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Association between procrastination and academic dropout intention in university students

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ABSTRACT

Academic dropout is a concern in the current university context and addressing it is especially complex, as the reasons or causes behind it are multifactorial. Among these factors, procrastination stands out, so this study aims to analyse whether university students with high levels of procrastination have a greater intention of dropping out of university. Using a quantitative methodology with a procedure based on an unintentional non-random sampling, a validated scale was applied to 1001 undergraduate students from two Spanish universities. The study's results show that 18.8 % of the participants expressed an intention to drop out of their studies. Additionally, the findings reveal a moderately low level of procrastination among the students, with statistically significant differences between those who intended to abandon their university degree and those who indicated they would continue their studies. The conclusions derived from the study confirm the initial hypothesis, which reflects a positive correlation between procrastination levels and the intention to drop out of studies. Therefore, there is a need to strengthen research into the relationship between these two constructs, as well as the influence that other variables can exert, as they affect the teaching and learning process in the university context. At the same time, through education in general and academic guidance in particular, intervention is needed to ensure that university students have the resources and support to reduce their procrastination levels, as well as specific tools that help students self-assess to reduce the impact that certain factors, such as procrastination, have on academic dropout intentions.

1. Introduction

One of the factors that help us understand academic dropout in university students is academic procrastination, as reflected in studies developed by Arnold (2022), Derakshan et al., (2022), Kim and Seo (2015), and Muñoz-Olano and Hurtado-Parrado (2017).

However, despite the limited existence of studies focused on examining the correlation and incidence between both constructs, the specific literature remains inconclusive. Therefore, it is necessary to continue offering research findings that help clarify the possible effects between these or other variables related to procrastination, such as academic

efficiency, grades, study progress, etc. (Cormack et al., 2020; Zumárraga-Espinosa & Cevallos-Pozo, 2022). According to Tisocco and Fernández-Liporace (2022), among others, this is a multifactorial phenomenon, requiring investigation into the incidence of these variables to contribute to the reduction of procrastination levels and provide the necessary resources and services to mitigate students' procrastination tendencies (Katane & Jerkunkova, 2020).

In this context, the study conducted by Steel (2007) shows that procrastination arises from a reaction to an adverse task, which leads the individual to believe that the task will require greater effort and generate anxiety. Consequently, procrastination is likely to occur. This

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behaviour, specifically in the educational framework, translates into the deliberate postponement or delay of academic responsibilities and tasks, sometimes leading to distraction (Garzón-Umerenkova & Gil-Flores, 2017; Zhao & Elder, 2020), which can result in spending less time on tasks, and consequently, less optimal preparation for final evaluations or exams.

The reasons for procrastination are diverse, ranging from occasional to chronic forms, requiring a comprehensive, dimensional, and multifactorial approach for their understanding and study (Rebetez et al., 2022). In this sense, the most recent scientific literature related to procrastination in higher education links it with other variables and constructs, such as motivation (Tisocco & Fernández-Liporace, 2022), anxiety (Akpur, 2017), age and academic year (Rodríguez & Clariana, 2017; Rozental & Carlbring, 2014; Stewart et al., 2016), demographic characteristics (Carranza & Ramírez, 2013), satisfaction (Balkis & Duru, 2017), internet addiction (Ramos-Galarza et al., 2017), self-efficacy perception (Shaked & Altarac, 2022), commitment (Aspée et al., 2021), classroom methodologies (Ergulec et al., 2022), academic performance (Hidalgo-Fuentes et al., 2021), or types of curricular practices (Schmidt et al., 2022), among others, all indicating growing concern over this issue.

Transferring this premise to the educational context, several studies report high procrastination rates among university students, ranging from 70 % to 90 % for those who postpone academic activities (Goroshit & Hen, 2021), and between 30 % and 50 % for students who procrastinate regularly (Bäulke et al., 2021; Hayat et al., 2020; Martín-Antón et al., 2022).

