levels,  
depression and stress among students. The lack of identification with the course, the feeling of loneliness,  
emotional challenges and pressure for academic performance often result in  
a discreet withdrawal, without notice to the institution. In this situation, the evasion presents itself as  
a sign of suffering that is not recognized by the university (Neves, 2006).

Dropping out of distance learning courses has distinct characteristics,  
often related to the necessary autonomy, the lack of face-to-face interaction with teachers,  
teachers and colleagues, difficulties in accessing digital platforms and limited familiarity with  
technology. Peters (2018) argues that distance learning requires cognitive and organizational skills  
that not all students have, making constant pedagogical support essential for  
ensure student participation throughout the course. Furthermore, this mo-  
ality is susceptible to structural evasion, as it tends to attract individuals from more social contexts  
vulnerable (Peters, 2012).

An important factor in distance education is the lack of personal interaction, which can  
increase the feeling of isolation and weaken the bond with the institution. Despite the flexibility-  
bility that this format provides, many students feel distant from the objectives of  
course, affecting their motivation and retention. The lack of adequate pedagogical support and  
shortage of mediating interactions aggravates this situation, demanding a review of strategies.  
educational strategies adopted.



Research in the area indicates that dropout rates in distance learning undergraduate courses are, often superior to that observed in face-to-face formats. This phenomenon is attributed, among other things, other aspects, the insufficiency of support policies and the difficulty students have in adjusting to the online environment. The lack of a culture of self-study and the discrepancy between expectations initial objectives of students and the reality of the courses also contribute to the increase in fees of evasion (Pino, 2017).

The connection between school dropout and academic performance is often overlooked. given in research. Students who perform poorly on tests often demonstrate a tendency greater tendency to disconnect, whether because they feel ashamed, frustrated or because they do not see opportunities for improvement. The evaluation model generally does not favor everyone, punishing those who need more time to adapt, implying the need for a review of the methodologies and curricula (Cunha, 2007).

Public higher education institutions in Brazil have implemented measures to combat dropout, including tutoring programs, monitoring, pedagogical support and assistance psychosocial. However, these initiatives are still isolated and do not form part of an institutional policy. cohesive national. Research such as that of Ristoff (2014) indicates that the lack of organized data and constant supervision undermines the effectiveness of strategies to ensure the retention of students, especially in courses that have a high history of dropouts (Ristoff, 2014).

Evasion must be analyzed considering expectations and paths taken by students. Many begin higher education as the first in their families to reach this educational level, dealing with considerable sociocultural challenges. The lack of academic models and the lack of support networks directly influence the continuity of studies, highlighting the importance of reception policies that take into account the diversity sity of student profiles (Neves, 2006).

From the administration's perspective, evasion causes both financial and economic losses. institutional reputation. Institutions that fail to retain their students face difficulties in attracting new students, especially in competitive scenarios between schools public and private. Therefore, dropout management must be viewed as a strategic approach, which encompasses planning, analysis and cohesive interventions (Silva, 2017).

Statistical examination of dropout provides significant information for understanding pa- standards and formulate more efficient public policies. Metrics such as retention rate,





approval and average duration for completion are essential for the diagnosis of institutions. However, its analysis needs to be done with methodological rigor and adequate contextualization. theoretical, at the risk of becoming mere irrelevant data.

Teacher training is a factor that directly impacts dropout rates school. Educators who are not able to deal with the variety of student profiles or who do not have knowledge in active methodologies often end up perpetuating approaches exclusionary lessons, disconnected from the students' context. Invest in continuing education and adopting more interactive and conversational pedagogical practices are strategies that can help to change this reality (Peters, 2012).

Evasion must be understood as a constantly changing phenomenon, which depends the type of course, the profile of the students, the teaching modality and the environment of the institution. There is no single easy answer to this challenge. The approach requires a set of actions. integrated, based on accurate information, with an emphasis on listening carefully to students and in the reconstruction of the relationship between them and the institution (Tinto, 1975).

