

The deficient factual basis of the main explanatory models of dropout in higher education

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ABSTRACT

In the last 40 years in much of the western world dropout rates in higher education have remained almost unchanged. Although student retention seems to be the most studied and discussed aspect, nearly every empirical study on the causes of dropout in higher education and even more the impact of retention actions carried out by universities, in most cases have achieved modest results. This paper argues that this fact finds its explanation, to a certain extent, in the nature of the methodological approaches and factual supports of the empirical studies that most of those actions were based on. In this regard, there are strong arguments and empirical evidence that reveal the deficient nature of the factual basis of the most accepted models, theorizations and measurements on dropout in higher education. Among them are those that underlie the models proposed in 2012 by Vincent Tinto and Adam Seidman, the two main current references on the subject. The most significant questions point to the low reliability of the inferences produced from the application of surveys, especially the national survey of student engagement, very recurrently applied throughout the western world in empirical studies on dropout in higher education.

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1. INTRODUCTION

The high magnitude of dropouts in higher education (HE) is ubiquitous. Currently, the dropout rate in HE in the countries that make up the Organization for Economic Co-Operation and Development (OECD) is of the order of 40% [1], and a substantial proportion drops out in the first year [2]–[4]. Dropout rates are even higher in Latin America and the Caribbean, at around 50% [5]. Indeed, according to a study carried out at the end of the last decade [6], Argentina and Mexico registered dropout rates in HE of the order of 50%, and Chile and Peru 30%. A more recent study Lastra [7] establishes that in 2009 the dropout rate in the first year in Argentine public universities was 60%. In Uruguay, the dropout rate in HE estimated by the main study in this regard for the period 1997-2004 is practically the same as that corresponding to the average registered in the OECD countries; 36% of students who access HE in Uruguay drop out, half of whom do so between the first and second year [8].

The phenomenon of dropping out of studies in HE began to be a matter of concern in the western world from the last third of the last century, especially in countries where the massification process in HE was already beginning to consolidate in the 1970s [9] and it has been accentuated over the last two decades. In addition, the interest in reducing dropout in HE received a strong boost from the growing relative weight that various national and supra-national organizations attribute to it in their university rankings [10], [11].

The dropout rate was taken as a key indicator of the performance of universities [1], [12] and of the quality of education, both at an organizational and institutional level [13], [14] tangible in the case of Europe with the creation of the European higher education area as a result of the Bologna Declaration of 1999. In this sense, there is consensus that a high dropout rate is indicative of low educational quality [10], while it highlights a certain failure in the teaching and learning processes [15] and particularly in the institutional activities of orientation, transition, adaptation and promotion of the student body [16].

The abandonment of studies in HE is a worrying problem due to its personal, institutional and social repercussions [10], [17]. The students can live this situation as an experience of failure or personal frustration [11], which, in addition to conditioning their ways of facing academic, professional and vital challenges [18], could even cause psychological damage [19] and a reduction in their future job opportunities [5]. At the institutional level, high dropout rates produce significant losses of economic income that compromise the financial stability of private educational centers [20] and leave them exposed to the risk of being penalized with government cuts in subsidies or funding. On a social scale, high dropout rates can lead to questioning of the authorities of the educational institutions for the waste of the money invested [4] and for the failure to meet academic and social objectives [10], especially those associated with the need to have a highly trained workforce in an increasingly globalized and competitive market [5], [20]–[23].

The abandonment of studies in HE is, therefore, a matter of growing concern for universities and especially for their authorities, since the survival of both depends on it. On the other hand, in a highly commercialized world like the current one, in which an instrumental vision of HE tends to prevail, knowledge and associated skills are commodities that are endowed with a high potential economic return, which impacts on the meaning and use of the knowledge that is learned in universities [24]. From this perspective, within the framework of the dominant neoliberal ideology in ever-growing portions of the world and the growing drive towards the generalization and internationalization of HE, the abandonment of studies stands, then, as a huge concern of the economic system on a global, regional and local scale.