Despite this, existing research on this topic from a correlational perspective is insufficient, as most work focuses on other variables explaining several phenomena related to the teaching and learning process, which procrastination impacts. Studies carried out by Bardach et al. (2020), Bäulke et al. (2018, 2022), Grau and Minguiñon (2013), Gubbels et al. (2019), Katane and Jerkunkova (2020), and Scheunemann et al. (2022) suggest the predictive role of procrastination on students' attitudes toward academic dropout. Additionally, studies by Brandstätter et al. (2013) and Ghassemi et al. (2017) highlight the importance of factors such as satisfaction with studies or the perceived usefulness of the university degree, which are decisive for academic dropout intentions, and in some cases, also lead to academic procrastination. Furthermore, research shows how procrastination decreases academic engagement, compromising student achievement (Derakhshan et al., 2022; Dike & Emmanuel, 2019; Wei et al., 2023) and sometimes leads to repeating subjects or dropping out of studies definitively (Garzón-Umerenkova & Gil-Flores, 2017).

1.1. Instruments for measuring procrastination and its incidence in academic dropout

The study of the association between procrastination and the intention to drop out is crucial to determine whether dropout is influenced by a single factor or, conversely, is multifactorial (Urbina-Nájera et al., 2020). Over recent decades, various instruments have been developed, (subjected to procedures analysing their psychometric properties), to diagnose or predict the effects of procrastination on the academic dropout phenomenon in higher education. Notable works, such as those by Monroy and González-Geraldo (2022, p. 65), detail some of the most commonly used scales, including the following ones:

The Procrastination Assessment Scale for Students (PASS) by Solomon and Rothblum (1984); Busko's Procrastination Scale (1998), and Tuckman's Procrastination Scale (TPS) (1991).

Others, such as those by Martín-Antón et al. (2022), explored the psychometric properties by applying the Academic Procrastination Scale (Spanish version) along with the Procrastination-Student Evaluation Scale (PASS), the Unintentional Procrastination Scale (UPS), and the Active Procrastination Scale (APS). On the other hand, Li et al. (2022)

developed and validated a mixed (quantitative and qualitative) scale for Chinese university students. Additionally, Brando-Garrido et al. (2020) adapted the Academic Procrastination Scale (APS-SF) for nursing degree students.

Consequently, as Monroy and González-Geraldo (2022) note, there is no clear consensus on the most appropriate instrument, but it is certain that many of those proposed have sufficient reliability to measure the propensity to procrastinate. Based on the need for educational and academic guidance approaches that minimize the incidence of procrastination in university dropout intentions, this study selected Tuckman's TPS (1991). This instrument was chosen due to its reliability and psychometric properties, as well as the normative data supporting its use in analysing academic procrastination levels (Galindo-Contreras & Olivas-Ugarte, 2022).

1.2. Spanish context

Academic dropout is one of the main problems currently faced by the Spanish university system. The Spanish Ministry of Universities, through its Report on the University System, reveals that in the 2019/2020 academic year, university dropout rates for undergraduate degrees were estimated at 26 % of the student population. Of this, 13.5 % were first-year students who dropped out, while the remaining 12.5 % were students who dropped out to change their degree course (Ministerio de Universidades, 2022).

While this data is lower than in previous years, with percentages close to 30 % (Álvarez-Ferrándiz, 2021), it still has an impact on students, leading to various personal reactions, which had been analysed through the educational or psychological research framework, including demotivation, low self-esteem, procrastination, and dissatisfaction (Lorenzo-Quiles, 2021). Several Spanish studies have explored how various factors can explain the relationship between procrastination levels (Gil-Flores et al., 2019) and, consequently, their relationship with performance and the intention to drop out (Blanco et al., 2022; Fernández Mellizo, 2022; González-Brignardello & Sánchez-Elvira Paniagua, 2023; Manchado Porras & Hervías Ortega, 2021; Peña-Vázquez et al., 2023). This positions Spain at intermediate levels of university dropout rates compared to other developed countries.

In this sense, this paper focuses on analysing the procrastination incidence in the academic dropout phenomenon to make explicit the relationship between these two constructs that condition the teaching and learning process in the university context.

2. Method

This study adopts a positivist paradigm approach to address the phenomenon under investigation through a correlational research design. This approach is appropriate for applying the contrast tests used in this work, as it is based on objectivity, the use of quantifiable data, and rigorous statistical analysis. The use of questionnaires in this study, such as the one proposed, allows for the systematic collection of data, ensuring the replicability and generalizability of the obtained results. The information gathered through this instrument allows for comparison between groups and the performance of robust statistical analyses. Consequently, this methodology is suitable for addressing the objectives and hypotheses of the study.