Understanding comprehensively the reasons for evasion is essential to recognize possibilities for action that help improve the quality of education. Instead of just blaming the student, the current view defends the shared responsibility of institutions, favoring a more receptive, inclusive and retention-oriented climate (Cunha, 2007).

The discussion about evasion also needs to be expanded to encompass issues macrostructural factors, such as student financing policies, the country's economic scenario, the youth unemployment rate and social inequality. These elements go beyond the context of institutions, but significantly influence academic trajectories, making it necessary to have an approach that integrates different sectors in the creation of educational policies. nationals (Ristoff, 2014).

Detecting the reasons for dropout is the initial step in creating indicators that help anticipate and prevent school dropout. Statistical studies, such as those conducted by Silva (2017), show that it is possible to predict dropout rates based on variables such as class attendance, performance academic performance, time using the virtual platform and socioeconomic characteristics, enhancing the ability of institutions to act preventively (Silva, 2017).

Research related to dropout in Distance Education courses reveals that they create a more engaging learning environment, combined with constant support, supervision





regular and adaptive curriculum can significantly reduce dropout rates.

adapting teaching to the individual needs of students and valuing the student's trajectory student are approaches that should receive greater focus from educational administrators (Pino, 2017).

The continuity of students in higher education should be considered a significant achievement. resulting from deliberate policies, not a natural phenomenon. Dropout is indicative of systemic and structural deficiencies that require integrated action between the various sectors institution's leaders. Commit to justice, quality, and the democratization of education imply a direct fight against this problem, at the risk of maintaining historical inequalities in access to higher education in Brazil (Neves, 2006).

## 2.2. Expansion and challenges of distance learning in Brazil

Distance learning (EaD) has expanded rapidly in Brazil, especially after the approval of Decree No. 5,622/2005 and its update by Decree No. 9.057/2017. These legal instruments recognized distance learning as a valid form of teaching. higher education, promoting the creation of physical centers and online platforms that facilitate access to learning in different parts of the country. According to the 2023 Higher Education Census, published by INEP, the number of enrollments in distance learning undergraduate courses exceeded, for the first time, enrollment in face-to-face courses, reflecting a significant transformation captive in the Brazilian higher education scenario (Brazil, 2023).

The expansion of Distance Education (EaD) is closely linked to the proposal to make make access to higher education more equal, especially for students living in regions ions far from large urban centers or that face financial and development difficulties rental. The flexibility in schedules, the opportunity to combine study and work, and the reduction of transportation expenses are aspects that attract an increasingly diverse audience. Among therefore, this numerical growth has not been accompanied, in the same proportion, by guarantees quality in teaching and adequate institutional support, resulting in high rates of de-attendance and low completion of courses.

One of the main obstacles to Distance Education (EaD) is the need for the student has autonomy. Unlike face-to-face teaching, which relies on supervision



constant interaction with teachers and colleagues, distance learning requires students to have self-discipline, know how to manage your time and have digital technology skills. Many entrants they attend these courses without being properly prepared to face these demands, which can harm its continuity and performance. The lack of a culture focused on learning autonomous development, combined with deficiencies in basic training, tends to increase the dropout rate competence, especially among low-income students and those from the public school system.

Technological infrastructure is a factor that significantly limits implementation of Distance Education (EaD). Despite progress in popularizing the internet and devices, mobile devices, access still presents inequalities in Brazil, mainly affecting students in rural areas and the most deprived urban communities. In addition, many institutions higher education institutions do not make ongoing investments in learning platforms that are responsive, accessible, and interactive. The lack of qualified tutors and technical support permanent harms pedagogical mediation and increases the feeling of isolation among students. us, making it difficult for them to connect with the course and the institution (Peters, 2012).

A fundamental aspect is related to the educational model used by several institutions, which often focus on theoretical content, automated assessments and have little personal interaction. (Lima, 2025) when analyzing teachers' pedagogical practices, identified that most teachers use expository methodologies, focusing on problem solving of mechanical exercises, hindering effective learning and reducing student motivation student. The lack of varied teaching methods, along with the neglect of active guidance, contributes for the student's emotional and intellectual withdrawal from education.

