

# **Validation of the Early University Dropout Intentions Questionnaire (EUDIQ-R)**

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*Since the implementation of the European Higher Education Area, university dropout rate has become consolidated as an indicator of quality, due to the negative impact it can have. However, there are not many validated instruments available to study it. In this context, the objective of this study was to validate a reduced version of the Early University Dropout Intentions Questionnaire (EUDIQ-R), based on a theoretical model derived from the main studies in this area and with reference to other instruments of interest. To validate the questionnaire, we took a sample of 1921 students from three Spanish universities, and beginning with a preliminary version, produced a final questionnaire with 13 items grouped into three factors: satisfaction, social adaptation, and self-regulation strategies. The final questionnaire had an overall reliability of .865. The subscales also demonstrated satisfactory reliability and the factorial structure of the confirmatory analysis gave good indices of fit, in agreement with the principles, results, and conclusions of studies into dropout.*

*Keywords: university, dropout, European Higher Education Area, questionnaire, validation*

## **INTRODUCTION**

Although research into university dropout began in the 1930s, it was not until the 1960s that it had grown to create a sufficiently broad corpus underpinning the conceptual and methodological bases of field (Torres, 2012).

Subsequently, with the birth of the knowledge society (Freudenberg & Youn, 2016) and its particular development at the beginning of the new millennium, there was a global drive to modernize higher education systems, which was achieved in Spain by implementing the European Higher Education Area, the EHEA (European Higher Education Area, 2020). In this context, graduation and dropout rates at university became even more important, as they were established as key indicators in higher education quality assurance systems (Boone, 2017; Diaz & De León, 2016).

Higher education dropout rates are between 30 and 50% of university students in Europe (Alban & Mauricio, 2019) and between 20 and 33% in United States (Lloyd, 2010), as is very common for students at the beginning of their vocational career to feel that they took the wrong occupational pathway (Volodina, Nagy, & Köller, 2015). Consequently, these poor retention rates are a concern for both, Higher Education Institutions and Governments (Padilla-Petry, & Vadeboncoeur, 2020).

This educational context which has led to the need for validated tools that will allow us to analyze the phenomenon of dropout. The problem is that there are hardly any tools that allow us to study it before it happens, in other words, early warning systems that would allow prevention strategies to be created. This is what has given rise to this current study, the objective of which is to construct and validate a reduced version of the original questionnaire which was created to measure the intention to dropout in new university students: a version that is quicker and easier to apply while maintaining high levels of reliability.

## **THEORY AND OBJECTIVES OF THE STUDY**

### **University Dropout and the Current Approach**

The most commonly-used definition of university dropout refers to the situation of those students who, without having graduated, stop their activity in the course they originally enrolled in. It is usually operationally specified when students do not take part in their initial course for two consecutive years, although there are authors who use other time periods. Moreover, the definition of dropout is usually limited to leaving a program voluntarily, and does not include individuals who are forced to leave a course due to poor performance or for disciplinary reasons (Diaz et al., 2016).

Nonetheless, the category of university dropout is broad, and so within it we can find various situations depending on the decisions the students make after leaving their original course: changing to another course, transferring to another university, changing to another course in another university, switching to non-university study, or stopping studying completely to start working.

In addition, it is important to determine a timeframe, as many studies have found a higher rate of dropout in the first year than in subsequent years, probably due to greater difficulties in adapting to the university setting (Respondek, et al., 2017) and its influence in the student persistence and performance in subsequent years (McGhie, 2017). Thus, for instance, academic training programs are particularly useful in the first year, especially those designed to develop self-regulated learning skills, as shown by Delnoij et al. (2020). However, when it comes to preventing dropout in subsequent years, exogenous variables take on more importance, such as teacher availability, the learning environment, and the students' living arrangements (Sosu & Pheunpha, 2019).

Finally, as Braxton (2019) and Litalien & Guay (2015) indicated, it is important to remember that dropping out is not a decision that is taken suddenly at a particular time, rather it is a long process in which the student experiences certain changes which ultimately lead to the decision to drop out of the course or from the university. It may therefore be necessary to consider various contextual factors (Davidson et al., 2009) such as the culture, socioeconomic level, the resources of the public institution, student support systems, the type of course, and the type of residence at university.

