

Measuring Dropout Intention in College Students: A Systematic Literature Review

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University dropout is a global challenge, but current instruments often omit key factors, limiting understanding. Our study analyzed dropout intention measurement in university students via systematic review. We selected 6 relevant articles from significant databases. Most instruments have 3-5 factors, reliable dimensions, and are available in English. Though they're mostly based on theoretical models, these seem underrepresented when examining dimensions and items. This highlights the need for better-grounded instruments, especially in Latin America where they're scarce.

Keywords: dropouts, university, higher education, measurement instrument, systematic review

INTRODUCTION

University dropout is a complex, multicausal and dynamic phenomenon. It is one of the main challenges that higher education institutions face worldwide, given its marked repercussions on various levels (De Lourdes et al., 2011; Sáez et al., 2020; Sarcletti & Müller, 2011).

At the level of the individual, it has been observed that students experience a perception of personal failure, which reduces their professional and social opportunities compared to students who successfully complete their studies (Faas et al., 2018). At the familial level, dropout entails economic costs and feelings

of frustration and disappointment (De Ortuzar & Di Meglio, 2016; Nervi et al., 2015). From an institutional perspective, dropout becomes an indicator of educational quality (Bäulke et al., 2022; Boone, 2017; Heublein & Wolter, 2011; Schmitt et al., 2020; Tinto, 2017), while in the societal sphere, it has effects on poverty and unemployment rates, at the same time raising the overall cost of education (Rodríguez & Zamora, 2014).

Moreover, given its rise during the recent decade, university dropout poses a significant problem (Cortés-Cáceres et al., 2019; González & Arismendi, 2018). Worldwide, it is estimated that the dropout rate among first-year students fluctuates between 25 and 45% (Cortés-Cáceres, 2019; Heublein, 2014; Organization for Economic Co-operation and Development [OECD], 2017).

University dropout has been a subject of discussion due to its complex and variable nature (Acevedo, 2021; Díaz & Tejedor, 2016). Various terms have been used to describe it, such as desertion, dropout, fatigue, burnout, non-completion, non-persistence, attrition, and retention, among others, terms which should not be considered as synonymous (Bäulke et al., 2022). The term “desertion” is commonly used. Still, since the Alfa-Guia Project (2013), it has been noted that the term has a military connotation and attributes exclusive responsibility to the student, obviating structural or contextual factors. Thus, the term “dropout” is preferred (Montoya, 2007). One of the most widely applied concepts of dropout has been that formulated by Vincent Tinto, who considers that dropping out occurs when a student voluntarily interrupts his or her academic activities at the institution he or she is enrolled in for three consecutive periods (Bean & Eaton, 2001; Tinto, 1982). This situation is also known as “first dropout”, since it cannot be determined whether the student has resumed their studies at another institution (Tinto, 1989). The student’s decision to decide whether to drop out or continue their studies is closely linked to their individual background and characteristics, including their study focus, their academic history, mental health, socioeconomic background, degree of self-efficacy, among other factors (Acevedo, 2020; Bäulke et al., 2018; Biasi et al., 2018; Casanova et al., 2018; Gillet et al., 2017; Jorquera et al., 2018; Respondek et al., 2017). Academic, institutional and environmental variables also have a bearing on the decision. It has been observed that social interactions, a sense of belonging, and the support provided by educators exert a significant influence on university dropout trends (Baalman et al., 2022; Khuong, 2014; López-Angulo et al., 2023; Scheunemann et al., 2022).