In this regard, the economic implications of dropping out of HE studies have been extensively discussed [14], [21], [25]–[27]. It should be noted that both at the institutional and organizational level, the dropout as a problem reaches serious dimensions due, in addition, to the fact that it is a phenomenon that is difficult to approach with the usual instruments of public policies [28]. Despite the theoretical and conceptual advances in this regard, the very profuse accumulated research and the large amount of money and resources that for decades have been invested in the implementation of programs and services to promote student retention—above all by facilitating their transition to the social and academic systems of universities—in the last forty years have not been able to achieve a significant reduction in the dropout rates in HE [29]–[31]. While it is logical to conjecture that in the absence of such actions, these rates would be even higher [30], the problem and concern remain in place, especially because since the mid-1990s in much of the western world, dropout rates have remained virtually unchanged [32]. This seems to have been more noticeable in the case of HE in the US, where although “student retention may be the most studied and discussed aspect [...], over the last forty years, nearly every empirical study on the causes of attrition and the impact of interventions on retention has yielded only modest results” [26].

A plausible explanation for this situation lies in the fact that the implementation of actions that are effective in achieving a significant reduction in the dropout rate in HE is not entirely within the reach of the university center's management. The incidence in the abandonment of some inherent characteristics of the student who enters a HE center previous academic preparation, abilities and skills, personal attributes (of gender and class, mainly their cultural and economic capitals), attitudes and values [33]. Also, above all, certain structural factors especially those associated with the structure of educational and work opportunities, of enormous relevance in the case of unfavorable socio-academic contexts require interventions whose definition, design and implementation are, inevitably, external to the organizational sphere.

In any case, the modesty of the results achieved in the last forty years by the school retention actions carried out by universities, according to the appreciation of [26] alluded to before, also finds its explanation, to a certain extent, in the nature of the methodological approaches and factual supports of the empirical studies that most of these actions were based on. Indeed, according to a previous study [34], academic production on the problem of dropping out of studies in HE also suffers from an excessive dependence on the most outstanding theoretical models. Tinto's [33] and Seidman's [30] explains the tacit and uncritical acceptance of the factual bases on which they are built and the overvaluation of some explanatory factors to the detriment of others [35].

2. RESEARCH METHOD

In view of the above considerations, the research project that gave rise to this text, which was aimed at determining the main explanatory factors for the phenomenon of dropout in the three HE centers of Rivera,

Uruguay [3], established a predominantly qualitative cutting method that appealed to literature review, observation, semi-structured in-depth interviews with 54 key informants, two focus groups with 16 key informants, and a census survey (N=555). These were chosen as the leading techniques for the production of information, in the conviction that they are the most appropriate to fully understand the object of study and the unique characteristics of the context social, academic, territorial, institutional in which this object is inscribed. Moreover, according to the aforementioned study [34], the common methodological denominator of most research on the phenomena of dropout in HE is the adoption of quantitative strategies based on descriptive studies with large samples of data provided by reports from government entities or administrative offices of educational institutions. In turn, in a large proportion of them is applied, in whole or in part, the national survey of student engagement (NSSE). Both methodological issues were ratified by the literature review carried on, based on the preferred reporting items for systematic review and meta-analysis protocols or known as preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) method formulated by Moher *et al.* [36], later adjusted by Shamseer *et al.* [37] for systematic reviews and meta-analyses. The search for articles was limited to those published in the 266 journals Q1 listed by Scimago in 'Journal Rankings on Education' [38] between 1st January 2015 and 31st July 2018. A more thorough survey over a longer period of time was ruled out, because it would have been materially impossible; it is sufficient to consider that between 1980 and 2012 more than three million papers focused on school retention and on abandonment of studies in universities were registered in Google Scholar [23]. Following the axial guidelines of the PRISMA-P method, 937 articles were selected out of 32,118 identified as part of the initial universe. Using open deductive coding, prevailing methodological approaches were identified, as well as the implementation, in whole or in part, of the NSSE form.