In any case, the decision to drop out of a course after it has started has a negative impact on the individual who drops out and their family, as well as affecting the university and society (Diaz et al., 2016), and it can affect various psychological, social, cultural and economic processes. Understanding the specifics of this problem requires deep analysis, making reference to the numerous studies about it which have usually adopted a specific analytical perspective, most commonly employing psychological, sociological, economic, organization or interactionist paradigms (Rodríguez-Muñiz et al., 2019).

### **Precursors to the Early University Dropout Intentions Questionnaire (EUDIQ)**

Dropping out from or remaining on university courses are processes that have been widely analyzed over recent years (Barlett, 2017), with most studies using ad hoc questionnaires with limited validation as research tools (Zierer & Wisniewski, 2018).

This fact, together with the ad hoc construction of the instruments (Esteban et al., 2017) has led to the omission of certain factors that might have restricted the findings, thus limiting the overall picture of the phenomenon (Esteban et al., 2016).

Most of the precursors to the *Early University Dropout Intentions Questionnaire (EUDIQ)* were self-reports designed specifically for each study, with the exception of a few validated tools, presented below:

The *College Persistence Questionnaire (CPQ)* designed by Davidson et al. (2009) was created based on a thorough review of the literature, considering the most salient explanatory theories and models. The questionnaire has 53 items organized in 6 factors (academic integration, social integration, satisfaction with student support services, academic conscientiousness, commitment to the course, and institutional commitment).

The *Cuestionario para el Análisis de la Deserción Estudiantil Universitaria (CADES or CADESUN)* [Questionnaire for the Analysis of University Student Dropout] by Diaz et al. (2016) is a questionnaire with 40 items based on the contributions to the field from Braxton, Milem & Sullivan (2000) and Himmel (2002). It collects information about 5 factors (psychological, sociological, economic, organization, adaption and integration) and 22 subfactors that allow dropout to be analyzed from a broad perspective, although it omits the students' academic behavior.

It is also worth mentioning the creation and validation of a questionnaire by Joo et al. (2009) to measure the factors affecting student persistence in online learning contexts. The questionnaire collects information in 5 dimensions of dropout in virtual learning: student background, personal characteristics, curriculum content, educational environment, and academic results. Although it is an interesting instrument, it was specifically designed to be applied in open learning settings, which are very different from traditional face-to-face settings (Esteban et al., 2017).

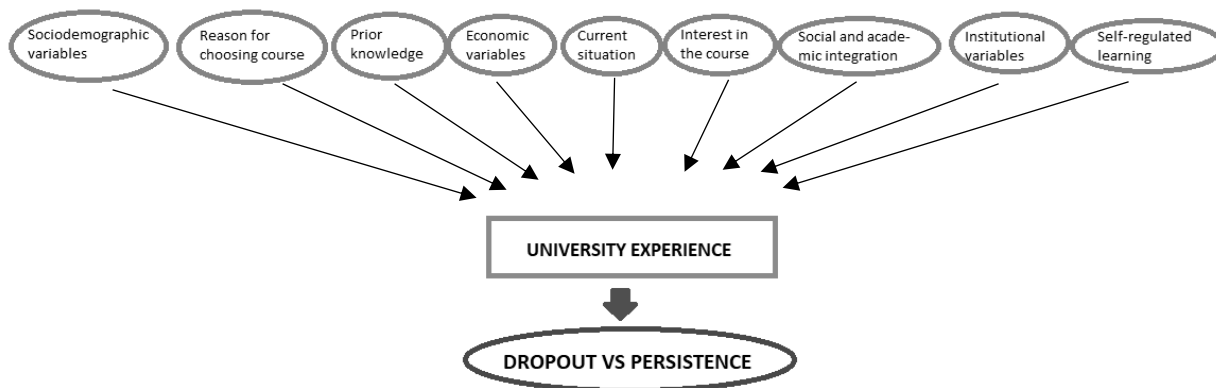
Lastly, there are other questionnaires that address both the phenomenon of university dropout and the living conditions of university students. These include the *Encuesta de Condiciones de Vida y Participación de los Estudiantes Universitarios -ECoViPEU* [Survey of Living Conditions and Participation of University Students]- (Ariño, 2010), the *Kentucky Drop-out Questionnaire* (Kentucky Department of Education, 2010), and the *Whole University Experience Questionnaire* (Ballantyne, 2004).