However, dropping out of higher education should not be considered an isolated decision, but as the outcome of a long process, influenced by the student’s experiences, and that leads them to take that decision (Braxton, 2019; Litalien & Guay, 2015). Dropout intention arises long before it is materialized; it is the final result of a complex decision-making process (Bäulke et al., 2022; Cabus & De Witte, 2016; Doll et al., 2013; Jordan et al., 1994) and is considered a major predictor of university abandonment (Mashburn, 2000). The gradual process of disengagement may arise when students are faced by situations that conflict with the initial goal of earning a degree and can culminate in dropping out of college (Ghassemi et al., 2017). One indicator of such conflicts may be continually ruminating over doubts about goals and the intention to drop out (Scheunemann et al., 2022). Likewise, other authors understand university dropout as a process that results from dropout intention (Mashburn, 2000). Dropout intention is the calculated probability of a student’s withdrawal from a training program in an institution of higher education (Díaz-Mujica et al., 2018). Dropout intention is expressed by the student who refers to a wish to change their branch of specialization or leave university. It constitutes an early warning signal, or an indicator that they will effectively abandon their studies (Bean & Metzner, 1985).

In recent years, dropping out from university programs has been widely researched through different research designs (Arancibia & Trigueros, 2018; Sáez et al., 2020). Most investigations on university dropout are exploratory and descriptive-correlational studies that focus on analyzing factors, causes and types of dropout (Sáez et al., 2020).

There are systematic reviews on the theme that have addressed the factors associated with the phenomena of retention and dropout (e.g. Cortés-Cáceres et al., 2019; Munizaga et al., 2018), dropout intention in higher education (e.g. Sáez et al., 2020), the intervening variables in rural higher education abandonment (e.g. Guzmán et al., 2021), and dropout rates in university-level distance or online learning modalities (e.g. García, 2019; Orellana et al., 2020), among others. However, no literature reviews have

been found that focus on instruments that measure dropout intention. While instruments created ad hoc to investigate university abandonment are common, they can lead to omitting important factors, limiting the results and failing to provide a comprehensive vision of the phenomenon (Bernardo et al., 2022). Crucial for understanding and adequately addressing this problem is the access to effective instruments that can enable early detection (Casanova et al., 2021). It is essential to recognize and use the available instruments to fully understand university dropout, and thus develop adequate interventions.

Considering the importance of this issue and for the reasons explained above, the central question of this systematic review arises: How has dropout intention been defined and measured in university students? To address this question, the following specific objectives were suggested:

- (1) Describe the characteristics of psychometric investigations that measure dropout intention in university students.
- (2) Analyze the psychometric properties of the instruments employed to measure dropout intention in university students.
- (3) Evaluate the methodological coherence between the enunciated definitions and the instruments.

METHOD

The present systematic review followed the PRISMA 2020 (Page et al., 2021) international guidelines and was carried out in two main stages. The first stage consisted of selecting the articles, which was done in three phases: Identification, Screening, and Selection (see Figure 1). In the second stage, a data matrix was created. The references were processed using EndNote X9 software.