2.1. Objectives and hypothesis

The goal that guided this research was focused on analysing whether students with a high procrastination level had a greater intention to drop out of their university studies.

The main objective of this research was to analyse the incidence between two variables, procrastination and academic dropout, so the hypothesis formulated for this study is as follows: students with high procrastination levels have a higher intention to drop out of university

(H1). This study is important because the relationship between procrastination and dropout has been little studied in the Spanish context. Understanding the association between procrastination and the intention to drop out will contribute to the design of prevention and support strategies, thus improving student retention and success in university studies.

2.2. Population and participants

The target population for this study consisted of university students enrolled in official undergraduate degree courses at two Spanish universities. Based on these criteria, and from an accidental non-random sampling procedure, 1001 university students participated in the study. Access to the sample was facilitated by direct contact with the students through their course instructors. Further details on the research procedure and ethical considerations are outlined in the section titled research procedure and ethical treatment. The main features of the participating sample are presented in Table 1.

All participants gave their informed consent for inclusion before taking part in the study.

According to the information presented in the table above, most of the students participating in the study were concentrated in the first and second years. This situation could be due to the high participation of students in the degree initial courses, with their motivation to participate in this activities' type decreasing as they advance in the degree. In any case, since the course was not a dependent variable, it does not condition the obtained results.

2.3. Data collection instrument

For data collection, an ad hoc questionnaire was designed to align with the study's objectives and the target sample. Specifically, the instrument consisted of two main sections. The first section included sociodemographic items about the students (age, gender, university, field of study, and the course they were enrolled in), as well as a question related to the intention of university academic dropout. The second section included the procrastination scale (Table 2), proposed by

Table 1
Characteristics of the participating sample and characteristics of the participant sample according to university.

Age	$\bar{x}$ = 20.79 sd = 3.954					
Gender	Men: 25.2 % (n = 252) Women: 73.7 % (n = 738) Not indicated: 11.1 % (n = 11)					
University	University 1: 62.2 % (n = 623) University 2: 37.8 % (n = 378)					
Academic Course/Year	First: 25.4 % (n = 254) Second: 54.2 % (n = 543) Third: 8.9 % (n = 89) Fourth: 9.8 % (n = 98) Fifth: .8 % (n = 8) Sixth: .9 % (n = 9)					
University	Age					
	Mean		Sd			
University 1	21.08		3.72			
University 2	20.03		3.90			
University	Gender					
	Men	Women	Not indicated			
University 1	23.0 %	75.1 %	1.0 %			
University 2	28.6 %	70.1 %	1.3 %			
Total	25.2 %	73.7 %	1.1 %			
	Academic Course					
University	1	2	3	4	5	6
University 1	89.0 %	38.3 %	12.5 %	15.2 %	1.1 %	1.4 %
University 2	11.0 %	61.7 %	12.4 %	3.1 %	12.5 %	.0 %
Total	25.4 %	54.2 %	8.9 %	9.8 %	.8 %	.0 %

Table 2
Items of the procrastination scale used.

Item	Code
I needlessly delay finishing jobs, even when they're important	p1
I postpone starting in on things I don't like to do	p2
When I have a deadline, I wait till the last minute	p3
I delay making tough decisions	p4
I stall on initiating new activities	p5
I'm on time for appointments	p6
I keep putting off improving my work habits	p7
I get right to work, even on life's unpleasant chores	p8
I manage to find an excuse for not doing something	p9
I avoid doing those things which I expect to do poorly	p10
I put the necessary time into even boring tasks, like studying	p11
When I get tired of an unpleasant job, I stop	p12
I believe in "keeping my nose to the grindstone"	p13
When something's not worth the trouble, I stop	p14
I believe that things I do not like doing should not exist	p15
I consider people who make me do unfair and difficult things to be rotten	p16
When it counts, I can manage to enjoy even studying	p17
I am an incurable time waster	p18
I feel that it's my absolute right to have other people treat me fairly	p19
I believe that other people don't have the right to give me deadlines	p20
Studying makes me feel entirely miserable	p21
I'm a time waster now but I can't seem to do anything about it	p22
When something's too tough to tackle, I believe in postponing it	p23
I promise myself I'll do something and then drag my feet	p24
Whenever I make a plan of action, I follow it	p25
I wish I could find an easy way to get myself moving	p26
When I have trouble with a task, it's usually my own fault	p27
Even though I hate myself if I don't get started, it doesn't get me going	p28
I always finish important jobs with time to spare	p29
When I'm done with my work, I check it over	p30
I look for a loophole or shortcut to get through a tough task	p31
I get stuck in neutral even though I know how important it is to get started	p32
I never met a job I couldn't "lick"	p33
Putting something off until tomorrow is not the way I do it	p34
I feel that work burns me out	p35

Tuckman (1991).

