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Student retention policies in higher education: reflections from a literature review for the Brazilian context

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Dropout in higher education is a matter of global interest, and several policies were created to encourage students to stay in universities. This article aimed to identify patterns of evaluation of student retention policies in higher education through a systematic literature review, selecting 39 documents from Scopus, Sage Journals, Web of Science, Google academic, and CAPES Periodicals. Regarding evaluation forms, the results indicated the predominance of analyses on the effects of policies on dropout. However, some studies evaluated students' performance and time to graduation. Research works were mostly applied in public university environments, which indicates a scarcity of scientific production about private educational institutions. As for the formats of permanence policies, the literature pointed out four types of aid with different natures: financial, assistance, based on academic merit, and by criteria of students' need/vulnerability. Based on the research, it was proposed that the evaluation of permanence policies should be threefold, considering permanence, performance, and time until graduation. Among the gaps in the literature, comparative studies between the types of policies were highlighted.

Keywords: permanence; student assistance; dropout; higher education; public policies.

Políticas de permanência estudantil na educação superior: reflexões de uma revisão da literatura para o contexto brasileiro

A evasão no ensino superior é uma questão de interesse global e, para reduzi-la, diversas políticas foram criadas visando ao incentivo da permanência de alunos nas universidades. Este artigo objetivou identificar padrões de avaliação de políticas de permanência estudantil na educação superior mediante uma revisão sistemática da literatura, com base em 39 documentos selecionados nas bases Scopus, Sage Journals, Web of Science, Google Acadêmico e Periódicos Capes. Em relação às formas de avaliação, os resultados indicaram a predominância de análises dos efeitos das políticas sobre a evasão, mas também havia estudos que avaliaram o desempenho e o tempo até a diplomação dos alunos. As pesquisas foram majoritariamente aplicadas em ambientes universitários de natureza pública, o que indica a escassez de produções científicas sobre instituições de ensino privadas. Quanto aos formatos das políticas de permanência, a literatura apontou quatro espécies de auxílio com naturezas distintas: financeiro, assistencial, baseado em mérito acadêmico e por critérios de necessidade/vulnerabilidade dos estudantes. Com a pesquisa, propôs-se uma avaliação das políticas de permanência em formato tríplice, considerando a permanência, o desempenho e o tempo até a diplomação. Entre as lacunas da literatura, evidenciaram-se os estudos comparativos de diferentes políticas.

Palavras-chave: permanência; assistência estudantil; evasão; ensino superior; políticas públicas.

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Políticas de retención de estudiantes en educación superior: reflexiones a partir de una revisión de la literatura para el contexto brasileño

La deserción en la educación superior es un tema de interés mundial y, para reducirla, se crearon varias políticas para alentar a los estudiantes a permanecer en las universidades. Este artículo tuvo como objetivo identificar patrones de evaluación de las políticas de retención de estudiantes en la educación superior a través de una revisión sistemática de la literatura, con base en 39 documentos seleccionados en Scopus, Sage Journals, Web of Science, Google Academic y periódicos CAPES. Con relación a las formas de evaluación, los resultados indicaron el predominio de análisis sobre los efectos de las políticas en la deserción, pero que también hubo estudios que evaluaron el desempeño y el tiempo de graduación de los estudiantes. Las investigaciones se aplicaron mayoritariamente en ambientes universitarios públicos, lo que indica una escasez de producción científica sobre las instituciones educativas privadas. En cuanto a los formatos de las políticas de retención, la literatura señaló cuatro tipos de ayudas con distinta naturaleza: económicas, asistenciales, basadas en el mérito académico y en criterios de necesidad/vulnerabilidad de los estudiantes. Con base en la investigación, se propuso una evaluación de las políticas de retención de formato triple, considerando la permanencia, el desempeño y el tiempo hasta la graduación. Entre las brechas en la literatura, se destacaron los estudios comparativos entre los tipos de políticas.

Palabras clave: permanencia; asistencia estudiantil; deserción; educación superior; políticas públicas.

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1. INTRODUCTION

Higher education is a tool for social transformation and economic development. Investments in this area can have positive effects on scientific production and technological innovations, in addition to expanding the number of individuals with better employability conditions in jobs that increasingly require a capacity for learning (World Bank Group, 2020).

Considering the relationship between higher education and socioeconomic progress, the Brazilian Federal Government, in 2007, started the Support Program for Restructuring and Expansion Plans of Federal Universities (Reuni), to increase the number of higher education institutions and the vacancies in undergraduate courses. In addition to this, through Law 12.711, of August 2012 (Lei nº 12.711, de 29 de agosto de 2012), the system of racial and social quotas was regulated to enable people in vulnerable situations to have access to higher education. Also, in 2010, the Unified Selection System (Sisu) was implemented, which facilitated the process of students entering universities through a unified and periodic competition, eliminating the need to apply for a test for each institution, and diminishing geographical barriers, as the exam is administered simultaneously throughout the country.

Despite expanding the population's access to university education, these actions did not solve another problem that was harmful to the results of the investments made until then: dropout. In the

most recent technical summary of the higher education census, statistics were revealed regarding the ten-year follow-up of students who entered Brazilian higher education institutions in 2010. It was observed that, after ten years of entering the course, only 40% of the students had completed it, while the accumulated dropout rate was 59%, with 1% remaining in the permanence rate (Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira [Inep], 2021).

The issue of school dropout is not limited to Brazil, it is also raised in an international context. According to Becerra, Alonso, and Frias (2020), the average percentage of students enrolled in higher education institutions between the ages of 25 and 29 in Latin American and Caribbean countries who complete graduation is 47%, and even in developed countries, as the United States, this rate is only 67%.

The expansion of the offer of vacancies generated a demand for specific state actions to serve the public from less favored economic classes who started to have access to the university. From the moment that enrollment rates grew, and the rates of graduated students did not, the public authorities and researchers in the field of education stopped focusing exclusively on measures of access and began to study student retention actions (Bettinger, 2015; Imperatori, 2017).

Considering that higher education is seen as a qualification that provides better employability conditions, the low success rate in graduation becomes a factor that leads to social inequality, since dropout rates are normally associated with low-income students, and dropping out of the course prevents the social transformation of the individual, which results in a perpetuation of their socioeconomic condition (Erwin, Binder, Miller, & Krause, 2021; Imperatori, 2017).

In addition to students, the losses of dropouts also affect institutions in an economic, organizational, and academic way. At the economic level, there is the premise that universities' revenues are defined according to the number of students; therefore, the loss of students results in a budgetary loss. At the organizational level, there are consequences regarding the management of the faculty's agenda, classrooms, laboratories, and other resources that have a certain demand from students who may not return in the following semester. As for the academic level, the spontaneous departure of students can lead to the loss of potential graduates and successful students (Berka & Marek, 2021).

To avoid the problems resulting from the abandonment of courses, educational policies aimed at the continuity of students in higher education began to be adopted by several countries. The diversity of the public they seek to serve is often not limited to students in situations of economic vulnerability, but also social minorities, such as Latinos (Gross, Zequera, Inge, & Berry, 2014), military service veterans (Southwell, Whiteman, Wadsworth, & Barry, 2018) and even students older than the average of the more traditional academic profile (Martin & Sheckley, 2000).

In Chile, Horn, Santelices, and Avendaño (2014) observed that the most common forms of assistance are scholarships and student financing loans. This trend toward financially biased policies was also seen in Spain (Silvente, Gazo, & Fanals, 2018). In Belgium, Byl et al. (2016) analyzed a multilevel policy, in which the program was composed of several actions, none of which involved financial assistance.

In the United States, student assistance, at the federal level, is made up of several grants and loans controlled by the completion of a form called the FAFSA, which determines, through the answers

completed by the student, if he can apply for any of the available grants (Castleman & Page, 2016; Bettinger, Long, Oreopoulos, & Sanbonmatsu, 2012; McKinney & Novak, 2013).