In summary, despite the long tradition of studying university dropout, there is a clear need to produce more research instruments designed from a unifying perspective which are well validated and available to the academic community. The objective of this is to continue studying this phenomenon in order to design effective prevention and intervention strategies which it is possible to implement in higher education institutions.

### **Construction of the Early University Dropout Intentions Questionnaire (EUDIQ-R)**

The *Early University Dropout Intentions Questionnaire (EUDIQ)* was developed in accordance with an explanatory theoretical model of dropout which included factors and variables from previous studies, explained below, which had shown to influence the decision to drop out. They were grouped in 9 categories of variables as illustrated in Figure 1:

**FIGURE 1**  
**STUDY MODEL OF DROPOUT**



First, the questionnaire included a group of sociodemographic variables (such as sex, age, residence, etc.) which other studies, such as Agherdien & Petersen, (2016), had shown to influence whether students remained on the courses they began.

Second, it included the reasons for choosing the degree course, and especially whether the main reason for the choice was vocational, as that had proved to play a key role in decisions to drop out or remain in an academic program (Aparicio-Chueca, Domínguez-Amorós, & Maestro-Yarza, 2019; Esteban et al., 2017).

Third, it included a block about students' prior knowledge, as this plays a considerable role in students' academic experience. If they do not have sufficient knowledge for their chosen program of study, it will be much harder for them to acquire new learning and achieve satisfactory academic performance (Lou & Jaeggi, 2020).

Fourth, it also considered students' economic situations, because as Cardak & Vecchi, (2016) explained, economic constraints play a fundamental role in remaining at university, including for high-performing scholarship students.

Fifth, it included a series of variables related to students' satisfaction with the chosen course and their performance in it, such as an assessment of the effort required and their ability to deal with the workload (Kadar et al., 2018; Li & Carroll, 2017). This is because both satisfaction with the course and student performance, in relation to the effort the student has to put in to achieve good performance, are significant variables when it comes to deciding to continue with the course or not.

Sixth, it incorporated the findings from Kusumaningrum et al. (2017), who considered a series of indicators about students' interest in the course they were doing. Appropriate course selection by students is essential for the students to find the knowledge that they are going to acquire during their degrees interesting and useful.

Seventh, it included variables about the institution and its characteristics. These included the type of services offered by the university, the type and variety of study help, etc. on the grounds that these could play an important role in the university experience and subsequent decisions to drop out or remain (Díaz et al., 2019).

Factors related to social and academic integration (Smith et al., 2020) were added to the model outlined by Tinto in 1975. Remaining at university rather than dropping out is reinforced by sociological variables, such as the bonds between students and their classmates. Belonging to academic work groups and groups that do cultural activities, etc. helps to strengthen the bond between the student and the institution and prevent dropout. Something similar happens with the relationships between the student and their teachers, as the interactions between them can have a favorable influence on the student's integration in the class.

Given the findings from a multitude of authors (Bowering, Mills, & Merritt, 2017; Respondek et al., 2017; Sáez et al., 2018), the questionnaire also included a factor of self-regulation of learning in the

university experience, as improvement in the metacognitive processes involved in learning has been shown to have a positive influence on academic performance, and therefore is usually addressed in interventions to reduce dropout.

Finally, we must stress that a student's decision to drop out or continue with their studies cannot be explained totally by a single factor. The students themselves have reported a variety of reasons that seem to influence this decision (Rumberger & Rotermund, 2012). This is why the questionnaire was made up of various factors that explain to a greater or lesser degree the reasons that lead the student to consider dropping out of higher education.

### **Objective of the Current Study**

Given the above, the objective of this study was to construct and validate the reduced version of the *Early University Dropout Intentions Questionnaire (EUDIQ-R)*, a rapid, reliable instrument for measuring the intention to drop out in first year university students.

## **MATERIALS AND METHODS**

### **Participants**

In this study, 1921 students participated, mostly from three Spanish universities; The University of Oviedo (60%), The Autonomous University of Barcelona (22.6%), and The University of Salamanca (17%). There were also students studying in other universities. A quarter (25.9%) of the students were studying for degrees in psychology or speech therapy, 24.1% were studying for degrees in teaching or education, 23.5% were studying business or economics, 11.5% were studying nursing, 8% were studying law and the remaining 6.9% were studying other degree courses (chemistry, physics, English studies, etc.).