Regarding the scale used, it was translated into Spanish by the researchers and subsequently reviewed by a professional translator. The translator compared the translated version with the original English version to ensure both semantic and not just literal equivalence between the items. This process guaranteed that both versions were conceptually and semantically equivalent.

The type of measure used for the different items included in the questionnaire were dichotomous (gender, university and intention to drop out), open-ended (age) and multiple choice (course enrolled). In the specific case of the item related to dropout intention, it was dichotomised into yes (1) and no (2) response options, as used in previous studies such as those carried out by López-Aguilar et al. (2023), López-Aguilar et al. (2022) or Álvarez-Pérez et al. (2021).

The reliability analysis of the measurement scale used is presented in the results section of this manuscript.

2.4. Research procedure and ethical treatment

Data collection was conducted between October and December 2022 using the designed questionnaire. Prior to this, in order to collect information electronically, the data collection instrument was adapted to the Google Forms platform. The questionnaire was then distributed to university students through prior contact with the teaching staff of official undergraduate degrees at the selected Spanish universities. In this initial communication, an email was sent to the teaching staff containing specific information about the study's objectives. They were asked to allocate time from the slots designated for transversal activities/class exchanges to allow their students to fill out the questionnaire. This message also indicated that participation in the study was voluntary and provided information on how the data would be collected solely for research purposes. Ethical mechanisms such as confidentiality,

anonymity, and privacy of participants' identities were emphasized.

To ensure methodological rigor and ethical adherence, the project on which this article is based initially received approval from the University of La Laguna's Research and Animal Welfare Ethics Committee (CEIBA2021-3079), the Biomedical Research Ethics Portal of Andalusia (PEIBA), and the respective Data Protection Offices of the participating universities to ensure its appropriate development. Upon accessing the questionnaire, students were provided with initial information about the study's objectives, a summary, and other relevant details. After reviewing this information, students indicated their participation by accepting or declining the informed consent.

2.5. Analysis and results interpretation

Once data collection was completed, the automatically generated database was downloaded from Google Forms in CSV (Comma Separated Values) format. This data file was analysed using *R-Studio software* (version Build 554, 2022.07.01) for the *Microsoft Windows 10* operating system. The following statistical analyses were conducted: frequencies and percentages, measures of central tendency, reliability calculation, multicollinearity study, normality analysis, and contrast analysis. Additionally, following APA recommendations, the contrast study was completed including the calculation of effect size. Given the analysis methods used, the effect size was calculated using the superiority probability test (P_{Sest}), using *Microsoft Excel Program* (Office 365 version) for the *Microsoft Windows 10* environment, incorporating the following mathematical expression (Erceg-Hurn & Miroseovich, 2008).

$$P_{\text{Sest}} = \frac{U}{m.n}$$

The α value was set at .05 for all analyses performed in this study.

3. Results

3.1. Data screening and preliminary analysis

The work began with a preliminary analysis of the database, including some initial statistical calculations. First, it was verified that the data in the database adhered to the coding scheme proposed for each question (e.g., Likert-type questions were within the expected range of 1–7). Next, it was confirmed that no data were missing.

Once these preliminary aspects were addressed, multivariate atypical cases were identified using Mahalanobis distance. This method calculates a critical value indicating when subjects deviate significantly from the central cluster and can therefore be considered atypical (Muñoz & Amón, 2013). This calculation returned a value of 49.801, leading to the omission of 93 atypical cases. Thus, the final study sample consisted of 908 undergraduate university students.

Additionally, the multicollinearity of the procrastination scale was reviewed to ensure that the items were not redundant. To achieve this, a bivariate correlational study was conducted for each item, confirming that the correlation (r value) for all pairs was $\leq .85$. According to Holgado et al. (2019), this indicated that the items in the applied scale were sufficiently discriminative from one another.