In Brazil, the creation of student assistance policies is supported by a wide range of regulations, ranging from the Federal Constitution to common infra-constitutional legislation, such as the Law of Directives and Bases of National Education (Lei nº 9.394, de 20 de dezembro de 1996), the National Program Student Assistance – PNAES (Decreto nº 7.234, de 19 de julho de 2010), and Decree nº 6096 of April 24, 2007 (Decreto nº 6.096, de 24 de abril de 2007), which instituted REUNI. The aforementioned norms have, among their guidelines, the reduction of dropout rates, which provides a basis for measures that encourage students to remain in the courses. However, there is a legislative omission regarding the definition of objective criteria to guide the control of the created policies, which implies separate, disharmonized evaluations without specific indicators.

Based on this context, a systematic review of the literature to identify patterns of analysis of policies aimed at student permanence in higher education is presented. To reach this objective, this study proposes to answer three questions: How is the efficiency of policies evaluated? What types of aid work best? And what kind of institutions have been contemplated in the evaluations of permanence policies in the literature?

The literature review was built following a protocol specified in the methodological procedures section according to the model of Roever (2017), with steps of identification, screening, and eligibility for inclusion of 39 national and international articles, selected on the Capes journal portal and platforms Scopus, Sage Journals, Web of Science and Google Scholar.

The most common way of evaluating retention policies has been based on dropout indicators. However, in more complete studies, the results are complemented with student performance indicators and time until graduation. Regarding the categories of student aid, the policies can take the form of financial, assistance, based on academic merit or criteria of students' need/vulnerability, with advantages and disadvantages being presented, according to the perspective adopted for the classification. Finally, about the type of institution most recurrent in the samples of the survey carried out, literature was scarce on policies for permanence in the private education network, despite this representing about 88% of the total number of active higher education institutions in Brazil.

2. METHODOLOGICAL PROCEDURES

This work has a bibliographic character and reflects the results of a systematic literature review, which, unlike more general literature reviews, objectively answers certain research questions by summarizing all empirical evidence that meets a predefined eligibility criterion (Nguyen, Kramer, & Evans, 2019).

The material used was obtained from searches in five different bibliographic databases: Capes journals, Google academic, Scopus, Sage journals, and Web of Science. The first two included results of national origin, important to establish the Brazilian scenario on the researched topic. The Scopus, Sage Journals, and Web of Science outlined the international perspective of student retention policy evaluations.

On the Capes journal portal, the search was carried out on 11/23/2021, searching for the terms "student assistance", "permanence" and "higher education" in the titles of the works. The search returned 9 results. Then, on 11/24/2021, the terms "student aid", "higher education" and "persistence" were searched in the Scopus database, which returned 8 texts with the aforementioned terms inserted in the title, abstracts, and keywords. On 11/25/2021, the Sage Journals database was searched for the terms "student aid", "higher education" and "persistence" among the abstracts of indexed works, and the search returned 31 works. The Google Scholar search, carried out on 01/13/2022, with the terms "student assistance", "permanence" and "higher education" in the titles of the works, resulted in 15 works. Finally, on the Web of Science, on 01/13/2022, when searching for "student aid", "higher education" and "persistence" among the abstracts of indexed publications, 46 works were found. It is noteworthy that no limits were established regarding the language, nor the period of publication on any of the platforms used; therefore, the entire survey refers to the material published until the date on which the searches were carried out.

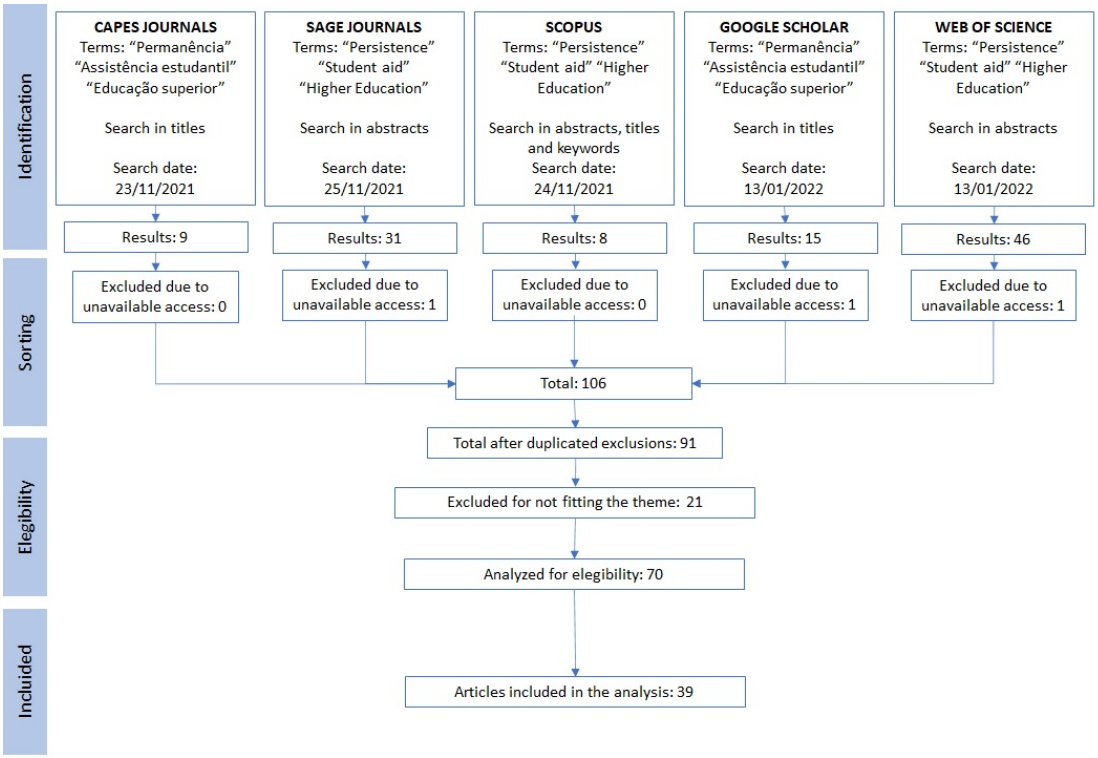
Given the results found with the search parameters properly delimited on each platform, successive processes of exclusion were initiated by steps after the phase of identification of the protocols used, given the following criteria: unavailability of the text; studies not associated with student permanence policies and; materials that did not present an evaluation or policy evaluation proposal.

The chronological order of the steps followed the model described by Roever (2017), according to the flow shown in Figure 1, which began with the identification of studies within the established search parameters; then, the texts found were sorted by checking their availability; in the eligibility stage, duplicate documents were excluded, as well as those unrelated to the topic of student permanence policies in higher education; and, finally, in the inclusion stage, after analyzing the eligible works, those that presented discussions of proposals and methods of policy evaluation were selected.

After excluding texts with unavailable access, the combined results totaled 106 articles, of which 15 were duplicates, leaving 91 at the end of the sorting stage. Moving on to the eligibility stage, 21 articles that were outside the subject of student permanence policies were excluded, and with that, the number of documents was reduced to 70. After a detailed reading of the selected material, articles that did not promote an evaluation or proposal for the evaluation of assistance policies were excluded, so that, in the end, a total of 39 academic works were included in the analysis.

The schematic summary of the selection steps for this material can be seen in Figure 1, the same way that the structure and content of a systematic literature review are defined, according to Roever (2017).

FIGURE 1 MATERIAL SELECTION STEPS



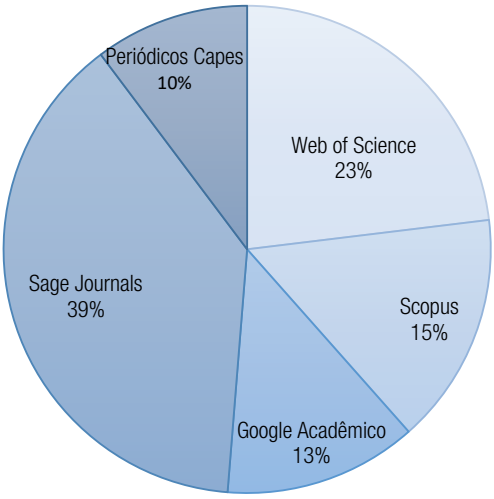
Source: Elaborated by the authors.