Within this framework, the research project that gave rise to this text established, as one of its specific objectives, to test the module on student engagement of the NSSE form, and to evaluate the degrees of validity and reliability of the data produced in this way, as well as the degree of its applicability in the case of the HE centers studied. For these purposes, two methodological instances were deployed: i) Between July and September 2016, a census survey was applied to students who in 2014 had entered one of the three HE centers considered, both those who continued studying and those who had abandoned their studies by that date in which a section of the NSSE form was included (the six sets of questions aimed at determining the student's degree of engagement); and ii) As of October 2016, the in-depth interview technique began to be applied to a sample slightly larger than 10% of that universe (16 students who as of July-September 2016 were still studying and 32 who had dropped out of their studies as at that date), in the course of these interviews, the same section of the NSSE form was reapplied. This was followed by comparative analysis of the responses provided in each instance.

The main results achieved are summarized and discussed. They are focused on the following three issues: i) The main weaknesses of quantitative approaches in determining rates and explanatory factors of dropout in higher education; ii) The dependence on Tinto and Seidman models, and their deficient factual bases; and iii) The reliability of the set of responses that the respondents produce when applying the NSSE form questions to them.

3. RESULTS AND DISCUSSION

3.1. Main weaknesses of quantitative approaches in determining rates and explanatory factors of dropout in HE

The literature review carried out showed, that the vast majority of the recent empirical studies about dropout in HE is mostly quantitative. In many cases, the dropout rates established in the framework of this type of research, in addition to lacking sufficient reliability, inhibit their rigorous comparison with rates from other institutional and territorial contexts [3]. A notable example is the 36% rate established by Boado *et al.* [8] for the case of Uruguay, referred to at the beginning of this text. This rate is an estimate made based on the formula $0.5(1-E)$, where E is the degree efficiency of the system, defined as "the proportion of students 'T' who graduate in a year 't' in comparison to new enrollment in the first year 'N' in the time corresponding to a duration 'd' of the established careers [...]. That is to say: $E=T(t)/N(t-d)$ " [8]. The application of the coefficient "0.5" was based on a report by the UNESCO International Institute for Higher Education in Latin America and the Caribbean (IESALC): "IESALC argued in its Latin American study of university dropouts that 50% of the laggards of a generation-those who are not received within the expected period-could be expected to be received in any way" [8]. In short, this dropout rate of 36% is an estimate formulated for Uruguay based on another estimate formulated for Latin America and the Caribbean as a whole. It should be noted that the estimate that 50% of the laggards will have to complete their university studies, in addition to not being precise, is an average that, by its very nature, overlooks the existence of notable structural, contextual and institutional differences within Latin America and the Caribbean, among which free or non-free studies and access to university, with or without restrictions, play a very significant role. In fact, a recent

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empirical study [3] determined, with absolute precision, that the average dropout rate in three tertiary organizations in northeastern Uruguay in the 2014-2016 period was 48%. In other words, almost half of the students who entered HE in these educational centers in March 2014 dropped out of their studies before October 2016. The certainty that the 48% rate is endowed with absolute precision lies in the fact that its calculation was made from the information produced in a census applied in 2016 to students who had entered one of these three HE centers at the beginning of 2014. Which included both people who were still in their studies at the time of the census, and those who had dropped out; in contrast, the 36% rate established in the [8] study was estimated exclusively on the basis of secondary information. *Prima facie*, this is a considerably high rate, at least if the 36% estimated by Boado *et al.* [8] for Uruguay is taken as a reference, which is 50% lower.

Beyond these considerations, the comparison between the two is irrelevant. It is because among other limitations, in both cases, the factual bases and methodological operations used for the measurement were very different. Even less relevant would be the comparison of any of these dropout rates with those registered in educational centers in other social, political, territorial and institutional contexts, since the existing differences between university systems in different territorial contexts. Besides, the different access policies to each of them, significantly limit the comparability of dropout rates. On the other hand, the literature review developed also found that a considerable amount 78% of the most recent sociological research aimed at determining the main explanatory factors for dropping out of HE. The academic factors (curricular structure, organizational climate, teaching practice, academic demands, equipment and physical infrastructure of the educational center, and among others), external or extra-academic factors (demotic, socio-cultural, political, and economic), personal factors (intrinsic motivation, expectations, preferences, and interests) has made privileged use of the production of primary information through the application of the survey technique, almost always according to a self-administered modality, and its corresponding statistical analysis.