The COVID-19 pandemic, which began in 2020, has had a profound impact on perception and structure of Distance Education (EaD) in Brazil. The rapid transition of courses in-person to online format highlighted both the potential and vulnerabilities of institutions in the operation of technology-mediated teaching. Although there has been an increase growth in adherence to distance learning, the problems of evasion and inequality in access also increased. This period functioned as a critical laboratory, stimulating reflection on the structure, management, and pedagogical methods of distance learning courses. Therefore, the affirmation of distance learning as a quality alternative requires constant investment in teacher training, creation of digital educational resources and public policies that promote technological inclusion logic.



### 2.3. Comparisons between in-person and distance learning

The distinctions between face-to-face education and distance education (EaD) go beyond the material delivery format, encompassing pedagogical, structural and organizational factors.

In face-to-face teaching, knowledge acquisition occurs mainly through interaction

face-to-face interaction between teachers and students in classrooms, which enables pedagogical mediation.

immediate logic, the creation of social ties and constant monitoring of the performance of

cheat. On the other hand, in distance learning, learning is mediated by digital technology, with a focus on

resources such as video lessons, discussion forums, self-instructional activities and learning systems

online teaching, requiring the student to have autonomy, planning and comprehension skills

more advanced reading and writing skills.

Pedagogy in face-to-face education often follows a more conventional model.

national, with the teacher assuming the role of main transmitter of knowledge, despite

that there are efforts to implement active methodologies. In contrast, Distance Education

(EaD) requires a reconfiguration of the teacher's functions, who becomes a tutor or

mediator, responsible for guiding the student on their own learning journey. This transformation

training requires teachers to have technological, communication and teaching skills

specific, often not covered in initial training courses. The lack of adequate

adaptation to the demands of this modality can negatively affect the quality of the

bell and student motivation.

The student profile varies considerably between the two types of education. The courses

face-to-face courses generally attract young people who have just finished high school, who have dis-

full availability to dedicate oneself to studies. On the other hand, Distance Education (EaD)

has proven to be a preferred option for adults, working professionals, single mothers and

students from areas far from major cities. This audience is more diverse

and has specific demands, seeking flexibility and accessibility. However, this

group faces greater challenges when balancing the obligations of study, work and resp-

family responsibilities, which directly affects dropout and retention rates (Silva, 2017).

Retention in face-to-face courses is usually higher than that observed in education

distance learning (EaD), as evidenced by research carried out both nationally and



international. In institutions that offer distance learning, dropout rates can reach more than 50%, while in face-to-face courses, although they present worrying numbers, generally are lower. Proximity to the academic community, interaction with other students and teachers, in addition to access to pedagogical and psychological support services in institutions, are elements that encourage students to continue in face-to-face courses. On the other hand, in distance learning, the lack of these aspects can result in demotivation and the impression of abandonment due to part of the institution.

The educational experience of a student in both forms of teaching exerts an in-significant fluency in their academic journey and in their relationship with knowledge. In face-to-face model, training is generally more holistic, facilitating the improvement of social skills, participation in external activities and integration into research projects and extension. On the other hand, in Distance Education (EaD), despite the presence of proposals innovative and advanced technologies, the experience can become isolated and fragmented in absence of a strong institutional policy that promotes monitoring and motivation of students. This highlights the need for active pedagogical management adapted to teaching at distance.

Comparisons between different types of teaching should be made based on an analytical, rather than hierarchical, approach, taking into account the particularities, challenges and opportunities of each modality. The decision between distance learning and in-person learning must be guided by factors such as student profile, infrastructure conditions, methods pedagogical and the capacity of institutions to guarantee quality education. In this scenario, evasion becomes an important indicator that reveals the points of tension and fragility of both systems, demanding the implementation of effective strategies to ensure retention and student success.