From the selected texts, analyzes were carried out to identify results, answers, and explanations related to the aspects raised by the research questions, as provided in the subsequent sections.

3. RESULTS AND DISCUSSIONS

It is noteworthy that, although Web of Science was the platform in which the largest number of results were obtained, it represents the second largest contribution among the documents that make up the bibliographic survey. This is due to the number of duplicate texts with other databases, especially with Sage Journals, from where most of the material was aggregated. In the same way, duplicate results were also obtained with Scopus, however, contrary to what happened with Sage Journals, these were not enough to surpass Web of Science in the number of documents included, as can be seen in Graphic 1.

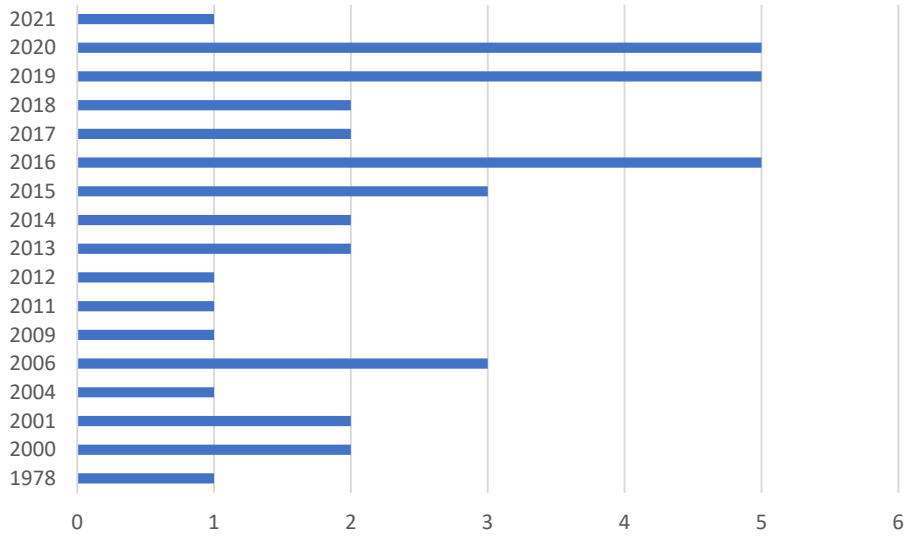
GRAPHIC 1 DOCUMENTS INCLUDED BY SEARCH BASE



Source: Elaborated by the authors.

Another important observation refers to the year of publication of the selected texts. Due to the absence of a filter that limited the period of results during searches, there is a large difference between the years of the oldest (1978) and the most recent (2021) documents included in the survey. Despite this, most of the analyzed literature was published between 2016 and 2021, as seen in Graphic 2. This indicates that the discussions brought up are current, as well as reiterating the relevance of the topic of student retention policies, which has a growing interest among researchers.

GRAPHIC 2 DISTRIBUTION OF PUBLICATIONS BY YEAR



Source: Elaborated by the authors.

3.1. Mapping of methods and samples

The studies included in the survey used different methods of quantitative, qualitative, and hybrid approaches, the latter being less frequent. It is noticeable that when the analysis focuses on a single institution or a specific campus, there is a preference for qualitative research, using questionnaires and sometimes interviews as the most common instruments. On the other hand, when the study covers more than one institution simultaneously, then quantitative methods appear more prominently. In particular, logistic regression is recurrently adopted when researchers aim to measure effects on the probability of school dropout.

Regarding the composition of the samples, freshmen (first-year students, newcomers) in higher education are the most common individuals to build treatment and control groups. However, the observation time of these students varies according to the interests of the research and, in general, the students in the sample were followed for 1 to 4 years throughout the course and in some cases are compared in two or more student cohorts. The survey of methods and samples of documents included in this systematic literature review can be seen briefly in Box 1 and more detailed in Annex I.

BOX 1 METHODS AND SAMPLES OF WORKS INCLUDED IN THE REVIEW

Type of approach	Methodological procedure	Sample	Authors
Quantitative	Logistic regression	Cross-sectional data	Cofer and Somers (2001); Dowd and Coury (2006); Ison (2021); Silvente et al. (2018); Torres, McKinney, Burridge, Horn, and Jones (2019)
		Pooled data	Braunstein, McGrath, and Pescatrice (2000); McKinney and Novak (2013); Mendoza, Mendez, and Malcolm (2009); Qayyum, Zipf, Gungor, and Dillon (2019); St. John, Hu, and Weber (2001); Yu, McKinney, and Carales (2020)
	Difference in differences	Panel data	Bednar and Guicheva (2013); Bettinger (2015); Bifulco, Rubenstein, and Sohn (2019); Ngo and Astudillo (2019)
	OLS regression and linear probability model	Cross-sectional data	Bettinger and Baker (2014); Bettinger et al. (2012); Castleman and Page (2016); Peng and Fetters (1978); Rab, Kelchen, Harris, and Benson (2016)
		Pooled data	Erwin et al. (2020), Mendez, Mendoza, and Malcolm (2011)
	Others (Discontinuous regression, frequencies and percentages, and survival analysis)	Cross-sectional data	Henry, Rubenstein, and Bugler (2004)
		Panel data	Gross et al. (2014); Wessel et al. (2006)

Continue

Type of approach	Methodological procedure	Sample	Authors
Qualitative	Interviews, surveys with scales, and focus groups	Only students who participated in the policy or program	Byl et al. (2016); Carvalho (2020); Martin and Sheckeley (2000); Radaelli (2013)
	Documentary analysis and/or bibliographic survey	Only students who participated in the policy or program	Araújo, Andriola, Cavalcante, and Chagas (2019); Fitzgerald (2006); Macedo and Soares (2020); Marafon (2015)
		Others (reports and institutional documents)	Maciel, Gimenez, and Assis (2017)
	Case study	Only students who participated in the policy or program	Bueno (2020); Pozobon (2019)
Hybrid (Quanti-qualitative)	Surveys, case studies, and general correlations or regressions	Only students who participated in the policy or program	Andrade and Teixeira (2017)
		Students participating in the policy and eligible	Horn et al. (2014)
		Others (students participating in the policy and others randomly selected)	Southwell et al. (2018)

Source: Elaborated by the authors.

3.2. Forms of evaluation

The first point analyzed with the bibliographic survey was the response variable. In terms of evaluating student retention policies, as would be expected, most authors start by observing the impact of actions on dropout rates among students (Araújo et al., 2019; Bednar & Guicheva, 2013; Bettinger & Baker, 2014; Bettinger et al., 2012; Bifulco et al., 2019; Braunstein et al., 2000; Carvalho, 2020; Castleman & Page, 2016; Cofer & Somers, 2001; Dowd & Coury, 2006; Horn et al., 2014; Macedo & Soares, 2020; Maciel et al., 2017; Marafon, 2015; Martin & Sheckley, 2000; McKinney & Novak, 2013; Mendez et al., 2011; Mendoza et al., 2009; Peng & Fetters, 1978; Pozobon, 2019; Qayyum et al., 2019; Rab et al., 2016; Radaelli, 2013; Southwell et al., 2018; St. John et al., 2001; Torres et al., 2019; Wessel, Bell, McPherson, Costello, & Jones, 2006).

The dropout variable is sometimes measured by the authors from negative correlations with different factors: graduation or completion, permanence, or persistence. Even so, the use of the term evasion seems appropriate for the aspects described above, since, when the index of one of them increases, the logical answer about the vacancy abandonment rate is a decline.