In general terms, there is no doubt that the survey technique allows the production of a large amount of standardized and organized information in a short time and, in addition, at a minimum economic cost. No other primary information production technique could offer such capacity; here lies the great comparative advantage of its application: i) A lot of information in a short time; ii) Operating facilities; and iii) Economy of resources. Indeed, the survey is a “semantically poor but pragmatically rich device. Although not theoretically justified, it is practically justified” [39]. Furthermore, the application of this technique, based on the standardization of the questions and categories of analysis and on the quantification of the responses produced, facilitates the subsequent comparison of results and their generalization (at least within the limits set by the sample design carried out). These are the main advantages, of a clear pragmatic nature, of the application of the survey technique in social research.

But if, based on the opinion of the respondents, what is intended is to determine the main explanatory factors for student dropout in HE, these advantages are nullified when it is admitted that “there are indicators and variables that, although they may be relevant and very incidental to the phenomenon of dropping out of studies, quantitative approaches do not explore due to methodological difficulties (for example, operationalization and/or measurement)” [40]. There may also be methodological difficulties associated with certain forms of statistical analysis, such as those corresponding to descriptive statistics. As Cabrera *et al.* [41] have pointed out, “the real danger of using descriptive statistics [...] is that the choice of variables automatically defines the problem and the solution”. But this danger does not exist if one uses, for example, multinomial logistic regression models. In the application of surveys, such difficulties emerge together with others of an equivalent nature, especially those related to the validity and reliability of the primary information produced in this way.

These findings, added to the recognition of the multidimensionality and complexity inherent to the phenomena of student dropout and persistence in HE, “have promoted, more recently, complementary methodological approaches that include the use of qualitative strategies aimed at understanding the dynamics implicit in the transition processes to university and designing contextualized studies in different realities” [42]. Understanding such dynamics requires not only knowing the magnitude and relative importance of the intervening variables, but also, necessarily. The meanings that the actors attribute to the actions that configure such dynamics: “what matters in students’ decisions to stay or leave are not their interactions, as objectively defined, but how they understand and draw meaning from those interactions” [33]. The need and the convenience of a more adequate exploration the more pertinent, more meaningful, and more effective. Thus, it drives the adoption of other types of research strategies and practices.

3.2. Dependence on Tinto and Seidman models, and their deficient factual bases

As mentioned above, academic production on dropout in HE suffers from an excessive dependence on the theoretical models that are currently hegemonic in the western world. Tinto’s and Seidman’s, as the

most frequently cited in the literature reviewed, explains the tacit and uncritical acceptance of the factual bases on which they are built [35]. In this regard, as will be shown, the research that motivated the present text allows us to affirm that the currently most accepted models and theorizations about dropout and student persistence in HE, both nationally and internationally, are built on deficient factual bases in terms of validity and, above all, reliability.

Among the vast spectrum of survey forms designed to account for dropout phenomena and student persistence in HE from a predominantly behavioral perspective, the model example, at least if we evaluate it based on the degree of ubiquity of their employment is that provided by the NSSE. Which is widely applied in the US and also used in the latest research by two of the main theoretical references on dropout in HE [30], [33]. In Australia, there is a slightly modified version. The Australasian survey of student engagement (AUSSE) also of fairly widespread application [43]–[45]. In many Latin American countries, from the first edition of the Latin American Conference on Dropout in Higher Education (*Conferencia Latinoamericana sobre el Abandono en la Educación Superior*), in 2011, the survey on dropout in HE proposed in the project ALFA-comprehensive university dropout management (ALFA-GUIA) began to be applied, initially funded by the European Union and currently supported by IESALC-UNESCO. This survey forms suffer from the same basic drawbacks as those of the NSSE and AUSSE.