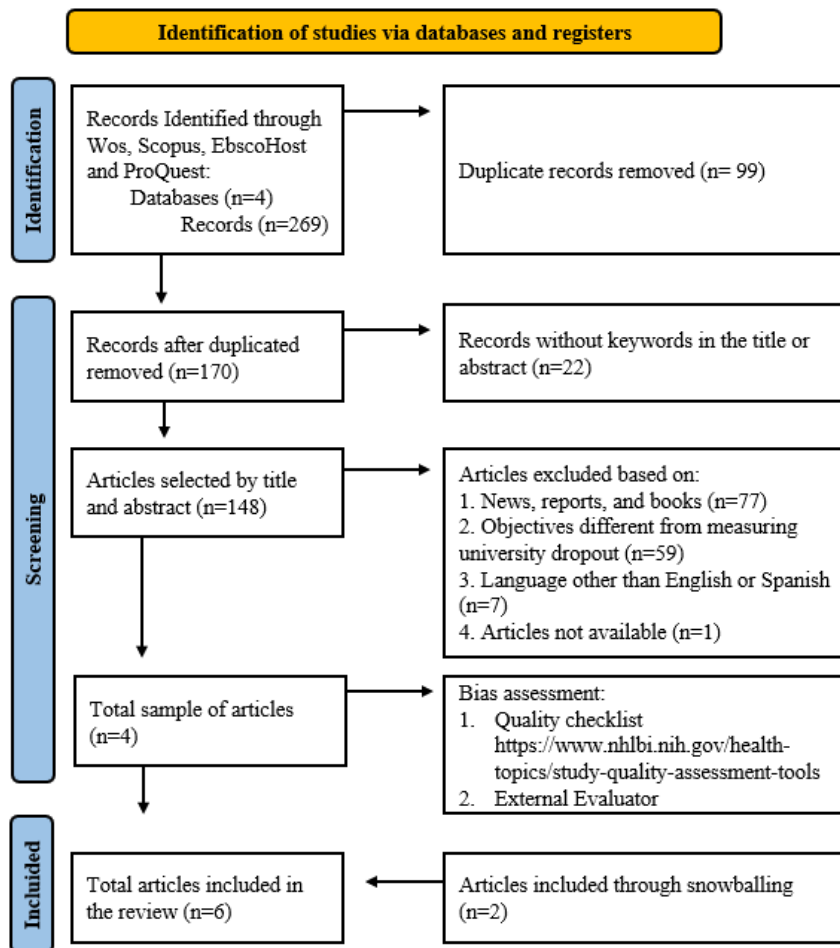
In the Identification Stage, an article search was carried out in the Web of Science (WOS), Scopus, EbscoHost, and ProQuest databases, using the following syntax: scale OR instrument OR tool OR measurements OR questionnaire OR survey AND university OR “higher education” OR college OR “post-secondary” OR “tertiary education” OR freshman OR undergraduate OR “first-year student” AND dropout OR drop-out OR “Intentions of dropping out” OR “dropout Intentions” OR abandonment OR “quitting studies” OR desertion OR retention OR withholding OR persistence OR permanence OR permanency. The keyword search was restricted to titles and there was no limit as to a specific time range. The final search was performed on July 21, 2023 and yielded 269 articles. Two studies were added that had not appeared in the initial search, but were included based on snowball sampling, since they met the inclusion criteria.

In the second screening stage, the additional results containing the selected text verbatim were eliminated, leaving in just one. Articles were subsequently selected whose titles or abstracts contained the selected key words accorded with the research objective. The articles were later downloaded for a complete reading and application of the following inclusion criteria: (1) articles that presented an instrument aimed at evaluating university dropout; (2) in which the subject sample consisted of college students; and (3) that were in English or Spanish. In parallel to the above, exclusion criteria were established and applied to results that were news items, reports, theses, and unavailable books and articles. Two reviewers carried out This Selection Stage separately, who performed an independent evaluation to determine whether the articles met the criteria. Any discrepancies were resolved through a review performed by a third reviewer and joint discussions.

At the Inclusion Stage, a quality verification list was applied (available in <https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools>) and three independent reviewers conducted this bias assessment.

In the second phase, two independent evaluators analyzed the articles that were included, based on the questions formulated.

**FIGURE 1
PRISMA PROTOCOL FLOW CHART**



RESULTS

Different dimensions of analysis were considered in the six articles identified by the systematic review to analyze how dropout intention in university student populations has been defined and measured.

Characteristics of Psychometric Investigations Measuring University Dropout

To characterize the investigations that measure university student dropout, the following four dimensions were considered: (1) subject country; (2) sample characteristics; (3) application format, and (4) study design.

Subject Countries

The investigations were conducted in Spain (n=1; 16.7%), Portugal (n=1; 16.7%), Brazil (n=1; 16.7%), Germany (n=1; 16.7%), Panama (n=1; 16.7%) and the United States (n=1; 16.7%), grouped together under the following categories by continent: Europe (n=3; ID: 1, 2, 6), South America (n=2; ID: 3, 5), North America (n=1; ID: 4).

Sample Characteristics

The participants included numbered from 138 to 2022. A single study included a sample smaller than 150 participants (16.7%); two samples included samples that varied in number from 600 to over 700

(33.3%); two studies had more than 1000 participants (33.3%), and one study included more than 2000 participants (16.7%).

The average age of the participants was 21.405 years, with first-year students making up the majority of the sample. In three studies, no average age was reported (ID: 3, 5, 7).