In addition to research on dropout rates, some studies seek to evaluate policies based on a factor beyond the impact on the number of students who dropped out of courses. Dropout is still the main

factor to be observed, as retention policies aim to prevent students from dropping out, but it is also necessary to note that the retention of students beyond the period necessary to complete the course generates a problem. The performance of students enrolled in assistance programs has a direct impact on the indicators of the institution to which the student is linked. Therefore, more than avoiding dropping out of courses, a part of international research has been concerned with verifying whether programs contribute to students completing their studies within a reasonable period and with a satisfactory performance.

Thus, in some cases, the variable of interest is not limited to results on the dropout and includes effects on student retention, measured by time to graduation (Erwin et al., 2021; Ison, 2021) and students' academic performance, measured by students' grades, achievement coefficients, and extracurricular activities (Andrade & Teixeira, 2017; Bettinger, 2015; Bueno, 2020; Byl et al., 2016; Gross et al., 2014; Henry et al., 2004; Ngo & Astudillo, 2019; Silvente et al., 2018; Yu et al., 2020).

It is plausible to measure student performance as an indication of policy efficiency, because, when analyzing persistence factors among scholarship students in a Spanish financial aid program, Silvente et al. (2018) found a direct relationship between the probability of a scholarship holder to persist and their academic performance. Receiving a scholarship addresses some of the financial difficulties of low-income students and allows them to dedicate themselves more intensely to university life. Consequently, when students achieve good results, they feel encouraged to continue studying. Thus, the authors conclude that the effects of policies on student performance are reflected in dropout rates.

Likewise, measuring the time to graduation is equally important to assess whether the proposed policy does not have any undesired effects when trying to resolve evasion demands. Erwin et al. (2021) explain that the benefits of reducing the time to completion of students, both for these students and for the university, are substantial, as each additional year in the institution is expensive in terms of direct costs of attendance, while at the same time, may imply salary losses for students.

Box 2 shows the findings referring to the first research question proposed here, which seeks to understand how the efficiency of educational policies for permanence in higher education is evaluated. Although Brazilian legislation is silent on the criteria for these assessments, there is evidence in the literature that points to the need to observe the results of three different indicators concerning the analysis of such policies.

Based on the results, it was possible to observe divergent effects of the policies evaluated in the literature, especially when more than one response variable is included to verify the impacts of certain measures. The distortion of effects in the face of the multiplicity of factors analyzed can, however, be a guiding element of changes necessary to promote improvements in policies.

BOX 2 VARIABLES OF INTEREST FOR EVALUATING RETENTION POLICIES

Variables evaluated	Ways of measuring	Authors
Dropout	Permanence, persistence, conclusion, or graduation	Araújo et al. (2019); Bednar and Gicheva (2013); Bettinger and Baker (2014); Bettinger et al. (2012); Bifulco et al. (2019); Braunstein et al. (2000); Cofer and Somers (2001); Carvalho (2020); Castleman and Page (2016); Dowd and Coury (2006); Horn et al. (2014); Macedo and Soares (2020); Maciel et al. (2017); Marafon (2015); Martin and Sheckeley (2000); McKiney and Novak (2015); Mendez et al. (2011); Mendoza et al. (2009); Peng and Fetters (1978); Pozobon (2019); Quayyum et al. (2019); Rab et al. (2016); Radaelli (2013); Southwell et al. (2018); St. John et al. (2001); Torres et al. (2019); Wessel et al. (2006)
Retention	Time to graduation	Erwin et al. (2021); Ison (2021)
Academic performance	Grades, averages, and extracurricular activities	Andrade and Teixeira (2017); Bettinger (2015); Bueno (2020); Byl et al. (2016); Gross et al. (2014); Henry et al. (2004); Ngo and Astudillo (2018); Silvente et al. (2018); Yu et al. (2020)

Source: Elaborated by the authors.

When evaluating the effects of student assistance policies on dropouts, most studies found results that associate the receipt of benefits with student retention and, consequently, with a reduction in dropout indicators (Araújo et al., 2019; Castleman & Page, 2016; Horn et al., 2014; Macedo & Soares, 2020; McKinney & Novak, 2013; Mendoza et al., 2009; St. John et al., 2001; Wessel et al., 2006). However, in some cases, policies do not have the expected effect and are not determinant for the persistence of beneficiaries (Andrade & Teixeira, 2017; Braunstein et al., 2000; Peng & Fetters, 1978).

These differences can be found even in surveys that evaluate the same policy, changing only the environment in which they are applied. To exemplify this, the National Student Assistance Program (PNAES) presented opposite results in two studies conducted in Brazilian federal universities, in which we sought to highlight the effects of the aforementioned policy on the permanence of students enrolled in the program. Macedo and Soares (2020) built their sample with students from the Federal University of Paraíba, from four campuses, and despite having found flaws in resource management, and in the relationship between demand and benefits, they concluded that the PNAES is effective in the objective of student permanence. Andrade and Teixeira (2017), with data from the Federal University of Rio Grande do Sul, when analyzing data from the same program, did not find statistically significant correlations between the ten areas of intervention of the PNAES and the permanence of students.

There was also divergence about studies that proposed to promote the evaluation of retention policies based on academic performance. Part of the research showed that students who submitted

to retention policies not only had better averages and grades (Bettinger, 2015; Ngo & Astudillo, 2019; Yu et al., 2020), but also had more participation in academic and extracurricular activities (Bueno, 2020), and consequently accumulated more credit hours (Henry et al., 2004). However, Gross et al. (2014) observed that such effects eventually dissipate and decrease over time. Andrade & Teixeira (2017) concluded that there was no relationship between the performance of students benefiting from the insertion in programs to combat dropout.

As for retention rates, financial aid, such as scholarships, seems to have a significant reducing effect on the time to graduation of students (Erwin et al., 2021). In this sense, Ison (2021) observed that academic scholarships that help cover or exempt students from tuition fees are policies that increase the chances of graduation, as students at community colleges in debt with monthly payments suffer a drastic decrease in the probability of obtaining a degree after three years of debt. This observation reinforces the importance and needs for financial assistance policies on student permanence. However, these results may vary according to the rules and criteria of each specific program.

Because different results for each policy can be obtained among the three possible variables of interest found (evasion, retention, and performance), the evaluation of these needs to be as complete as possible, covering all their effects on the three dimensions indicated by the literature. Thus, it is suggested that each policy be evaluated in a triple way, noting the effects on dropout as the main impact, but also including the results on retention and performance as secondary effects, given that permanence policies reflect on these three elements.

3.3. Analysis of types of aid

In addition to the evaluations of the policies themselves, the differences between the results obtained by each type of aid offered to students also draw attention. However, few studies, such as that of Wessel et al. (2006), seek to integrate the evaluation of educational policies with this comparative aspect, even if the such comparison does not occur between the forms of assistance per se, but between characteristics of students who use the assistance.

The study by Wessel et al. (2006) focused on the relationship between dismissal, persistence, receiving financial aid, and students' academic ability. For this research, data from more than twenty thousand full-time students were used, which, according to the authors, is equivalent to the entire population and not just a sample. Using a quantitative approach, working with frequencies and percentages, the authors found that stratifying Peel Grant recipients by academic ability yielded better indicators of student disconnection and persistence than the policy analysis itself. It was observed that scholarship holders with above-average performance had lower rates of disqualification (withdrawal from the course for not meeting the institutional criteria for continuing the study bond) and greater persistence until graduation.

Despite this scarcity of comparative research, works are found that separately discuss the relevance and effects of public policies for student permanence based both on criteria of need and financial vulnerability of students (Andrade & Teixeira, 2017; Bettinger, 2015; Carvalho, 2020; Gross et al., 2014; Horn et al, 2014; Macedo & Soares, 2020; Marafon, 2015; Mendoza

et al., 2009; Ngo & Astudillo, 2019; Pozobon, 2019; Rab et al., 2016; Radaelli, 2013; St. John et al., 2001; Torres et al., 2019).