The majority of the participants (70.1%) were women, with men making up less than a third (29.9%). The mean age was 19.81 years old ( $SD=3.501$ ). A little less than half of the students (44.9%) had sought grants for their study, and almost a fifth (18.4%) were doing paid work in addition to studying. The vast majority (88.3%) were doing their first degree, and 88.1% were exclusively doing courses for the first time (i.e. they were not repeating courses).

### **Instrument**

For this study, we used the *Early University Dropout Intentions Questionnaire (EUDIQ)*, an instrument designed *ad hoc*, which examines the reasons motivating university students to consider dropping out of the academic course they are on (Bernardo et al., 2019).

As noted above, the initial (pre-validation) test had nine blocks. This included 66 items split into eight blocks corresponding to 8 groups of variables that, according to the literature, had been shown to have an influence on the phenomenon being studied. In addition, there was an initial block, or block 0, with items related to sociodemographic information and student classification (including: sex, age, availability of grants, mean grade, parents' educational attainment, etc.) with item responses that could be dichotomous, multiple choice or short answer.

The first block referred to the reasons for choosing the degree course. It contained 13 items such as: "I chose this degree for vocational reasons", "I chose this degree for the possible jobs it could lead to", "I chose this degree because of family tradition", and "I chose this degree because my grades passed the cut-off point", etc.

The second block asked about student's previous knowledge and was made up of 4 variables related to whether their prior knowledge was sufficient to deal with their degree course, whether their study methods were suitable, and whether their levels of interest and concentration were better at the present than in *Bachillerato* [the last two years of secondary education].

The third block examined economic aspects and was made up of 2 items that asked whether paying for the degree course was a significant effort for the family, and whether obtaining a grant was what allowed the student to finance studying for their degree.

The fourth block gathered information about the student's situation during the period of study at the time the questionnaire was applied. It included 11 items, such as "I think that studying is exhausting me emotionally", "I keep up-to-date with my courses", "I study every day", "I think I can pass the course", etc.

The fifth block collected information about how interested the student was in the degree. It contained 5 items: "I am very interested in the course content", "I would settle for a pass in the courses", "I try to get the best grades possible", "I study what we look at in class in more depth", and "I am often distracted".

The sixth block sought to assess how well the students had adapted. It was broken down into 6 items referring both to the level of academic and social adaptation, with questions such as, "I have a good relationship with the teachers at the university", "I have a good relationship with my classmates", "I feel as I am part of the class", etc.

The seventh block, about institutional variables, had 3 items: "I am aware of the existence of mechanisms to help with student orientation and joining the university", "I would recommend studying at this institution", and "I think that the general quality of teaching in the University of Oviedo is excellent".

Item responses in these seven blocks used a Likert-type scale with five response options: 1) completely disagree, 2) disagree, 3) neither agree nor disagree, 4) agree, and 5) completely agree.

Finally, the eighth block referred to aspects related to self-regulation of learning. This block had two subsections, one with 2 items: I plan my study, and I evaluate my learning, also with a 5-point response scale, although here the scale was: 1) Never, 2) Daily, 3) Weekly, 4) Monthly, and 5) In the long term. The second subsection contained the items: "before beginning a study session I set out an objective for it", "I organize my study sessions according to the difficulty of the topic, my prior knowledge, how I feel, etc. to make the best use of my time", "while I study I use strategies to make sure that I can really understand and remember the material", "I actively participate in my study and learning because a deep understanding is important for my intellectual growth", "I habitually use self-regulation strategies (planning, execution, and evaluation) in my study and learning", and "I think that using self-regulated learning strategies increases the chances of having good academic performance". At the end of this section, we included the item about considering dropping out ("I often think about stopping studying and quitting the current degree course") also with a Likert-type response.

However, to produce the model for the reduced version, we used only the items which were most consistently related to satisfaction (which included 3 items from the section about the current situation and 1 from the block about interest), social adaptation (3 items), and the students' use of self-regulation strategies (6 items in the second subsection), as these were the items which had demonstrated the greatest influence on the intention to drop out. These are given in Table 1. Thus we produced a reduced questionnaire with 13 items, spread over those three factors, which had a reliability of .865, plus an initial block, or block 0, with items related to sociodemographic information and student classification (such as: sex, age, availability of grants, mean grade, parents' educational attainment, etc.)