Concerning the study programs (n=2; 33.3%), these were not specified (ID: 2, 7), and the rest of the studies included various programs in STEM, social sciences, education, and medicine.

Application Format

The application format of the instruments varied: (n=1; 16.7%) employed a face-to-face format, (n=2; 33.3%) the online format, (n=2; 33.3%) did not specify a format, and (n=1; 16.7%) used a hybrid one (face-to-face and online).

Study Design

All the studies, except for one (ID: 3), used a psychometric design (n=5; 83.3%) with a cross-sectional measurement temporality. While the design of Study 3 is declared analytical-descriptive, in essence, the construction of an instrument is visualized, and affirmed even in the title; it is, therefore, psychometric.

Psychometric Properties of the Instruments

To analyze the psychometric properties of the instruments that measure university student dropout, the following five dimensions were considered: (1) instrument name; (2) type of response scale; (3) number of factors and items; (4) reliability, and (5) languages in which the instrument is available.

Instrument Designation

Six instruments have been identified (See Table 1 for each one's name, year created and published).

TABLE 1
NAME/YEAR OF INSTRUMENTS THAT MEASURE UNIVERSITY DROPOUT INTENTION

Studies (ID)	Instrument name	Year of publication
1	Early University Dropout Intentions Questionnaire (EUDIQ-R) (Bernardo et al., 2022).	2022
2	Screening instrument for students at-risk of dropping out from Higher Education (Casanova et al., 2021).	2021
3	Questionnaire for the Analysis of University Student Attrition (CADESUN) (Diaz & Tejedor, 2017).	2017
4	The College Persistence Questionnaire (CPQ) (Davidson et al., 2009).	2009
5	WWH-dropout scale (Schmitt et al., 2020).	2021
6	Scales to assess student dropout intentions (Bäulke et al., 2022).	2022

Scale Type

All of the instruments employ Likert-type response scales. Three instruments use a five-point scale (50%), one (n = 1; 16.7%) uses a six-point scale, one (n = 1; 16.7%) a three-point scale, and one instrument (16.7%) makes no indication (ID: 3).

Quantity of Factors and Items

The instruments report different dimensions that vary depending on the instrument employed. A range of 3 to 6 factors is observed with a predominance of instruments that use 3 and 5, as shown in Table 2. The most frequently occurring factors are satisfaction, integration or social adaptation, and support structure or services. The number of items reported per dimension varies, ranging from 13 to 53 items.

Reliability

Regarding the reported reliability of the instruments, the majority calculated alpha indices for each dimension (n = 5; 83.3%), followed by those reporting alpha indices per dimension and complete scale (n = 3; 50%), and one of the studies, the general alpha of the scale (n = 1; 16.7%).

Language Availability of Instruments

The majority of the instruments are available in English (n = 5; 83.4%) and have been applied in other languages, such as Portuguese (ID: 2, 5), German (ID: 6), Spanish (ID: 1, 3). Additionally, at present one of the instruments (ID: 4) has validations available in Spanish (García-Ros et al., 2019; Lizarte & Gijón, 2022).

Coherence Between the Conceptual Definitions and Instruments

To evaluate the methodological coherence between the conceptual definitions and the instruments for measuring university dropout, two dimensions were considered: (1) theoretical model, and (2) conceptual and operational definition of dropout intention.

Theoretical Model

Most instruments indicated at least one theoretical model that supported the research (n=4; 66.7%). Only two of the studies did not indicate the base theoretical model (ID: 2, 4). The Tinto Model (1975) has a marked presence in two of the instruments (ID: 1, 5). Another study reported that the instrument was based on the Braxton Model (2000) (ID: 3), while another indicated the Betsch Model of decision-making (2005) and the Rubicon Model of action phases (Achtziger & Gollwitzer, 2010) (ID: 6).

Conceptual and Operational Definition of Dropout Intention

With respect to the concept of dropout intention used in the instruments, the concept is not explicit in three of the investigations (ID: 1, 3, 5). What the instruments do, however, is explore the causes that provoke dropout or dropout intention.