It should be noted that despite this division observed in the literature, the need and merit of students can go together, because the characteristics of hyposufficiency and satisfactory performance are not mutually exclusive. Furthermore, when working with policies aimed exclusively at students who already have good levels of academic performance, there is the obstacle of not knowing whether the results found can be attributed to the policy, or to a pre-existing aptitude of the student himself.

Henry et al. (2004) were able to overcome the difficulty of determining the academic effects of a policy based on student performance by comparing students who received a certain financial aid with a control group formed by students not covered by the policy who obtained grades and chose institutions and courses similar to those of the group of treatment. The results of a group of students who lost their scholarships were also observed. The authors used a quantitative approach, with varying methods of ordinary least squares linear regression and logistic regression and found that students who received the scholarship incentive accumulated more credit hours, achieved slightly higher-grade point averages, and had a higher probability of graduating after four years of college when compared to their non-scholarship peers.

The research by Erwin et al. (2021) evaluated a policy that, despite having eligibility criteria based on academic performance, was developed to serve low-income students, which refers to a hybrid model of the types of policy applied by student characteristics and efforts, but more aligned with merit than with vulnerability, as the loss of performance implies the exclusion of the student from the scholarship. Using the ordinary least squares method with a linear probability model, the authors concluded that the aid had no effect on the student's graduation probability but reduced the time to graduation of the treatment group.

From another perspective, this time looking at characteristics of the policy itself and not the student users, what we can see is that most of the work on student retention policies was developed on programs that offer financial assistance to students (Araújo et al., 2019; Bettinger, 2015; Braunstein et al., 2000; Cofer & Somers, 2001; Erwin et al., 2021; Henry et al., 2004; Horn et al., 2014; McKinney & Novak, 2013; Mendoza et al., 2009; Ngo & Astudillo, 2019; Peng & Fetters, 1978; St. John et al., 2001; Wessel et al., 2006; Yu et al., 2020). That is, a cash aid in the form of an academic scholarship.

Most studies have shown results that positively correlate the receipt of financial aid with the academic success of students, whether with a higher level of persistence, graduation, or reduced time to graduation. However, in some cases, no correlation was found between financial aid and student retention (Braunstein et al., 2000; Peng & Fetters, 1978). In the perspective of Cofer and Somers (2001), when financial aid is offered in the form of a loan to students, it represents an immediate incentive for student persistence, but over time, the accumulated debt has the opposite effect, an effect which corroborates the results of Ison (2021). In the same vein, Dowd and Coury (2006) observed that subsidized student loans hurt persistence and have no effect on obtaining degrees.

Although many of the works in the literature address policies in the form of pecuniary aid, there are also researches with a scope focused on policies to provide students with means to maintain minimum conditions for continuity of studies from a welfare policy point of view. It is the case of PNAES, which includes housing, food, transport, and several others, which, depending on the variable of interest analyzed and the institution on which the sample was built, can be effective in controlling dropout (Bueno, 2020; Macedo & Soares, 2020) or simply not resulting in statistically significant correlations on student retention and performance rates (Andrade & Teixeira, 2017).

In the case of programs which implement more than one action simultaneously, the different measures may or may not have positive results. Byl et al. (2016) analyzed four measures implemented by the North American program PAL – Peer-assisted learning, involving mentoring, tutoring, team study, and group coaching. The authors concluded that students who participated in group coaching, as well as those who participated in mentoring, had a higher level of motivation to stay in the course than non-participating students. They also observed that tutoring can increase academic engagement, which results in better performance. However, analyzes of the team study did not show significant results.

Still, concerning policies that do not offer financial resources, in the analysis of Castleman and Page (2016), it was observed that a simple system of free notifications by messages on issues of interest to students is efficient to increase the level of persistence of registered users.

According to Bettinger and Baker (2014), the nature of interventions with students can result in more lasting effects of actions. The authors conducted a randomized experiment to assess the effects of coaching on college students. Students who received coaching mentorship were more likely to persist at university during the treatment period and to attend classes one year after mentoring ended.

The four policy formats found in the literature can be grouped according to the student's perspective or the type of policy assistance. From the students' point of view, aids can be merit-based or vulnerability-based. From the point of view of the policy itself, they can be classified as financial or assistance (Box 3).

Based on the results of these studies, it was observed that, in general, financial aid has, proportionally speaking, more positive evaluations than assistance policies. This may be due to the flexibility in the application of resources assigned to students because, while assistance policies meet a fixed need, financial assistance can meet each student needs at specific moments of their academic life. Despite this, non-monetary assistance policies can have more lasting effects.

BOX 3 CLASSIFICATION OF EDUCATIONAL POLICIES

Perspective	Formats	Application concept	Authors	Comparativo geral sobre o levantamento bibliográfico
Student	Merit	Based on student academic performance criteria	Erwin et al. (2021); Henry et al. (2004)	In general, both formats have positive effects on student academic scores. However, there is evidence that academic performance plays a better predictor of outcomes than vulnerability-based assistance.
	Vulnerability	Based on vulnerability criteria and student needs	Andrade and Teixeira (2017); Bettinger (2015); Carvalho (2020); Gross et al. (2014); Horn et al. (2014); Macedo and Soares (2020); Marafon (2015); Mendoza et al. (2009); Ngo and Astudillo (2018); Pozobon (2019); Rab et al. (2016); Radaelli (2013); St. John et al. (2001); Torres et al. (2019); Wessel et al. (2006)	
Policy	Financial	The conception of grants and financial aid	Araújo et al. (2019); Bedna and Guicheva (2013); Bettinger (2015); Bifulco et al. (2019); Braunstein et al. (2000); Dowd and Coury (2006); Erwin et al. (2021); Henry et al. (2004); Horn et al. (2021); McKinney and Novac (2015); Mendez et al. (2011); Mendoza et al. (2009); Ngo and Astudillo (2018); Peng and Fetters (1978); Qayyum et al. (2019); Silvente et al. (2018); St. John et al. (2001); Wessel et al. (2006); Yu et al. (2020)	Among the general results, financial policies are more often associated with good results on dropout, retention and graduation of students than assistance policies. However, welfare policies tend to have more lasting results than financial ones.
	Assistance	The conception of assistance and non-financial assistance (housing, food, transport)	Andrade and Teixeira (2017); Bettinger and Baker (2014); Bueno (2020); Byl et al. (2016); Castleman and Page (2016); Macedo and Soares (2020)	

Source: Elaborated by the authors.

No studies were identified that comparatively estimated the effects of granting academic scholarships with and without the requirement of a counterpart from students; that is, scholarships conditioned to the provision of some type of activity at the university level. This gap may become a future research question to analyze which format has the best results among students.

There is also a lack of research that addresses the comparison of effects between aid in the form of loans (in which the student has to repay the State later) and in the form of scholarships (in which there is no reimbursement).

3.4. Types of educational institutions

The need to keep students enrolled in courses and avoid dropping out is inherent to higher education in general. Therefore, public policies aimed at student permanence were created and applied in institutions classified as either public or private. Therefore, the third point proposed by this article was to observe the incidence of studies of permanence policies among the different types of educational institutions.

The expected results for this topic initially involved only two possible analysis environments: public and private. However, some of the research found was conducted on policies applicable to the two existing classifications, and ended up covering both types of institutions simultaneously (Bettinger, 2015; Bettinger & Baker, 2014; Bettinger et al., 2012; Cofer & Somers, 2001; Gross et al., 2014; Henry et al., 2004; Martin & Sheckley, 2000; Southwell et al., 2016, Fitzgerald & Kane, 2006; Bednar & Guicheva, 2013; Bifulco et al., 2019; Mendez et al., 2011). Despite this, most research still used samples more frequently taken from public university populations, as can be seen in Box 4.