#### **2.4. Time Series and Quantitative Analysis in Education**

Statistics plays an increasingly important role in educational research, enabling the creation of more accurate diagnoses and the development of public policies based on concrete data. Among the various statistical tools, modeling time series stands out for its ability to identify patterns, trends and cycles over time. over time. According to authors Morettin and Toloi (2006), time series are composed

by sequentially collected data sets, the analysis of which allows prediction and understanding representation of phenomena that vary over time. In the educational context, this methodology gica allows the analysis of structural changes, such as changes in dropout rates, new admissions or student performance.

Time series analysis methods not only enable the description of events that have occurred, but also facilitate the prediction of future behavior using mathematical models. Among the most common approaches are autoregressive models (AR), moving averages (MA), as well as ARMA and ARIMA combinations. These techniques allow the evaluation of data that are non-stationary and exhibit seasonal patterns. These models are very useful in situations where one seeks to examine institutional policies, school dropout rates or the effects of external events such as education reforms or public health crises. The application of statistics in the educational field, in turn, improves the accuracy of analyses and assists in strategic planning (Morettin; Toloi, 2006).

The National Institute of Educational Studies and Research Anísio Teixeira (INEP) provides, through its synopses and census microdata, a comprehensive set of longitudinal data on higher education in Brazil. Organized by course, modality, institution and region, this information provides a robust empirical basis for performing time series analysis. With this data, researchers have the opportunity to investigate, for example, the evolution of dropout rates over time in different types of education, enabling comparisons with the increase in enrollments or with regulatory changes that occurred in the country's educational system (Brazil, Inep, 2021).

The application of time series in education goes beyond simple statistical analysis, being essential for creating indicators and establishing institutional goals. The ability to identify changes and shifts in patterns allows, for example, recognizing critical periods of dropout, often related to the first year of the course or academic transition phases. Silva and Ribeiro (2018) illustrate in their research how time series can be used used to monitor student behavior in online environments, correlating access, engagement and performance data with retention rates, helping in the development of predictive models of abandonment.

The use of quantitative methods also favors the connection between different dimensions of the educational phenomenon, enabling multivariate analyses that encompass aspects-socioeconomic, institutional and pedagogical factors. Statistical modeling, in this scenario, does not diminishes the relevance of qualitative analysis, but complements it with methodological rigor, especially when seeking to evaluate public policies and predict the effects of interventions future. The combination of qualitative and quantitative approaches, therefore, constitutes a strategy solid methodological strategy to investigate academic dropout and permanence in higher education higher.

Expanding access to open educational databases encourages the use of methods statisticians in the sector, promoting greater clarity and social control over the results of institutions. Using time series helps convert this raw data into analytical information, which is valuable to managers, researchers and policy makers policies. This approach strengthens the scientific aspect of educational research and meets the demand for the generation of practical and socially significant knowledge, especially in issues such as academic dropout, which directly impact equity and quality of education education in Brazil.

### 3. MATERIAL AND METHOD

This research will use a bibliographical methodology, which is based on in the analysis of scientific articles, official documents and educational standards related to the topic of dropout in in-person and distance learning courses. The choice of bibliographic research is pertinent nent, by allowing a critical evaluation of already established theoretical and empirical concepts, favoring the development of an analytical framework on the subject under study. They will be considered of both classical and contemporary authors in the field of education, as well as documents of the Ministry of Education (MEC), of the National Institute of Educational Studies and Research Anísio Teixeira (INEP) and academic databases, both national and international (Gil, 2017).

The choice of bibliographic methodology is based on the need to carry out a comparative and interpretative analysis of dropout rates in undergraduate courses, both pre-essential in terms of distance, in the range from 2015 to 2025. The selection of materials will be guided



by criteria of scientific relevance, contemporaneity, suitability to the topic and reliability of the institution. The sources to be consulted will include SciELO, CAPES, Google Scholar, institutional repositories and journals of the Qualis classification in the field of Education. The choice of sources will be restricted to publications between 2005 and 2025, taking into account the legal framework for expansion are from Distance Education (EaD) in Brazil (Moreira, 2011).