In two studies, dropout intention is once again not explained but can be inferred through the items in the instrument proposed. In (ID: 2), dropout intention refers to thoughts and insecurities associated with the possibility of abandoning one's studies; and in (ID: 4), the intention to drop out refers to thoughts connected to interrupting one's studies, changing universities, leaving school to find a job or for other reasons, as opposed to the intention of persisting in gaining a university degree in any other institution. A single investigation (ID: 6) defines dropout intention as a phase in the process of deciding to abandon one's studies. The dropout intention refers to thoughts of dropping out completely or withdrawing from the study program.

DISCUSSION AND CONCLUSIONS

This study's objective was to determine how university students' dropout intention was defined and measured. To this end, a systematic review was carried out of articles published in journals indexed in Web of Science (WOS), Scopus, EbscoHost and ProQuest. A discussion follows of the main results, the review limitations, and future lines of research.

Characteristics of Research Studies That Measure Dropout Intention

Various aspects were examined to explore the characteristics of university dropout investigations. One of these was the analysis of the countries where said research was conducted, most of them on the European continent, with special emphasis on Spain, Portugal, and Germany. These results are consistent with other systematic reviews on university dropout, pointing to a predominance of European studies (Guzmán et al., 2021; Sáez et al., 2020). This trend manifests the paucity of instruments developed in Latin America and confirms the need to create sound, reliable instruments to measure this construct in the region.

As for sample characteristics, the number of participants in each study varies. Most common are the studies with more than 600 participants, although one study was found with just 150 participants. These results evidence that there are psychometric challenges to consider, especially in the pilot validation of instruments. According to the recommendations in the literature, it is desirable to have samples that minimally exceed 200 in the pilot validation of the International Test Commission's instruments (International Test Commission, 2017). This will enable safeguarding the reliability and precision of the instrument under development. Ensuring sufficiently large samples in the validation phase will aid in obtaining more robust and reliable results, improving instrument quality.

On the other hand, it is noteworthy that the sample was composed of mostly first-year students, with an average age of 21. This datum takes on relevance with the consideration that, worldwide, dropout rates are higher among first-year students (OECD, 2017), which converts this period into a critical stage for comprehending said phenomenon. It was likewise observed that the sample was distributed in different degree programs, the most representative being programs related to STEM, Social Sciences, Education and Medicine. Only two studies did not specify the degree programs the participants enrolled in. It should be noted that several studies evidence that the levels and patterns of university abandonment vary, depending on the degree program or educational modality concerned (Arancibia & Trigueros, 2018; Servicio de Información de Educación Superior [SIES], 2021). Therefore, it is worth considering that future research should address these aspects and clearly refer to the study programs that the participants are enrolled in, to gain as complete and contextualized an image as possible of the phenomenon of university dropout.

Regarding the method of questionnaire application, variability was observed in format preference, whether online or face-to-face. One study opted for both options, and another did not specify any preference. It is fundamental to consider the implications of the administration conditions, especially in less-controlled situations. The face-to-face modality offers the advantage of providing technical support or other types of assistance to ensure that the necessary conditions for administering the questionnaire are adequately met. On the other hand, the online modality allows the administration of the tests in diverse contexts, albeit without rigorous control over or supervision of the conditions.

Consequently, the authors of the studies must ensure that these conditions affect neither the performance of the examinees nor the quality and comparability of the scores obtained (American Educational Research Association et al., 2018). The conditions under which the questionnaires are administered must be clearly described in the research reports, so that readers can adequately assess the validity and reliability of the results obtained in each modality. This will contribute to improved transparency and interpretation of the findings in future studies on university dropout.

Concerning the study's design, the predominance of psychometric designs was observed, attributed to the syntax used in this systematic review and to the character of the included studies. It was further found that most of the studies applied a cross-sectional measurement focus, coinciding with the findings of Sáez et al. (2020), who likewise observed a prevalence of this type of measurement in university dropout studies. At this juncture, it merits pointing out that, according to Baulke et al. (2022), cross-sectional studies may present certain limitations upon analyzing the phenomenon of university dropout, as they do not allow for tracking the evolution over time of dropout intentions. Therefore, they suggest that, in the future, longitudinal research be conducted to examine how college dropout intention develops through time. Including longitudinal designs in future research could provide a more complete and detailed view of the process behind university dropout intention, thus allowing for a better understanding of the factors involved and facilitating the development of more effective intervention strategies for dealing with this important problem in university education.