BOX 4 DISTRIBUTION OF TYPES OF EDUCATIONAL INSTITUTIONS AMONG THE SAMPLES

Type of institution analyzed	Number of occurrences	Authors
Public	24	Andrade and Teixeira (2017); Araújo et al. (2019); Bueno (2020); Byl et al. (2016); Carvalho (2020); Dowd and Coury (2006); Erwin et al. (2021); Ison (2021); McKinney and Novak (2015); Macedo and Soares (2020); Maciel et al. (2017); Marafon (2015); Mendoza et al. (2009); Ngo and Astudillo (2018); Peng and Fetters (1978); Pozobon (2019); Radaelli (2013); Qayyum et al. (2019); Rab et al. (2016); Silvente et al. (2018); St. John et al. (2001); Torres et al. (2019); Wessel et al. (2006); Yu et al. (2020)
Private	3	Braunstein et al. (2000); Castleman and Page (2016); Horn et al. (2014)
Both	12	Bedna and Guicheva (2013); Bettinger (2015); Bettinger and Baker (2014); Bettinger et al. (2012); Bifulco et al. (2019); Cofer and Somers (2001); Fitzgerald and Kane (2006); Gross et al. (2014); Henry et al. (2004); Martin and Sheckeley (2000); Mendez et al. (2011); Southwell et al. (2018)

Source: Elaborated by the authors.

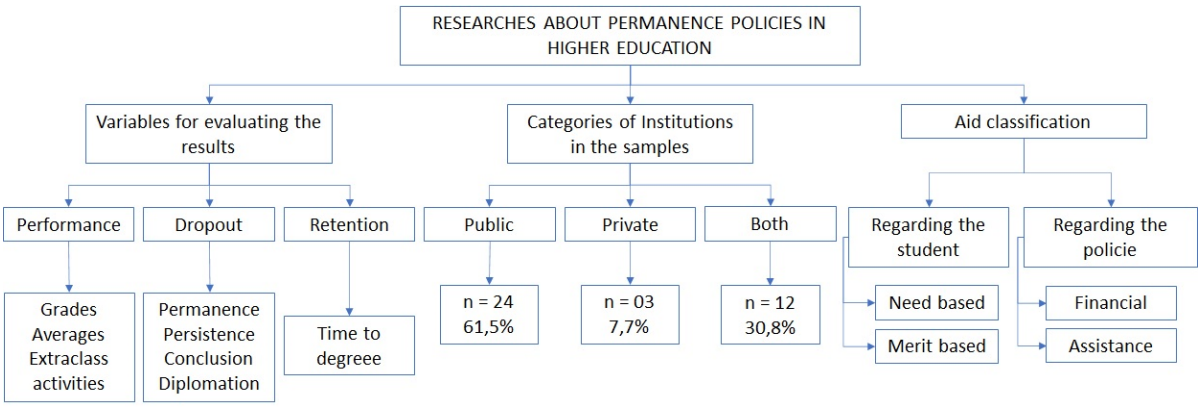
The discrepancy between the number of surveys for each type of institution is visible, leaving the analysis on the private education network with little feedback regarding its policies. It is understood that the investments made in public higher education go far beyond the design of scholarships and grants, especially when considering the value added to each place offered in public universities, an indicator named "current cost per student" among the reports of annual management of federal educational institutions. This higher projection of spending may justify the special attention that public education receives from researchers, especially in Brazil.

On the other hand, the numerical superiority of the Brazilian private higher education network is undeniable. In the records of the technical summary of the 2019 higher education census (INEP, 2021), the total numbers of institutions classified as private were 2306, while those classified as public were 302. In the same report, the numbers of enrollments in higher education in 2019 were 6,523,678 in private colleges and 2,080,146 in public ones, accounting for both on-site and distance courses.

Thus, when comparing the proportion of higher education institutions and the distribution of types of educational institutions in the bibliographic survey, the scarcity of research on student permanence policies in private higher education is confirmed. This investigative gap in private institutions, together with the high expenses linked to the maintenance of vacancies offered in public institutions, highlights the importance of investigating the effects of policies on the private university environment, since the use of resources to subsidize students in private education can have similar and/or less costly results than keeping students in public education.

The general results of the bibliographic survey are summarized in Figure 2, and with that, new paths and research questions can be opened from what was identified as not unanimous, scarce, and not yet compared topics

FIGURE 2 SYNTHESIS OF THE RESULTS OF THE SYSTEMATIC LITERATURE REVIEW



Source: Elaborated by the authors.

3.5. General aspects of the literature and applications to the Brazilian context

It is important to clarify that the results described here need to be viewed with caution, considering certain local particularities. In some countries, for example, public higher education imposes a burden on students, such as Chilean universities, which until 2018 could charge tuition fees from students, and community colleges in the United States, which also charge, although less than private intitutions. In Brazil, in general, users of public education are free of charges related to fees and enrollment. In addition, it should also be noted that developed and developing countries have priorities, geopolitical conditions, and resource applications that are different from each other.

These differences may be able to influence the way research and public policies are conducted. However, despite the different realities of each country, the proposals that arise from the present analysis were carefully thought considering the Brazilian reality and what it has in common with other countries, mainly because issues related to evasion and policies to combat it are a unanimous priority around the world, as has been widely demonstrated in the literature.

In the Brazilian context, the survey of research aimed at evaluating permanence policies assumes response to dropouts as variables (Araújo et al., 2019; Carvalho, 2020; Macedo & Soares, 2020; Maciel et al., 2017; Marafon, 2015; Pozobon, 2019; Radaelli, 2013) or performance (Andrade & Teixeira, 2017; Bueno, 2020), so the analysis of national texts did not include effects on the time until graduation, which was only seen in the international scenario (Erwin et al., 2021; Ison, 2021). However, there is no obstacle to studies on the completion time of students in Brazilian higher education, to better assess public spending on student assistance, because the projection of expenses with assistance programs needs to consider the average period that students take to graduate.

The division of policies based on merit and vulnerability is widely commented on in the analyzed studies, especially among North American authors, but despite this, most Brazilian studis (Andrade & Teixeira, 2017; Carvalho, 2020; Macedo & Soares, 2020; Marafon, 2015; Pozobon, 2019; Radaelli, 2013), as well as international ones (Bettinger, 2015; Gross et al., 2014; Horn et al., 2014; Mendoza et al., 2009; Ngo & Astudillo, 2018; Rab et al., 2016; St. John et al., 2001; Torres et al., 2019; Wessel et al., 2006) focuses on programs whose eligibility is based on criteria of need. Regarding the classification of financial and assistance policies, most of the literature focuses on cash benefits (Bedna & Guicheva, 2013; Bettinger, 2015; Bifulco et al., 2019; Braunstein et al., 2000; Dowd & Coury, 2006; Erwin et al., 2021; Henry et al., 2004; Horn et al., 2021; McKinney & Novac, 2015; Mendez et al., 2011; Mendoza et al., 2009; Ngo & Astudillo, 2018; Peng & Fetters, 1978; Qayyum et al., 2019; Silvente et al., 2018; St. John et al., 2001; Wessel et al., 2006; Yu et al., 2020). However, Brazilian research goes against the grain, and most national articles are about assistance policies, especially the PNAES (Andrade & Teixeira, 2017; Bueno, 2020; Macedo & Soares, 2020).

Finally, the scarcity of research carried out on private institutions affects Brazil as much as other countries, with most Brazilian higher education belonging to the private sector (INEP, 2021), which implies a contradiction between research and the reality of Brazilian higher education. This, however, cannot be affirmed for other countries, as this literature review did not observe the distribution of higher education courses in locations outside Brazil. Therefore, the aforementioned contradiction about the numbers of research and the nature of the institutions refers exclusively to Brazil.

4. FINAL CONSIDERATIONS

The present literature review aimed to identify patterns of analysis of policies aimed at student permanence in higher education, the forms of evaluation defined by research, compare the efficiency of different types of policies, and verify which types of institutions have been contemplated in the evaluations of policies of permanence in literature.