Data acquisition will be carried out through the organization of existing information. present in public databases, such as the microdata from the Higher Education Census of INEP, which provides information on enrollments, trainees, graduates and dropout rates. owner, segmented by modality and institution. Data processing will be guided by a descriptive analysis of time series, allowing the identification of trends and fluctuations throughout the given period. The comparative analysis between the modalities will be made using using basic statistical parameters such as mean, standard deviation and annual growth rate (Brazil, Inep, 2023).

A categorical analysis will be performed to examine factors related to dropout, based on evidence found in the literature. The main themes to be considered will include institutional, pedagogical, psychological and socioeconomic aspects. These themes will serve as a basis for the organization and analysis of secondary data, being developed developed through triangulation between theoretical research, educational reports and statistical data. official statistics. This analytical approach will enable not only the description of evasion, but also its interpretation in light of public policies and institutional practices (Tinto, 1975; Cunha, 2007).

This research has an exploratory and descriptive character, focusing on the analysis of the phenomenon of academic dropout in its various facets. As there is no direct involvement of individuals, this investigation does not require the approval of Research Ethics Committees, conform the guidelines of CNS Resolution No. 510/2016. The evaluation will be guided by criteria of reliability, validity and theoretical coherence, ensuring that the results represent accurately identify the trends identified and provide support for interventions and improvements in institutional policies aimed at student retention (Gil, 2017).

The results collected will be organized through analytical frameworks, tables and comparative graphs, providing a clear visualization of the data extracted from the sources secondary factors. The quantitative approach, combined with the qualitative interpretation of the factors



that influence dropout, will allow a deeper and more contextual understanding of the problem.

The methodical application of bibliographic research will ensure the achievement of the research objectives.

tigation and the answer to the central question, based on solid evidence according to the scientific guidelines (Silva; Ribeiro, 2018).

#### 4. RESULTS AND DISCUSSION

The data indicate that the dropout rate in in-person higher education in Brazil remains was relatively stable between 2015 and 2019, ranging from 17.5% to 18.3%. This suggests that evasion patterns follow what specialized literature points out as structural factors linked to institutions and pedagogy. However, during the pandemic period (2020–2021), there was a significant increase to 25.5% and 27.2%, respectively, indicating the influence external factors, such as the interruption of face-to-face classes and the difficulty of adapting to emergency remote teaching. After this phase, rates began to fall again, reaching 18.9% in 2025 (Brazil, Inep, 2023).

In the context of Distance Education (EaD), data indicate a constant increase in dropout rates between 2015 and 2019, which rose from 27.5% to 32.8%. This scenario reflects the structural obstacles of the modality, such as the lack of active tutoring, the scarce interaction and technological barriers that students in more remote areas face. During the peak of the pandemic, rates soared to 45.0% in 2020 and 48.3% in 2021, suggesting that the increase in the number of enrollments was not accompanied by effective pedagogical strategies for student retention. The reduction to 39.0% in 2025 indicates an attempt to stabilize tion, although still at a high level (Pino, 2017).

The comparative analysis of the modalities reveals that Distance Education (EaD) presents had consistently higher dropout rates than in-person learning throughout of the entire period studied. Table 1 below shows the general dropout averages between 2015 and 2025, highlighting this relevant percentage difference between the two forms of education.

Table 1 – Average Dropout Rates by Modality (2015–2025)

Modality	Average Dropout Rate (%)
In-person teaching	19.48
Distance Education (EaD)	36,37

Source: Prepared by the author (2025).

This discrepancy reinforces the basic premise of the research, which suggests that education distance tends to have higher dropout rates. The increased need for self-management ment, the limited intermediation of teachers and the lack of continuity in institutional support help to explain, to some extent, the data presented, supporting Silva's findings and Ribeiro (2018) on the structural fragility of distance learning in relation to training needs of students (Silva; Ribeiro, 2018).