Psychometric Properties of the Instruments

The search revealed the existence of six instruments for measuring academic dropout among university students. It was observed that these instruments use different terms, such as "desertion" or "permanence", to evaluate the phenomenon of university dropout. This finding is in line with the observations of several authors, who have pointed out the variability of the terms in the literature, which can make it difficult to make comparisons between the studies due to the lack of a common language (Acevedo, 2021; Munizaga

et al., 2018). To resolve this dilemma, Proyecto ALFA-GUIA (2013) proposed using “student dropout” as the common terminology for the subject phenomenon.

Upon analyzing the year of publication of the investigations, it was found that most of the studies had been produced in the last five years. This is indicative of the relatively recent emergence of university dropout studies and of the growing interest it has attracted in recent decades (Cortés-Cáceres et al., 2019; González & Arismendi, 2018). The above result mirrors the affirmations of other authors who likewise point out that the research in this field is as yet in its early stages (González et al., 2013).

Regarding the type of response scale used, most of the research opted for the five-point Likert Scale (50%). It is a predictable choice, considering that the Likert Scale is widely recognized as one of the measurement techniques most often used in applied psychology studies and other disciplines (Matas, 2018). The Likert Scale is preferred because it reduces ambiguity and offers greater precision in respondents’ answers (Cañadas & Sánchez, 1998). Several authors emphasized that scales with more items tend to provide more reliable answers (Bisquerra & Pérez-Escoda, 2015; González-Alonso & Pazmiño-Santacruz, 2015). Therefore, using scales of 5 to 6 points in the analyzed studies would satisfy the reliability criterion of the respondents’ answers.

As for the number of factors and items, the results indicated that most of the studies employed from 3 to 5 dimensions, and the number of items ranged from 13 to 53. The latter is an important datum to analyze, as it has a bearing on how long it will take for the respondent to answer the questions, what the cost of the questionnaire will be, the scale of response, and the quality of the data gathered (Lavrakas, 2008). In overly long questionnaires, the respondent may provide unreliable answers, affecting the research results (Sharma, 2022).

As for the dimensions that figured most frequently in the studies identified evaluating university dropout, the following stood out: “Satisfaction,” “Integration” or “Social adaptation”, and “Structure” or “Support services”. These findings are consistent with an exhaustive review of four decades of literature on university dropout, that identified a variety of factors associated with the phenomenon, such as family background, family income, student-related factors, social factors, economic factors, the student’s goals, experience, and institutional factors (Aljohani, 2016). In addition, other systematic reviews have also highlighted important variables in university dropout research, such as Socioeconomic, Academic Achievement, Vocational Orientation, and Student Motivation (Munizaga et al., 2018).

Interestingly, some of the dimensions found in the reviews and the literature do not appear in all of the instruments analyzed in this review, underlining the need to continue developing and validating instruments that comprehensively address the factors that influence university dropout. A more complete grasp of these dimensions will enable the implementation of more effective, personalized interventions for addressing this important problem in the university milieu. Thus, these results complement the panorama and emphasize the importance of considering various dimensions when approaching the issue of university dropout.

Concerning the reliability reported by the instruments, most of the studies calculated alpha indices for each dimension (83.3%), while a lesser percentage (50%) also reported reliability for the entire scale. It is fundamental to report not merely report the reliability of the total scores and that of the subscores, as these can differ significantly and allow users to assess whether the scores are sufficiently accurate for their use (American Educational Research Association et al., 2018). Reliability is a crucial aspect that allows determining the extent to which a scale can make error-free measurements (Mokkink et al., 2010), in addition to providing important information about its consistency and precision. In the case of measuring university dropout, having reliable and valid data is essential for effectively understanding and addressing this complex phenomenon. Considering the above, to ensure quality and facilitate the interpretation of the results, researchers are urged to report the reliability of their instruments, both for the entire scale and for each dimension (American Educational Research Association et al., 2018).