The studies that propose to evaluate student retention policies have dropout as their main indicator and, in the absence of a direct index of this variable, they seek to determine it through permanence, persistence, or graduation rates. However, other factors have been added to the analyses, and at this point, two other variables of interest stand out: time until graduation and students' academic performance.

Considering that the main common objective of any permanence policy is the reduction of students' dropout from courses, the evaluations of these measures need to contain an impact on school dropout. However, the other two variables adopted by the literature are as relevant as the first one, because both the performance of students and the time they spend linked to the institution until graduating can be equally impacted by permanence policies, and consequently generate other effects for students, institutions, and public authorities.

Observing the time to graduation of students enrolled in programs to combat dropout is important to analyze whether policies help students to graduate within the expected period of the course. Students covered by subsidized aid by the government can generate unforeseen costs to the public budget when they fail to graduate in the regulatory deadline, as the excess period they spend linked to the educational institution result in the payment of assistance for a longer period.

The academic performance of students, in turn, can indirectly impact dropout in two ways: first, because the internal regulations of each educational institution propose their own rules for maintaining the student bond and, in certain cases, low performance can lead to student dismissal by administrative decision of these institutions, which results in the student leaving without graduating. The second way in which performance can indirectly interfere with dropout is related to students' self-perception, as performance is one of the personal factors that influence the student's decision to drop out of the course, thus, a low coefficient can lead to greater dropout probability (Braunstein et al., 2000). In Brazil, the low performance also has implications for educational institutions, since student performance is one of the components of the SINAES (National System for the Assessment of Higher Education), used annually by the Ministry of Education to assign grades to higher education institutions, and considering that successive low evaluations can result in the suspension of new student entries, non-recognition of diplomas or even the closure of courses.

Within the triple perspective of policy evaluation, based on dropout, performance, and time until students graduate, the Brazilian scenario has been limited to analyzing aspects related to course dropout and/or impact on student performance. However, the international literature is also interested in the deadline for students to complete the courses, which can be particularly useful to control the costs of a policy, defining the projection of expenses along the time required until the end of the relationship of the student with the educational institution. However, within or outside Brazil, no studies were identified that were comprehensive enough to aggregate the three results simultaneously, as they were usually approached individually.

In this case, given the importance of the three variables, it is suggested, as a model for evaluating student retention policies, the adoption of all of them as efficiency indicators. Therefore, the need to use, whenever possible, a triple analysis on the impact on dropout, time to graduation and academic performance.

Regarding the efficiency of student permanence policies according to their classification, descriptions of four types of aid were observed, two of which are granted according to the characteristics of the students (vulnerability and merit), and two others defined by the nature of the aid (financial or assistance).

When considering the definition of these aids according to the perspective of the benefited students, those based on merit are granted to students who have a greater academic prominence for average and/or extra-class activities; the aid granted by the vulnerability is intended for students in socioeconomic disadvantage, and both the first and the second presented good results. Highlighting the assistance itself, there is a difference between those that consist of transferring values to students and those that provide some non-financial assistance action, such as housing, food, coaching, tutoring, and others. In the latter case, the greater efficiency of financial aid was demonstrated, but the effects of assistance of a welfare nature are more lasting among the benefited students

The literature has shown that all these forms of aid are present both nationally and outside the country, however, in Brazil, most of the research is focused on the PNAES, which translates into aid granted by criteria of the socioeconomic vulnerability of students and which has a caring nature, contrary to what was found in the international literature, which places more emphasis on aid financial. This issue may be related to the fact that, in Brazil, research referring to students from public universities is more common than those referring to students from private institutions, to which the PNAES legislation does not apply.

At this point, the survey carried out showed two gaps, one of them being the lack of comparative studies between programs that require some compensation from the student and those granted without generating obligations to students. The second gap observed was the absence of studies comparing policies of permanence in the format of loans, to be later reimbursed, and scholarships without the commitment to return the amounts received.

Finally, it was observed that the number of studies carried out referring to students from the public network is greater than the sum of the studies carried out with students from the private network and from both private and public simultaneously. For the international scenario, this may not be strange, depending on how the educational systems of the countries are constituted. In the case of Brazil, it is a fact that draws attention because private colleges and universities represent about 88% of active higher education institutions. The scarcity of research on the application of policies in private institutions raises questions about the management of public resources in the education sector: are the results on dropout, retention, and school performance of scholarship holders in the private network similar, inferior, or superior to those in the public network? Is the cost of policies in relation to their effects higher or lower when comparing public and private institutions?

It is noteworthy that, so far, public policy evaluations do not condense more than two simultaneous indicators, and this study has demonstrated the importance of observing at least three aspects in the analyses. In addition, the effects of each type of policy were discussed and this allows the Public Administration to manage proposals more efficiently for future state actions.

As for the scarcity of research in private education, it is possible to question whether it results from the existence of few policies for this sector or whether it occurs due to the lack of data, since information is more easily accessed in public institutions. There are data available from the higher education census that include all students, courses, and active faculties in the country. Therefore, the data that public institutions have that may not be available for the private ones are, in general, those of the annual management reports, which are publicly accessed in the case of public institutions. Even so, these documents can often be found on the portals of some private university centers.

The heterogeneous aspects related to the differences between what is practiced inside and outside Brazil were considered, to present international contributions consistent with the national context and, therefore, expose proposals, questions, new directions of research, and discussions that offer the feasibility of an application. in the Brazilian scenario.

The present study has some limitations. The first refers to the exclusion of unavailable texts during the search, because, although few, they could expand the research data. These texts were not included because they were not published even as congress and scientific meetings annals or as pre-print and discussion articles. In addition, limitations of the indexing bases themselves made it impossible for the terms used to be searched in the same textual elements on all five platforms, such as abstract, title, and keywords.

Thus, the contributions of this study include the presentation and justification of three indicators that can be adopted for future evaluations of student permanence policies in higher education, in addition to the theoretical contribution based on the literature on the most efficient types of policies and the sector most deficient in evaluation terms. These findings can be used mainly by the public administration as a manager and creator of public policies, to direct existing programs based on the suggested triple evaluations, as well as to initiate new policy proposals based on the formats whose interventions have shown to provide better results.

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ANNEX I

BOX A DETAILS OF METHODS AND SAMPLES

Title	Author/year	Method	Sample
Need-Based Aid and College Persistence: The Effects of the Ohio College Opportunity Grant	Bettinger (2015)	Quantitative: Difference in differences	2006 and 2007 First Year Student Cohorts Ohio public universities.
The Effects of Student Coaching an Evaluation of a Randomized Experiment in Student Advising	Bettinger and Baker (2014)	Quantitative: Regression by OLS	Inside Track program student cohorts in 2003 and 2007.
Measuring the Impact of Financial Factors on College Persistence	Braunstein et al. (2000)	Quantitative: Logistic Regression	1251 Early Year Students 1991 and 1993.
What Influences Student Persistence at Two-Year Colleges?	Cofer and Somers (2001)	Quantitative: Logistic Regression	Students enrolled in 2-year courses.
Performance-Based Aid, Enhanced Advising, and the Income Gap in College Graduation: Evidence From a Randomized Controlled Trial	Erwin et al. (2020)	Quantitative: Model linear probability	1081 eligible 2008 and 2009 freshmen and users of the analyzed program.
Latino Associate Degree Completion: Effects of Financial Aid Over Time	Gross et al. (2014)	Quantitative: Analysis of historical events	First-year Latino students during their first degree.
Is HOPE Enough? Impacts of Receiving and Losing Merit-Based Financial Aid	Henry et al. (2004)	Quantitative: Discontinuous regression	Students performing at the policy eligibility threshold and others just below.
Unpaid Tuition Balances at Community Colleges: an Exploratory Analysis Delinquent Tuition Debt and Graduation	Ison (2021)	Quantitative: Logistic regression	14805 students in the year 2016 eligible for the policy analyzed.
Indicators of Client Satisfaction in Academic, Career, and Personal Counseling in Higher Education	Martin and Sheckeley (2000)	Qualitative: Group environment scale questionnaires	280 students who attended at least one vocational, personal, or educational counseling session during one month.
The Relationship Between FAFSA Filing and Persistence Among First-Year Community College Students	McKinney and Novak (2015)	Quantitative: Logistic Regression	Students between 2007 and 2008.