Another preliminary analysis conducted was a data distribution analysis, as this determined whether parametric or non-parametric tests should be used to address the study's objectives. For this purpose, the Shapiro-Wilk and Kolmogorov-Smirnov (KS) tests were applied, and for all cases, p -values were $< .000$. Based on these results and following the approaches outlined by George and Mallery (2001), it was concluded that the data did not follow a normal distribution, and therefore, non-parametric contrast analyses were conducted (Berlanga & Rubio, 2012).

Finally, reliability analysis of the procrastination scale was performed using Cronbach's alpha and McDonald's omega tests. The decision was made to use Cronbach's alpha to meet the requirements of tau-

equivalence, unidimensionality, and continuous measurement scale, as proposed by Raykov and Marcoulides (2017). McDonald's omega coefficient was also considered appropriate due to its greater robustness and efficiency for studies in the social sciences (Viladrich et al., 2017). The observed values were $\alpha = .96$ and $\omega = .97$, both exceeding the cut-off point established by the literature ($\geq .70$) (Taber, 2018).

3.2. Procrastination and academic dropout intention in university students

In this study, 18.8 % of participants ($n = 171$) expressed their intention to drop out of their undergraduate studies. In general terms, the reported procrastination level among university students was moderately low ($x = 2.68$; $sd = 1.164$). More specifically, as shown in Appendix 1, students reported low scores in areas such as feeling miserable about studying ($x = 1.86$; $sd = 1.377$), not believing in the importance of hard work and perseverance ($x = 1.71$; $sd = 1.291$), and not meeting deadlines for coursework, class attendance, and tutorials ($x = 1.67$; $sd = 1.275$). Conversely, they achieved relatively higher scores in areas such as wanting to find an easy way to complete tasks or academic activities ($x = 4.31$; $sd = 2.163$), feeling treated fairly ($x = 4.29$; $sd = 2.287$), and postponing the start of academic tasks they did not enjoy ($x = 3.58$; $sd = 1.987$).

Contrast analyses using the Mann-Whitney U test revealed that students with an intention to drop out scored higher overall on the procrastination scale ($U = 4654.000$; $R = 561.87$; $p < .000$; $P_{\text{Sest}} = .354$). A more detailed analysis (Appendix 1) identified the greatest differences among students intending to drop out in areas such as not starting new academic tasks ($U = 56451.000$; $R = 492.88$; $p = .030$; $P_{\text{Sest}} = .448$) and not meeting deadlines for training agreed appointments for the assignments' completion, class attendance, and tutorials ($U = 55735.000$; $R = 496.96$; $p = .004$; $P_{\text{Sest}} = .442$), as well as negative perceptions about being forced to complete difficult or unfair tasks ($U = 55373.500$; $R = 499.18$; $p = .010$; $P_{\text{Sest}} = .439$).

It is important to highlight that, despite the magnitude of the differences being small for all cases (Erceg-Hurn & Miroseovich, 2008), statistically significant differences were detected across all analysed items between students intending to drop out and those who intended to continue, except for items related to students' feelings about their right to be treated fairly ($p = .300$) and the belief that others do not have the right to give them deadlines for completing academic tasks ($p = .093$).

4. Discussion and conclusions

The results of this study emphasize the importance of continued research into the intention to drop out of university. This is particularly relevant given the data provided by the Ministry of Universities in its 2022 report on the Spanish University System, which indicates a university dropout rate of 26 %, a figure close to the 18 % observed in this study. This dropout intention is also reported in other countries, such as the United States, where the figure is around 14 % (Gubbels et al., 2019). The literature explains this phenomenon through multiple predictive factors, including psychological, sociological, economic, organizational, and interactionist variables (Marcela Urrego, 2019).

Therefore, it is essential to consider not only personal factors but also the socio-political and cultural context within which the university system operates, because constitutes a decisive factor in understanding the functioning of the curricular and structural organization (Ifenthaler & Yau, 2020). This is particularly critical in some Latin American countries, where significant conditions of exclusion and inequality persist (Casasola, 2022).

On the other hand, if we focus on the procrastination levels, in this regard, the specialist literature offers very diverse data, although it seems to be a consensus that a large part of university students engages, at some time, in this action (percentages higher than 90 % are cited), and this is proposed by studies such as those developed by Rahimi et al.