The NSSE, created by a team of experts led by Peter Ewell of Indiana University, began to be applied in 2000 [46]. Soon its use for research purposes and increasingly also as an assessment tool for universities spread throughout the US and many countries in the western world. In fact, in 2009, just 10 years after its creation, the NSSE was applied in almost 1,400 universities [32]. In one of the main investigations on student persistence in the first year of HE in Uruguay [47], a longitudinal study was developed that took the NSSE as the basis for the elaboration of one of the modules of a retrospective follow-up survey monitoring of young people who had been evaluated by the program for international student assessment (PISA) in 2003.

It is striking that a project as complex as that of the NSSE both the construct itself and the research that nurtures it has received little criticism. It may be due to the fact that it is an uncritically accepted academic orthodoxy [24]. However, “despite its popularity and the large volume of research that supports its use [...], the validity of the NSSE survey to assess the impact of the university on the student is being questioned by a growing number of researchers” [32]. A general question is that “the definition of student engagement within the behavioral perspective is limited and unclear. This restricts its usefulness as a research perspective for understanding student engagement [since it] blends institutional practices with student behavior” [45]. Furthermore, although for its creators the items and scales of the NSSE are robust, theoretically and empirically associated with good psychometric properties, and have construct validity and reliability [48]. Other researchers consider that some items lack theoretical justification and it is appropriate to include other scales and dimensions derived from factor analysis [47]. Several authors [32], [44], [45], have also questioned the predictive validity of NSSE-based results. For its part, Coates [49] emphasizes the comparability problems of studies applied by the NSSE and its Australian substitute, the AUSSE, given that the comparison of the survey results between countries, between organizations and between ‘careers’ is precisely the main task of its implementation.

Another relevant criticism of the NSSE is that it focuses only on the aspects that the institution can handle, manage or control, and then “a wide range of other explanatory variables are excluded, such as student motivation, expectations, and emotions” [45]. This exclusion is significant, since, as has already been emphasized, the emotional and the motivational have an enormous impact on learning [24], [50] and, therefore, also in the persistence or in the abandonment of studies. Another limitation of the NSSE form is that it is like “a single wide angled snapshot and as such misses much of the complexity of the construct: engagement is both dynamic and situational” [45]; furthermore, “a single survey instrument spanning all disciplines is problematic when there is evidence that teaching and learning vary across disciplines” (idem). In a similar vein, Zepke [24] states that the indicators included in the NSSE and AUSSE questionnaires normalize the meaning of engagement and that the research that led to both provides a totally inadequate understanding of this ‘one size fits all’ phenomenon.

Kahu [45] highlights some deficient aspects of the NSSE form that are in the background in terms of relevance: “the reliability of student responses regarding the skills they have acquired or used must be questioned in light of research showing students struggle to understand academic terms such as “thinking critically and analytically”. According to this author's argument, both certain problems with memory and recall and the predisposition to respond are potential limitations on the validity of the data produced in this way. However, the criticisms and questions about the NSSE form on which it corresponds to emphasize here refer to the degree of validity and reliability of the answers provided by the surveyed students. In this sense, Kahu [45] affirms that questionnaires such as the one from the NSSE “obscure the participant voice with no opportunity for a perspective that does not fit the predefined questions”, and therefore fail to capture

the dynamic nature of student engagement. All of this leads to the conclusion, as Kahu herself suggests, that qualitative measurements are more effective tools.