Continue

Title	Author/year	Method	Sample
Financial Aid and Persistence in Community Colleges: Assessing the Effectiveness of Federal and State Financial Aid Programs in Oklahoma	Mendoza et al. (2009)	Quantitative: Logistic regression	Full-time students at community colleges in Oklahoma from 2002 to 2006.
California DREAM: the Impact of Financial Aid for Undocumented Community College Students	Ngo and Astudillo (2018)	Quantitative: Difference in differences	8 cohorts of students entering 2011-2012 before program implementation, and 6 later cohorts entering 2013 and 2014.
Variables Involved in Withdrawal During the First Two Years of College: Preliminary Findings from the National Longitudinal Study of the High School Class of 1972	Peng and Fetters (1978)	Quantitative: Regression by MQO	5971 Academics enrolled at 1800 educational institutions in 2- or 4-year courses from 1972.
The Use of University Services and Student Retention: Differential Links for Student Service Members or Veterans and Civilian Students	Southwell et al. (2018)	Quantitative-qualitative: Questionnaires	197 civilian students.
Academic Disqualification and Persistence to Graduation by Financial Aid Category and Academic Ability	Wessel et al. (2006)	Quantitative: Frequencies and percentages	21243 students enrolled between 1990-1995 at a medium-sized university.
The role of Application Assistance and Information in College Decisions: Results from the H&R Block FAFSA Experiment	Bettinger et al. (2012)	Quantitative: Regression by OLS and simple difference	3 groups of students: financially independent, dependent, and control group, drawn from various institutions Castleman.
Freshman Year Financial Aid Nudges: an Experiment to Increase FAFSA Renewal and College Persistence	Castleman and Page (2016)	Quantitative: Linear probability model	College students enrolled in 2012 who were introduced to the Aspire program in Springfield, Massachusetts, and Boston during high school.
Lowering barriers to college access: Opportunities for more effective coordination of state and federal student aid policies	Fitzgerald (2006)	Qualitative: Documentary analysis	First-generation low-income students affected by federal public policies on access to higher education.
Modeling the Impacts of National and Institutional Financial Aid Opportunities on Persistence at an Elite Chilean University	Horn et al. (2014)	Quantitative-qualitative: Case study and survival analysis	Students taking their first degree at PUC Chilean between 2007 and 2008.
State Policy and the Affordability of Public Higher Education: the Influence of State Grants on Persistence in Indiana	St. John et al. (2001)	Quantitative: Logistic Regression	Random sample derived from the population of full-time students in Indiana public higher education in 1990, 1993, and 1996.
Do Community College Students Benefit from Federal Work Study Participation?	Yu et al. (2020)	Quantitative: PSM and Logistic Regression	8,837 students who completed the FAFSA (compulsory to receive the Federal Work-Study) between 2010 and 2016.

Continue

Title	Author/year	Method	Sample
Áreas da Política de Assistência Estudantil: Relação com Desempenho Acadêmico, Permanência e Desenvolvimento Psicossocial de Universitários	Andrade and Teixeira (2017)	Quanti-qualitative: Questionnaires and Spearman correlation	1,457 in-class undergraduate students from five UFRGS campuses between 2010 and 2013.
Efetividade da Assistência Estudantil para Garantir a Permanência Discente no Ensino Superior Público Brasileiro	Araújo et al. (2019)	Qualitative: Field research and document analysis	Students of the IFCE campus Iguatu between 2011 and 2015.
Avaliação da Eficácia do Programa Nacional de Assistência Estudantil para Permanência de Cotistas na Universidade Federal da Paraíba	Macedo and Soares (2020)	Qualitative: Document analysis and dialectical method Quota	Students enrolled in the UFBP PNAES between 2012 and 2016.
A Bolsa Permanência nas Políticas de Educação Superior: Assistência Estudantil na UFMS	Maciel et al. (2017)	Qualitative: Bibliographic survey and document analysis	UFMS institutional reports and documents.
Contribuições do Programa Nacional de Assistência Estudantil na Educação Superior: uma Avaliação da Capacidade do Auxílio-moradia em Garantir a Permanência no IFCE Sobral	Bueno (2020)	Qualitative: Case study	67 students benefiting from housing assistance enrolled in a higher education course at IFCE Sobral campus.
Permanência na Educação Superior: Contribuições da Política de Assistência Estudantil do Instituto Federal de Educação, Ciência e Tecnologia da Paraíba, Campus Cabedelo	Carvalho (2020)	Qualitative: Questionnaires and interviews with content analysis	Students of higher education courses in graphic design and biological sciences, participants in the student assistance policy at the IFPB Campus Cabedelo.
A Política de Assistência Estudantil na Educação Superior Pública: uma Avaliação do Programa Bolsa Permanência da UFSC (2008-2013)	Marafon (2015)	Qualitative: Questionnaires and document analysis	UFSC students enrolled in the Bolsa Permanência Program at the end of 2013.
Políticas de Assistência Estudantil da Universidade Federal de Santa Maria, RS: Estratégias de Permanência do Estudante na Educação Superior	Pozobon (2019)	Qualitative: document analysis and case study	Students with socioeconomic benefit from the UFSM Headquarters Campus.
Permanência na Educação Superior: uma Análise das Políticas de Assistência Estudantil na Universidade Federal da Fronteira Sul	Radaelli (2013)	Qualitative: Questionnaires and document analysis	Students enrolled at UFFS Campus Realeza, assisted by the scholarship and aid program developed by the university in 2012.
Tax Benefits for Graduate Education: Incentives for Whom?	Bedna and Guicheva (2013)	Quantitative: Difference in Differences	Graduate students and students who have graduated from high school but have not earned an undergraduate degree.

Continue

Title	Author/year	Method	Sample
Evaluating the Effects of Universal Place-Based Scholarships on Student Outcomes: The Buffalo "Say Yes to Education" Program	Bifulco et al. (2019)	Quantitative: Difference in differences	Students enrolled in higher education institutions in Buffalo-NY, one year before and after the creation of the analyzed policy.
The Effectiveness of Peer-Assisted Learning for Student Success: the Value of Attendance Policy and Program Content	Byl et al. (2016)	Qualitative: Interviews with focus groups	446 first-year students enrolled at the Faculty of Psychology and Educational Sciences of the Flemish Urban University in Brussels.
The Effect of Loans on the Persistence and Attainment of Community College Students	Dowd and Coury (2006)	Quantitative: Logistic regression	Students in the first semester of two-year courses at public institutions in the US.
The Impact of Financial Aid on Native American Students	Mendez et al. (2011)	Quantitative: Generalized Linear Model	Full-time 2002-2006 college students from Oklahoma who completed the FAFSA.
Financial Aid and Student Persistence in Online Education in the United States	Qayyum et al. (2019)	Quantitative: Logistic regression	Distance education students who received financial aid between 2015-2016 at Penn State University.
Reducing Income Inequality in Educational Attainment: Experimental Evidence on the Impact of Financial Aid on College Completion	Rab et al. (2016)	Quantitative: Regression by OLS	The first class of students covered by the Wisconsin Scholars Grant.
Predictive Model of University Persistence: Students With "Salary Scholarship"	Silvente et al. (2018)	Quantitative: Logistic regression	642 undergraduate students of the class of 2010 benefited from the "Salary Scholarship" at the University of Barcelona.
Financial Aid Packaging at Community Colleges: Which Type of Award Packages Increase Student Persistence?	Torres et al. (2019)	Quantitative: Logistic regression	Students who completed the FAFSA and entered higher education for the first time in 2007.

Source: Elaborated by the authors.