DEVELOPMENT OF A PROCRASTINATION SCALE IN SPANISH AND MEASUREMENT OF EDUCATION STUDENTS' PROCRASTINATION LEVELS

Diseño de una escala de procrastinación en español y medición de los niveles de procrastinación de estudiantes de educación

FUENSANTA MONROY[1] AND JOSÉ L. GONZÁLEZ-GERALDO[2]
[1] University of Murcia (Spain)
[2] University of Castilla-La Mancha (Spain)

DOI: 10.13042/Bordon.2022.93054
Fecha de recepción: 19/01/2022 • Fecha de aceptación: 24/02/2022
Autora de contacto / Corresponding author: Fuensanta Monroy. E-mail: fuensanta.monroy@um.es

INTRODUCTION. Academic procrastination is a widely extended phenomenon in education, especially among university students, which consists of deliberately putting off or completely avoiding an activity under one's control. High levels of procrastination are related to poor academic performance and dropout intentions, as well as other psychological features such as impulsiveness, distractibility, depression and sensation-seeking, and a lack of self-control, of self-efficacy, of organization and of self-esteem. In Spain research on this topic is scarce and to date not a single validated and widely accepted instrument to measure academic procrastination levels at university level has been developed. The aim of this research study was 1) to develop a procrastionation scale in Spanish language to be used on college students, and 2) to measure the procrastination levels of education students. **METHOD.** Data were collected from a sample of 499 Spanish education college students with a Likert scale. **RESULTS.** The results showed a 24-item version of the Escala de Procrastinación Académica en español (EPAE) with excellent reliability (.908), which may be used to measure students' procrastination tendencies. Cluster analysis revealed four groups depending on students' procrastination level (low, low-medium, medium, above medium). Over 76% of the sample had low and low-medium procrastination levels, while more than 23% reported medium levels, while not a single student showed higher procrastination levels. **DISCUSSION.** These results point at a need for further researching this topic in Spain by making use of the validated and reliable scale presented here, which may help to monitor student learning. By designing interventions targeted at high procrastinators, the risk of dropout and low academic performance may be reduced.

Keywords: *Dropout rate, College students, Higher education, Psychometrics.*

Introduction

Early studies on procrastination as a phenomenon with negative connotations date back to the 1980s. At that time dilatory behaviour was described as "the act of needlessly delaying tasks to the point of experiencing subjective discomfort" (Solomon and Rothblum, 1984, p. 503), while others referred to it as a "lack or absence of self-regulated performance […]; a tendency to [deliberately] put off or completely avoid an activity under one's control" (Tuckman and Sexton, 1989, in Tuckman, 1991, p. 474). More recent studies claim that procrastination is "not an irrational personality disorder; it is a logical, albeit potentially inefficient, behaviour driven by a reasoned comparison of perceived costs and benefits" (Zarick and Stonebraker, 2009, p. 211); it is a form of self-regulatory failure consisting of putting off despite expecting to be worse off (Steel and Ferrari, 2012).

Although procrastination has been focus of analysis for the past thirty years, research is still needed to fully understand this complex and multifactorial phenomenon, which is often confused with laziness or self-indulgence (Natividad-Sánchez, 2014). Individuals may procrastinate in all sorts of everyday, daily life activities (e.g., leisure and family, see Steel, 2011, in Steel and Ferrari, 2012), as well as in academic and professional domain, and for various reasons, so this phenomenon is multifaceted.

Prior research has found that high levels of procrastination are related to fear of failure (e.g., Solomon and Rothblum, 1984), increased levels of psychological distress, and a tendency to seek high but unrealistic aims (perfectionism) (e.g., Flett *et al*., 2012). Steel's (2007) thorough meta-analysis on procrastination revealed that people procrastinate if they find a task aversive (aka task aversiveness), thus "the more people dislike a task, the more people consider it effortful or anxiety producing, the more they procrastinate" (p. 75). Task aversiveness intensifies if a task is short term. In addition, people are more likely to procrastinate if they find a task boring and difficult. Steel's (2007) study gives an account of how procrastination is related to a number of variables. He found a weak association between procrastination and neuroticism (perfectionism), and between procrastination and irrational beliefs, which contrasts sharply with the popular idea that irrational beliefs and perfectionism are major causes of procrastination, often exacerbated by self-help publications as suggested by Steel.

In addition, Steel's study showed that procrastination is positively associated with impulsiveness or lack of future temporal orientation (average correlation in the meta-analytic review: .41), distractibility (average correlation: .45), dilatory behaviour (average correlation: .52), self-handicapping (average correlation: .46), depression (average correlation: .28), and sensation seeking (average correlation: .17). On the other hand, procrastination is negatively correlated with conscientiousness (average correlation: -.62), self-control/self-discipline (average correlation: -.58), self-efficacy (average correlation as -.38) (see also Klassen and Kuzucu, 2009), organization (average correlation: -.36), self-esteem (average correlation: -.27) (see also Klassen and Kuzucu, 2009), and poor performance (average correlation: -.19). In addition, there is a correlation between procrastination and demographic variables such as age (the older the people, the less they procrastinate), and gender (men procrastinate only slightly more than women). A more recent study by Rodríguez and Clariana (2017) supports the result that academic procrastination depends on age and not academic year; thus, the older the student, the lower their procrastination levels.