Another limitation of the NSSE and of all surveys of a similar type that restricts its usefulness for understanding student engagement. Also, the explanatory factors for dropping out of studies in HE is that the responses provided by the respondents do not allow us to know the underlying reasons for that response, or why they gave those answers and not others. For example, if on the NSSE form the respondent answered that he/she never worked in a group and that outside the classroom rarely discussed ideas about his/her subject with teachers, this information is of little use to the researcher, since he/she is prevented from knowing much more relevant and significant opinions for interpretive work, such as the reasons that led to him/her not working in a group (because he/she prefers to work individually?, because he/she was never asked to do so?, because his/her classmates were discriminating against him/her?), as well as the reasons that led to him/her leaving the classroom only rarely discussed ideas about his/her subject with teachers (because he/she is shy?), because his/her teachers did not enable that possibility?, because he/she lacked time to do so?, because he/she did not want to show his/her academic shortcomings? and even more relevant, for what reason on some occasions it did so and on others did not.

3.3. Reliability of the set of responses that the respondents produce when applying the NSSE form questions to them

In the fieldwork deployed, it was corroborated that the reliability of the set of responses that the respondents produce when applying the NSSE form questions to them is deficient. As mentioned above, this corroboration was materialized with the deployment of two methodological instances: i) Between July and September 2016, a census survey was applied to students who in 2014 had entered one of the three HE centers considered both those who continued studying and those who had abandoned their studies by that date in which a section of the NSSE form was included: The six sets of questions aimed at determining the student's degree of engagement; and ii) As of October 2016, the in-depth interview technique began to be applied to a sample slightly larger than 10% of that universe (16 students who as of July-September 2016 were still studying and 32 who had dropped out of their studies as at that date), in the course of these interviews, the same section of the NSSE form was reapplied.

In this last instance, almost all respondents provided responses different from those that they themselves had provided in the census survey. In those cases, some additional questions were asked in order to account for this difference. Also, it could be inferred that the reliability of the responses provided in an interview situation was significantly higher than that of those provided in a survey situation.

Two other findings contributed to explain the low reliability of the responses provided in a survey situation, as well as their low significance and semantic thickness. One of them is that the respondents revealed a notorious difficulty in answering with certainty most of the questions in the module on student engagement in the NSSE application form. This difficulty responds to the inherent limitations of the technique: the response options offered by the survey form constrain the respondent to choose one of them, which may be far from their opinion on the subject matter (if they actually have one). The few seconds that the respondents usually take to answer each question inhibits the possibility that their answers will faithfully conform to their opinion. In those few seconds, the respondent must mentally elaborate a kind of average interpretation of some of his/her academic experiences, which in many cases lacks relevance, meaning and, above all, rigor.

The other finding arose as a consequence of a fortuitous event. There were five surveys that, due to tracking errors, were carried out twice (with about three weeks of difference between one and the other, and administered by the researcher, who in that instance also officiated as an interviewer). In these cases, the responses provided by these five respondents in the second survey were markedly different from those provided in the first.

4. CONCLUSION

The research that gave rise to this text allowed us to conclude that the modesty of the results achieved in the last forty years by the school retention actions carried out by universities finds its explanation, to a certain extent, in the following three observations: i) The significant weaknesses of quantitative approaches, which are those most commonly utilized in determining rates and explanatory factors of dropout in HE as empirical support for most of those retention actions; ii) The deficient factual bases of those approaches, due to an excessive dependence on Tinto's or Seidman's dropout models, that have their own deficient factual bases; and iii) The deficient reliability of the set of responses that the respondents produce when applying the NSSE form questions to them, that is the most recurrently survey utilized throughout the western world in empirical studies on dropout in higher education.

This reaffirms the need to provide an alternative model to those of Tinto and Seidman that in addition to contemplating the theoretical arguments presented here, is based on more reliable factual bases. Beyond the arguments presented, it should be emphatically pointed out that the limitations of the NSSE survey form or, in general, those inherent to the survey technique especially the opinion poll do not disable or invalidate its application in research that seeks to determine the main explanatory factors for the phenomena of dropout, student persistence or student success in HE. On the contrary, despite these limitations, the application of the survey technique is relevant and useful in technical terms and, above all, pragmatic terms (operational facilities, economy of resources). However, these pragmatic advantages must be avoided in order to encourage the temptation to succumb to scientific practices that dispense with desirable theoretical-methodological criticism and careful epistemological vigilance.

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