In this regard, the elimination of various items from the initial version, and them not appearing in defined factors can be understood to be due to the diversity of aspects that make up the phenomenon of dropout. For example, within this body of research, one can find secondary elements that have their own peculiarities, despite making up part of the common core of the research. This is the case of the differences that may arise in the study of the intention to dropout (Díaz-Mújica et al., 2018), already consolidated dropout, early dropout (Ríos, Peña & Aguilar, 2016), and the general profile of dropout (Bernardo et al., 2017), etc.

Considering the sample (fundamentally first-year students) and the study objective (examine new students' intentions to drop out in order to be able to take preventive action before they actually do drop out), it is not surprising that it is appropriate, both theoretically and methodologically as not significant, to remove certain variables related to aspects such as relationships with teachers or the evaluation of institutional services, which would require more time for the students to be able to form a proper judgement.

**TABLE 1**  
**FACTORS AND VARIABLES IN THE QUESTIONNAIRE**

<b>Dimensions</b>	<b>Variables</b>	<b>Description</b>
Satisfaction	SAT1	The degree course I'm doing meets the expectations I had about it.
	SAT2	I feel that I am learning things which will be useful for my future.
	SAT3	I am satisfied with my choice of degree course.
	SAT4	I am very interested in the course content.
Social adaptation	ADS1	I feel that I have integrated well with my classmates.
	ADS2	I have a good relationship with my peers in class.
	ADS3	My level of adaptation to the social surroundings is satisfactory.
Self-regulation	AUT1	Before beginning a study session, I set out an objective for it.
	AUT2	I organize my study sessions according to the difficulty of the topic, my prior knowledge, how I feel, etc. to make the best use of my time
	AUT3	While I study I use strategies to make sure that I can really understand and remember the material.
	AUT4	I actively participate in my study and learning because a deep understanding is important for my intellectual growth.
	AUT5	I habitually use self-regulation strategies (planning, execution, and evaluation) in my study and learning.
	AUT6	I think that using self-regulated learning strategies increases the chances of having good academic performance.

Finally, although the item about intention to drop out used a 5-point Likert-type scale, to simplify the analysis, we recoded it using a dichotomous yes/no scale. Higher values: 3) Neither agree nor disagree, 4) Agree, and 5) Completely agree were recoded as 1=There is an intention to drop out; lower values: 1) Completely disagree and 2) Disagree were recoded as 0=There is no intention to drop out.

### **Procedure**

The application procedure began with contacting the teachers in the various universities and degree courses to request their collaboration. Following that, we confirmed dates and times with the interested teachers so that members of the research team could visit the class during ordinary teaching times and apply the test, which could be completed online or on paper.

At all times, confidentiality of data and anonymity were assured, according to the usual ethical criteria for these types of studies. We complied with the precepts of the Declaration of Helsinki on ethical principles for medical research in human beings.

### **Data Analysis**

The descriptive analysis, and the analysis of the reliability of the overall scale, including the reliability of the subscales making up the definitive questionnaire were carried out using the SPSS statistics package, version 24 (IBM, 2016a), and JASP, version 0.11.1 (JASP Team, 2019).

The confirmatory factor analysis was performed using AMOS version 24 (IBM, 2016b). This analysis allowed us to set a hypothesis regarding the structure of the construct and test the previously created model, in which we proposed *a priori* the set of relationships between the elements making it up.

## RESULTS

### Items

Table 2 shows the response distributions for the various items in the scale, split into their different subscales, with information about the range and variation of the scores, means, standard deviation, asymmetry, and kurtosis. It shows that in general, the perception of the items in the scale was positive, with the means in all cases above the middle value (3, Neither agree nor disagree).