(2016) or Svartdal et al. (2020). In the present study, the procrastination existence has been evidenced, although it could be classified at lower levels, in contrast to other studies such as those carried out by Brando-Garrido et al. (2020) or Kim and Park (2021), in which intermediate levels were found in university students (in both cases different scales were applied, the former using the Brief Academic Procrastination Scale (APS-SF), while in the latter the Aitken Procrastination Inventory was used).

In addition, it has also been shown that students who present a greater intentionality towards dropping out of studies are those who reach the highest procrastination rates, aspects that are shared in recent internationally studies, such as those carried out by Arnold (2022), Baulke et al. (2018), Baulke et al. (2022), Katane and Jerkunkova (2020), Scheunemann et al. (2022), or in the Spanish context, such as the studies of Monroy and González-Geraldo (2022) or Xavier and Meneses (2022).

In this way, it can be affirmed that this shared reality exposes the need to continue researching the relationship between these two constructs that condition the teaching and learning process in the higher education framework. At the same time, the influence that other possible variables can exert must be considered, which can also help to explain the relationship between the intention to drop out of studies and procrastination, since, as has been warned and shown in the consulted literature, this is characterised by being multifactorial (Tisocco & Fernández-Liporace, 2022; Urbina-Nájera et al., 2020; among others).

Additionally, in the process of contrasting groups carried out, significant differences were found in all analysed items, except in two of them (students feel that it is their right to be treated fairly by other people and they consider that other people do not have the right to give them deadlines for their tasks or academic activities' completion). This reaffirms the need to adopt, in education in general and through academic guidance in particular, some approaches that minimize the procrastination incidence in university academic dropout intention. In short, the development of this type of studies would allow more in-depth research on the mentioned topics and the proposals' implementation for guiding action with the aim that university students should have at their disposal the necessary resources and support to reduce their procrastination level.

The most recent literature that has explored the reality of Spanish context (Blanco et al., 2022; Gil-Flores et al., 2020; Peña-Vázquez et al., 2023) helps us to explain how the size of the low effect achieved in this study may not be reflected in studies carried out in other contexts. This is explained by the fact that there are predictive variables that, beyond procrastination, have a greater effect on school dropout.

In conclusion, it can be stated that the starting established hypothesis for this research has been fulfilled, confirming, at the same time, that the academic procrastination shown level by university students has a direct relationship with dropout intention.

That is why the solution to the problem of dropping out of university continues to be an important concern in the framework of focused research on the university context. It is expected that it will reduce procrastination levels and help students to learn to assess themselves, all of which are fundamental and highlighted in the most recent literature (Baulke et al., 2022; Katane & Jerkunkova, 2020).

4.1. Implications, prospective and study limitations

This study addresses relevant issues in pursuit of a solid theoretical basis that is not shown in the existing literature. In terms of practical implications, proposals are put forward for new curricula to include this phenomenon, understanding that procrastination not only entails low academic performance (Feyzi Behnagh & Ferrari, 2022), but it also means abandoning higher education. Finally, as recommendations, self-evaluations on procrastinating habits and strengthening vocational programmes are highlighted.

As a prospective, future proposals should be aimed at implementing

interventions through the student guidance services of universities to reduce procrastination tendencies, considering, at the same time, the complexity of these initiatives because of the multifactorial nature of the academic dropout causes.

Regarding the study limitations, those are related to the sample size stand out, since although it was not intended to be statistically representative, it intended to explore the curricular profiles' diversity existing in the studied universities. On the other hand, the sampling used procedure is also highlighted, due to accessibility criteria, so, in future studies, a random sampling, more subjects and the inclusion of a greater number of university institutions should be considered. Additionally, the need for future studies to include other agents involved in the teaching and learning processes in higher education is mentioned. It would help to broaden the perception, as well as to understand the influence of other topics or variables in the relationship between academic dropout and procrastination. With regard to the last mentioned topic, since we are dealing with multifactorial phenomena, the presented values in this study must be contrasted with data on student performance or graduation rates in order to consolidate the degree to which procrastination tendencies are eventually integrated.

Finally, it should also be considered that only one type of data collection technique (questionnaire) was used, being aware that triangulation with other types of qualitative techniques would provide a more interpretative dimension to the explored variables in the study. This is corroborated by literature, since there is no consensus on the establishment of a clear instrument to measure the propensity to procrastinate and its impact on academic dropout. For this reason, it should be considered that these data may be altered as students' advance in their studies.