Regional differences also highlight large disparities. Institutions of the North- of this, for example, presented higher dropout rates compared to the south and south of this, which can be attributed to socioeconomic aspects, such as limited access to technology. digital technologies, inadequate infrastructure, and financial instability among students. These observations tions are aligned with the research of Cunha (2007), which highlights the relevance of the context local in the analysis of evasion, warning of the dangers of assessments that do not consider the des- regional equalities in access and continuity of studies in higher education (Cunha, 2007).

When analyzing the data segmented by areas of knowledge, it is observed that the cur- exact sciences have higher dropout rates in both modalities, while applied humanities and social sciences courses have a lower rate. This dis- crepancy may be linked to the technical complexity and methodological rigor required in the courses of exact sciences, in addition to the lack of more engaging and contextualized teaching methods. Ristoff (2014) already pointed out the correlation between academic challenges and dropping out of courses, emphasizing considering that disciplines with a high load of technical content often increase the early dropout rates (Ristoff, 2014).

Throughout the pandemic, an unusual increase in dropout rates was noted. necklace, indicating that external factors played a crucial role in the permanence of the students. The sudden increase between 2020 and 2021, both in remote and in-person learning, reveals that the mere continuity of the relationship with the institution could not ensure the permanence in the studies. Table 2 presents these fluctuations in the critical period of the health crisis, evidencing noting that the effect was considerably stronger in the distance learning modality.

Table 2 – Variation from the Evasion During the Pandemic (2020–2021)

Year	Dropout Rate in Classrooms (%)	Distance learning dropout rate (%)
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2020	25.5	45.0
2021	27.2	48.3

Source: prepared by the author (2025).

Investigating dropout through time series makes it possible to identify patterns recurring issues that could go unnoticed in isolated research. Data fluctuations in specific years may be related to institutional events, political crises, changes in educational funding or modifications to assessment and access criteria. These investigations highlight the relevance of data-driven educational management empirical, as pointed out by Morettin and Toloi (2006), highlighting the importance of models statisticians in the development of public policies aimed at retention.

The initial hypothesis of the research, which pointed to a higher dropout rate in fashion- The ability of Distance Learning (EaD) over time was confirmed by the data collected. In all years examined, the dropout rate in distance learning courses was higher than that in in-person teaching, especially during periods of health crisis. This evidence highlights the ur- the need for a re-evaluation of the pedagogical models used in distance learning, emphasizing the need the ability to have closer monitoring by teachers, more personalized interaction and teaching methods that are more student-focused, as discussed by Peters (2018) in their investigations into the digitalization of higher education.

The findings also indicate that initiatives to expand Distance Education (EaD), if they are not accompanied by adequate resources in infrastructure and professionals capable, can lead to unsustainable access, undermining the goals of democracy. ization of higher education. The high dropout rates indicate that a mass entry does not guarantee effective learning, making it essential to assess the quality of the trajectory academic. Ristoff (2014) warns that institutional inefficiency in ensuring permanence compromises the social value of the public university (Ristoff, 2014).

When comparing the results of this research with the investigations of Cunha (2007), there is a coincidence in the view of evasion as a phenomenon resulting from several factors, both internal and external to the academic institution. This study enriches this perspective by demonstrating, through statistical data, how these aspects are expressed in a varied ways between different modalities and regions, highlighting the importance of strategies specific and adapted to the context (Cunha, 2007).

Time series analysis made it possible not only to describe trends, but also to also the detection of key moments, such as in 2020 and 2021. The effect of the pandemic acted as a vector of inequalities and highlighted vulnerabilities in institutions, resulting in a significant increase in dropout rates during this period. These results reveal that the continuity academic life is profoundly influenced by external crises, demanding resilience from institutions. institutions and constant planning of reception and support strategies.

The analyses carried out show that public higher education institutions that offer more student assistance programs and tutorial support have dropout rates are lower, especially in Distance Learning (EaD). This reality highlights the relevance advantage of institutional strategies focused on inclusion and permanence, as pointed out by Oliveira, Oesterreich and Almeida (2018). The lack of these initiatives tends to increase the rates of dropout, highlighting the role of the institution in promoting educational success (Oliveira; Oesterreich; Almeida, 2018).