**TABLE 2**  
**ITEMS IN THE SCALE**

Item	Minimum	Maximum	Range	Mean	Standard deviation	Asymmetry	Kurtosis
SAT1	1	5	4	3.79	.885	-.665	.430
SAT2	1	5	4	4.24	.779	-1.183	2.084
SAT3	1	5	4	4.25	.814	-1.166	1.638
SAT4	1	5	4	3.85	.781	-.709	1.048
ADS1	1	5	4	4.12	.829	-.982	1.180
ADS2	1	5	4	4.20	.722	-.725	.670
ADS3	1	5	4	4.13	.777	-1.011	1.734
SR1	1	5	4	3.75	1.040	-.925	.449
SR2	1	5	4	4.01	.891	-1.193	1.831
SR3	1	5	4	3.85	.877	-.842	.819
SR4	1	5	4	3.73	.828	-.555	.472
SR5	1	5	4	3.46	.952	-.491	-.043
SR6	1	5	4	3.94	.755	-.565	.703

### Scale Reliability

In order to assess the reliability of the scale, we calculated both the reliability of the overall scale and the reliability of the different subscales using Cronbach's alpha and McDonald's omega, on the assumption that the latter is more suitable for Likert-type scales.

Owing to the need to use this latter analysis, we used the statistics program JASP (JASP Team, 2019) to calculate both statistics, using the data from the 1921 subjects with no exclusions. As Table 2 shows, all of the reliability results were high, above .80, with the results from the social adaptation scale ( $\alpha=.8669399$ ;  $\omega=.8734598$ ) and the general scale ( $\alpha=.8209142$ ;  $\omega=.8223015$ ) being particularly notable.

**TABLE 3**  
**SCALE RELIABILITY STATISTICS**

Scale	McDonald's $\omega$	Cronbach's $\alpha$	95.0% Confidence Interval	
			Lower	Upper
Overall scale	.8223015	.8209142	.8089009	.8324840
SAT subscale	.8120221	.8111432	.7969661	.8245679
AD subscale	.8734598	.8669399	.8562915	.8769242
SR subscale	.8047201	.8025242	.7885230	.8158974

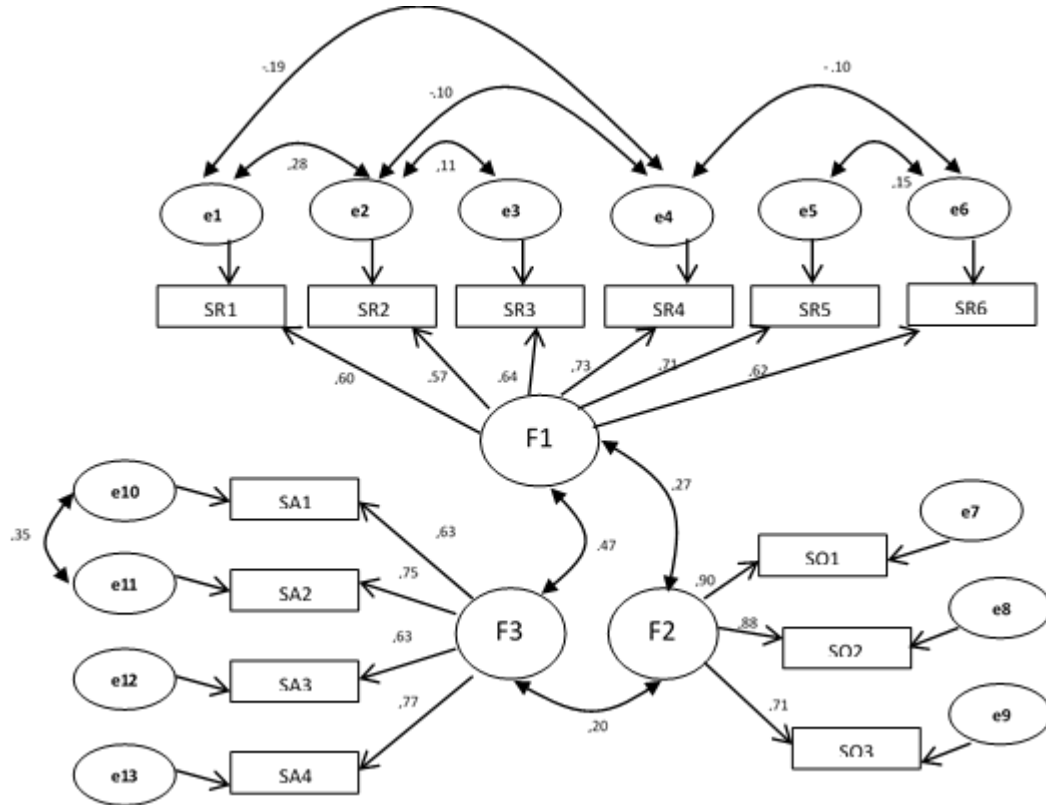
### Confirmatory Factor Analysis

Lastly, Figure 2 shows the factorial structure from the confirmatory analysis, demonstrating suitable levels for the 3-factor structure with appropriate indices of fit (Hu & Bentler, 1999):  $\chi^2_{(55, N=1921)}=188.285$ ;