CRedit authorship contribution statement

Manuel Delgado-García: Writing – original draft, Supervision, Investigation, Formal analysis, Conceptualization. **Francisco Javier García-Prieto:** Writing – original draft, Investigation, Formal analysis, Conceptualization. **David López-Aguilar:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Conceptualization. **Cristina Ceinos-Sanz:** Writing – review & editing, Writing – original draft, Supervision, Formal analysis, Conceptualization.

Ethics statement

We confirm that the research adhered to the Declaration of Helsinki and that informed consent was obtained from all participants.

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Declaration of competing interest

None.

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In order to adhere the manuscript to the submission guidelines, the name of the participant Universities in the study was replaced with pseudonyms: University of Huelva (University 1) and University of La Laguna (University 2). In this way, the authors try to anonymize the study.

Appendix 1

Analysis of central tendency and contrast between the intention to drop out of university and procrastination.

Item	Dropout intention	Average range	U	p	P _{Sest}	Mean ($\bar{x}$)	Sd
p1	No (n = 737)	435.58	49073.000	.000	.389	2.76	1.842
	Yes (n = 171)	536.02					
p2	No	439.25	51777.000	.000	.411	3.58	1.987
	Yes	520.21					
p3	No	441.48	53414.500	.001	.424	2.54	1.849
	Yes	510.63					
p4	No	436.35	49640.500	.000	.394	2.90	1.855
	Yes	532.70					
p5	No	445.60	56451.000	.030	.448	2.95	1.784
	Yes	492.88					
p6	No	444.65	55753.000	.004	.442	1.67	1.275
	Yes	496.96					
p7	No	438.09	50920.000	.000	.404	2.89	1.929
	Yes	525.22					
p8	No	432.62	46888.500	.000	.372	2.10	1.615
	Yes	548.80					
p9	No	437.77	50682.000	.000	.402	2.28	1.692
	Yes	526.61					
p10	No	438.99	51585.000	.000	.409	2.46	1.719
	Yes	521.33					
p11	No	435.72	49169.500	.000	.390	2.76	1.832
	Yes	535.46					
p12	No	432.55	46835.000	.000	.372	2.59	1.692
	Yes	549.11					
p13	No	441.67	53558.000	.000	.425	1.71	1.291
	Yes	509.80					
p14	No	440.81	52925.500	.001	.420	2.41	1.629
	Yes	513.49					
p15	No	438.67	51348.500	.000	.407	2.12	1.569
	Yes	522.72					
p16	No	444.13	55373.500	.010	.439	2.47	1.751
	Yes	499.18					
p17	No	442.27	54002.500	.003	.428	2.69	1.773
	Yes	507.20					
p18	No	434.06	47950.500	.000	.380	2.97	1.891
	Yes	542.59					
p19	No	458.76	59873.000	.300		4.29	2.287
	Yes	436.13					
p20	No	448.01	58228.000	.093		2.04	1.446
	Yes	482.49					
p21	No	425.70	41785.500	.000	.332	1.86	1.377
	Yes	578.64					
p22	No	416.33	34881.500	.000	.277	2.27	1.730
	Yes	619.01					
p23	No	432.62	46885.500	.000	.372	2.81	1.829
	Yes	548.82					
p24	No	431.00	45691.500	.000	.363	2.93	1.927
	Yes	555.80					
p25	No	437.28	50322.500	.000	.399	2.45	1.648
	Yes	528.72					
p26	No	442.59	54232.500	.004	.430	4.31	2.163
	Yes	505.85					
p27	No	438.42	51163.000	.000	.406	3.14	1.817
	Yes	523.80					
p28	No	433.35	47427.500	.000	.376	2.81	1.847
	Yes	545.65					
p29	No	435.31	48873.500	.000	.388	2.43	1.779
	Yes	537.19					
p30	No	440.38	52604.500	.000	.417	2.18	1.669
	Yes	515.37					
p31	No	436.92	50057.500	.000	.397	3.07	1.915
	Yes	530.27					
p32	No	434.06	47950.000	.000	.380	2.89	1.873
	Yes	542.59					
p33	No	435.05	48679.000	.000	.386	2.42	1.568
	Yes	538.33					
p34	No	436.81	49975.500	.000	.397	2.98	1.926
	Yes	530.75					
p35	No	425.26	41464.000	.000	.329	3.33	2.000
	Yes	580.52					

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