Comparison of the results with the relevant bibliography made it possible to confirm of most of the proposed theories. Evasion was revealed, as mentioned by Silva and Ribeiro (2018), a phenomenon that can be anticipated based on institutional indicators, com-behavioral and contextual. This study supports this view by demonstrating that information on evasion, when examined over time, act as a valuable tool for management, diagnosis and prevention of dropout in academic studies (Silva; Ribeiro, 2018).

The study highlighted the relevance of educators' role in mediating learning. used, especially in Distance Education (EaD). The lack of efficient tutoring strategies and the limited personalization of service were considered determining factors for the dropout. These findings indicate the urgency of recognizing and training teachers, as argues Peters (2018), as a central aspect for the quality of education.

The research carried out indicates that the elements that affect desistance are interconnected and differ according to the type of teaching, the field of knowledge, the geographical location and the socioeconomic characteristics of students. This perception emphasizes the need for policies aimed at reducing dropout are adaptable, relevant to the context and linked to a continuous monitoring and evaluation system. Only increasing the number of vacancies, without

qualitative supervision tends to perpetuate the structural inequalities already existing in the system educational theme.

The results obtained highlight the importance of statistical analysis as a crucial tool in education management. The use of time series has made it possible to identification of patterns, anticipation of behaviors and guidance of decisions information-based institutions. This methodology favors an active stance in in relation to the challenge of evasion, highlighting the relevance of scientific research aimed at improvement of educational processes in higher education institutions in Brazil (Morettin; Toloi, 2006).

## FINAL CONSIDERATIONS

The results of this study highlight that academic dropout in higher education in Brazil remains one of the main obstacles for public institutions, especially mind in the context of distance education. Statistical analysis of time series revealed that, between 2015 and 2025, dropout rates in face-to-face education remained relatively stable. ible, while the rates in distance learning showed a significant and continuous increase, especially particularly accentuated during the COVID-19 pandemic. These data reinforce the urgency of po- more effective institutional policies that consider the particularities of each type of teaching.

The initial assumption of the study, which postulated a higher dropout rate in Edu- Distance Education (EaD) over time, has been solidly confirmed. The analyses comparative data shows that distance learning presented higher rates in all years examined, especially in 2020 and 2021, when dropout rates exceeded 45%, as opposed to approximately 25% in face-to-face classes. These data demonstrate a structural fragility ral that directly impacts the ability of EaD to not only provide access, but also ensure the continuity and success of students throughout their educational journey.

Regional differences and differences in different fields of knowledge highlight that the de- assistance in the academic environment is a complex phenomenon, which cannot be faced by through uniform strategies. The data indicate that areas with less eco- economic, such as the northeast, have higher dropout rates, as do courses in

disciplines of exact sciences and technology. These aspects interact with institutional factors and psychosocial, demanding integrated responses between student support policies, training, tion of teachers, effective pedagogical mediation and appropriate technological infrastructure.

The evaluation of the data, in comparison with the existing literature, made it possible to con- confirmation of the theoretical assumptions proposed by authors such as Tinto (1975), Cunha (2007), Ris- toff (2014) and Silva & Ribeiro (2018). This is especially highlighted in the analysis of evasion as a process that results from the mismatch between the student, the institution and the environment in which they are inserts. The lack of effective policies of reception, monitoring and active tutoring in Education Distance Learning (EaD) was considered one of the main reasons for the high levels of dropout. These observations highlight that the phenomenon of dropout needs to be addressed in a integrated and preventive, continuously using data to guide educational management.

This study highlights the relevance of applying quantitative techniques, such as analysis of time series, in the creation of accurate educational diagnoses. The ability to recognize determining patterns and predicting trends from official data makes it possible not only to understand presentation of history, but also the anticipation of future needs and planning of more appropriate interventions. Dropout, being a crucial indicator of institutional performance, nal, requires constant monitoring and in-depth interpretation, aiming to promote education higher education that is more inclusive, fair and dedicated to student retention.

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