It was observed that most of the studies are in English (83.3%), which dovetails with the affirmations of various authors that the research on university dropout has been concentrated mainly in English-speaking countries (Orellana et al., 2020). Another important point to consider is the lack of available instruments in the Spanish language. These findings highlight two aspects: (1) due to the predominance of studies conducted in English, access to information and the use of such scales are limited for Spanish-speaking

countries, and (2) it is necessary to have validated instruments in Spanish, as this would allow for a more precise understanding of how university dropout occurs in different cultural contexts, such as the Latin American context.

Methodological Coherence Between Stated Definitions and Instruments

A significant aspect of this systematic review is that half of the instruments found gave no indication of a basal theoretical model. This may compromise the construct validity of each study, which is what guarantees that the instrument will reflect the theory underlying the phenomenon or construct to be measured (Luján-Tangarife & Cardona-Arias, 2015). On the other hand, among those instruments that did indicate a theoretical model, Tinto's model (1975) stands out, coinciding with the proposal of Díaz (2008), who recognized that this is the model most recognized and widely used worldwide.

Another aspect that draws attention is the instrument's reported objective, insofar as it has been observed that the majority of the instruments aim to evaluate dropout risk or intention. The foregoing refers to a major concentration on the variables and factors that facilitate university dropout, and it would seem that said factors and variables have a character of a rather more causal type in common. This is in line with the proposal of Munizaga et al. (2018) that the study on dropout is at a "characterization" stage; that is, of describing and identifying which students abandon their studies.

With respect to the conceptual and operational definition of dropout intention, as was observed from the results, the theoretical models employed by the studies show consistency with the instruments they designed; however, some limitations are observed that future instruments may settle.

1. Discriminate/determine whether they are proposing an instrument for the purpose of:
(1) measuring variables that cause or provoke the dropout intention or dropping out, or (2) measuring dropout intention in and of itself. Various instruments address variables relative to student features (social, cognitive and motivational), and explicitly aim at measuring dropout intention, when in actuality what they do is account for the factors that provoke or cause dropout intention or abandonment. Thus, they leave out items related to the exploration of thoughts and ideation around dropping out.
2. Representing or augmenting the representativity of the instrument's underlying theoretical model. In the majority of cases, a theoretical model was employed that supported the instruments; however, upon observing the instrument's dimensions and items, the theoretical model appeared to be underrepresented. No one instrument captures or represents the whole of a theoretical model's components.
3. Recreating, capturing, or accounting for how the intention to abandon becomes constituted. No instrument has been identified that recreates how dropout intent arises until it becomes established and constituted as an intention that, in and of itself, can influence behavior or the decision to drop out. While one instrument (Bäulke et al., 2022) explains the phases of dropping out from a degree program or university, it centers on how the decision-making unfolds and employs explicative models of how individuals arrive at decisions. However, there were no instruments located that gave an account of the constitutive process of dropout intention, that explains it sequentially and cognitively, exactly as experienced by first-year university students.

Limitations

One of the main limitations of this systematic review is that the search was limited to articles in Spanish and English, excluding studies in other languages. Another limitation concerns the number of databases, since only four were used. Therefore, future systematic reviews must be able to expand the search to include other databases and languages.

Despite these limitations, this systematic review constitutes a significant input for researchers, academics, institutions, and students studying university dropout. It is necessary to continue to produce more research instruments that are validated and made available to the academic community. Having access

to an instrument validated and adapted to Chilean students not only brings us closer to a better understanding of university dropout but also enables the development of interventions for its prevention.

Through this research approach, the retrospective examination of the progress and position of the problem in question is possible. Even more importantly, significant findings can be contextualized for establishing future guidelines in both research and the creation of new instruments. Ultimately, systematic reviews enable the coordination, adjustment, and continuation of the efforts to comprehend the dropout phenomenon.

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