$p < .001$ ;  $\chi^2/df = 3.423$ ; RMSEA = .036 [.030, .041]; SRMR = 0.0324; GFI = .985; AGFI = .976; CFI = .986; NFI = .980; TLI = .980.

**FIGURE 2**  
**GRAPHICAL REPRESENTATION OF THE CONFIRMATORY FACTOR ANALYSIS**



As Figure 2 shows, the intention to drop out is related to a scale that has a structure determined by three factors: self-regulation (six empirical variables), satisfaction (four variables), and social adaptation (three variables). In addition, the loading of the different variables within each factor is high and balanced, notably items SR4 and SR5 in the self-regulation factor, SA2 and SA4 in the satisfaction factor, and the three items, SO1, SO2, and SO3 in the social adaptation factor, all with loadings above .70.

The items making up each factor are given in appendix 1, which includes the final questionnaire along with the items related to student sociodemographics and classification, and the items for each factor (labelled and numbered as they appear in Figure 2).

## DISCUSSION AND CONCLUSIONS

The objective of this study was to construct a reduced, validated version of the *Early University Dropout Intentions Questionnaire (EUDIQ-R)*. As the previous section indicated, the overall instrument and the component subscales demonstrated good reliability, with Cronbach's alpha and McDonald's omega indices above .80 in all cases, which is more than satisfactory (Frenzel et al., 2016). In addition, the confirmatory factor analysis demonstrated adequate indices of fit for the 3-factor model, with factors of self-regulation, social integration, and satisfaction.

Below, we discuss some of the aspects related to the factors and items in light of findings from other research.

The first factor, self-regulation, referring to the participants' perceptions of their skills and abilities for self-regulated learning, demonstrated considerable influence in the intention to drop out of the degree course. This factor comprised 6 of the 8 items in the *self-regulation block* in the original questionnaire. Our study shows the importance of variables related to planning, execution, and monitoring activities, and the belief that the application of these self-regulation strategies will increase the chances of getting good grades, and they formed part of the model. These results are in line with findings from many other researchers who have made the link between low values in these variables and greater risk of dropping out (Bowering et al., 2017; Respondek et al., 2017; Sáez et al., 2018; Van Rooij, Jansen, & Van de Grift, 2018). However, the variable "I evaluate my learning" was not included in the model, which makes sense as it is about a metacognitive activity that is more difficult and therefore less common (Winne, 2018).

The second factor, social integration, refers to the participants' perceptions of their own social integration and is mostly limited to their relationships with their peers or classmates. This factor is made up of 3 of the 5 items in the *integration block* in the original questionnaire, with two items related to academic integration and students' relationships with teachers not included. This exclusion is noteworthy, as according to Tinto's model (Smith et al., 2020), both types of integration –social and academic– are important in preventing dropout. However, in our study, only social integration is considered in dropout intention.

The third and final factor, satisfaction, refers to students' satisfaction with the choice of degree course and whether it meets their expectations, as well as the sense of learning something important for their future and their interest in the course content. In terms of satisfaction with the chosen degree course, the results from Ambiel & Barros (2018), Han & Kang, (2016), and Hardre et al., (2019), among others, agree with our findings that it is an important variable for predicting the intention to drop out. In addition, as noted by Diniz et al. (2018), the course meeting expectations is one of the factors to consider when making decisions about remaining on a degree course. Lastly, results regarding the influence of interest in the course content and the perception of its usefulness are in line with previously found results.

We can conclude that the reduced version of the *Early University Dropout Intentions Questionnaire (EUDIQ-R)* has suitable psychometric properties to be used in predicting university students' intentions of dropping out. It allows us to identify an at-risk group and apply preventative strategies to them.

One future line of research will be to apply the questionnaire in different countries and different languages to reaffirm its validation.

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