Two very relevant aspects of academic life are academic performance and dropout intentions. Regarding the former, a study by Semprebon *et al*. (2017) showed that procrastination has a negative and significant effect on academic performance, particularly among undergraduate student with a low sense of power. Older studies

(e.g., Tuckman, 1998; Zarick and Stonebraker, 2009) also found a relationship between high levels of procrastination and poor academic performance. As to dropping out of school or university, research by Bäulke *et al*. (2018) evidenced that academic procrastination was positively related to college dropout intentions, thus there is a need to develop good competences to regulate one's own motivation as a protection factor against procrastination and dropping out. Thus, a better understanding of this phenomenon may contribute to, among other things, reducing dropout rates (Garzón-Umerenkova and Gil-Flores, 2017).

Some studies (e.g., Ferrari *et al*., 2005) have shown evidence of different types of procrastination, such as chronic procrastination (arousal and avoidant) vs. situational-specific task procrastination. Research (e.g., Chu and Choi, 2005; Knaus, 2000, in Klassen and Kuzucu, 2009, p. 77) claims that procrastination may not always have negative consequences, while postponing completing a task may even have benefits such as reduced stress levels. In fact, Ferrari *et al*. (2005) refer to "arousal procrastination", which are delays motivated by a last-minute thrill experience (as described by these authors). An interview-based study by Lindblom *et al*. (2015) showed that motivated students with strong self-efficacy beliefs may procrastinate intentionally (what they called strategic delay), while others may procrastinate because of a lack of self-regulation skills and weak self-efficacy beliefs (dysfunctional procrastination).

In their search for the characteristics of prototypical procrastinators among almost 14,500 participants, Steel and Ferrari (2012) analyzed six demographic indicators of procrastination (sex, age, marital status, family size, education, and national origin). They found that procrastinators tended to be urban, young, single men with less education (or dropped out of school), living in countries that report lower levels of self-discipline such has Austria and Russia. In an earlier study, Ferrari *et al*. (2005) concluded that chronic procrastination is common among westernized, individualistic, English-speaking countries, yet further research is needed.

Country-focused studies show that academic procrastination is particularly high among secondary students in Turkey (83%) (Klassen and Kuzucu, 2009) and Anglosaxon college students (70%) (Ellis and Knaus, 1977, in Ferrari *et al*., 2005). No studies have been found on Spanish population or Spanish college students.

For the past decades instruments have been designed to measure procrastination in general terms and, more specifically, when undertaking academic tasks and from a negative perspective as if procrastination was a behaviour to always be avoided. Among the most widely used are: Solomon and Rothblum's (1984) Procrastination Assessment Scale for Students (PASS), Busko's (1998) Procrastination Scale, and Tuckman's (1991) Procrastination Scale (TPS). Some of the aforementioned scales have been adapted in Spanish language such as Furlan, Heredia, Piemontesi, and Tuckman's (2012) adaptation of Tuckman's TPS to Argentinian students (ATPS), and Álvarez-Blas' (2010) adaptation of Busko's Academic Procrastination Scale. There is, however, a lack of consensus as to what the most appropriate instrument is.

In light of the association between procrastination and other variables, monitoring procrastination may become the focus of attention of academic authorities interested in assessing and understanding student learning and learning outcomes (process and results), as well as improving academic performance and reducing dropout rates or at least diminishing dropout intentions among school and college students. This is of particular importance, since deciding whether to dropout does not depend on a single factor but it is multifactorial (Urbina-Nájera *et al*., 2020). Proper and timely detection with reliable data collection instruments may ensure that procrastination is diagnosed, or even predicted, and its negative side effects are minimized or

counteracted with the help of suitable intervention programmes. Thus, the aims of this study were: 1) to develop and validate a self-report measure of academic procrastination tendencies in Spanish language, and 2) to measure the academic procrastination levels of Spanish Education college students from two Spanish state universities.

Method

Participants

In this study 544 college students from year one and three (out of four years, which is the duration of Spanish undergraduate degrees since the Bologna Process in 2009) from two Spanish universities took part. Students were selected from those two years by convenience sampling, as they were students attending class when data were collected, from a population of approximately 1,260 individuals. Education degrees in Spain are particularly popular among females (ca. 70-80% of students are females), which is why the proportion of males was low in this sample. Participation was voluntarily once students had been informed about the study objective and their rights in terms of confidentiality and anonymity of data. Table 1 shows descriptive data sorted by year of study (1st and 3rd) and gender.

Design and procedure

This study implemented a survey design, as researchers were interested in participants' own perceptions about the extent to which college students procrastinate when facing or completing academic tasks in their degree. Data were collected from students present in class at regular teaching hours. Administration time was approximately 22 minutes, took place in regular classrooms, and followed a careful procedure previously agreed by the researchers so the process would be standardized at both institutions. Upon inspection of returned surveys, 499 of the 544 questionnaires turned out to be usable as participants had completed them in full, so the final sample was 499.

Materials

An *ad hoc* scale was designed to measure Spanish university students' levels of academic procrastination. The instrument resulted from adapting items from two existing instruments as a basis, namely Tuckman's (1991) 16-item Procrastination Scale and Busko's (1998) 28-item Student Procrastination Scale. The reason for choosing Tuckman and Busko's scales was that they have both been widely used in previous studies. In addition, Tuckman's measure was originally developed with the responses of college Education students and had been used in prior studies (e.g., Klassen and Kuzucu, 2009) with good reliability evidence, hence it was thought to be most appropriate for the sample in the present study. Most items in Tuckman's scale were formulated describing a procrastinating behaviour, while Busko's scale presented a non-procrastinator profile. Hence, it was thought that a balanced selection

Table 1. Distribution of the sample (n = 499) by degree and gender (academic year 2017-2018)

First year		Third year		Females		Males		Missing cases (gender)	
n	%	n	%	n	%	n	%	n	%
270	54.1%	229	45.9%	384	77.0%	102	20.4%	13	2.6%

of procrastination and non-procrastination focused items would avoid problems such as set response (automatic completion pattern of ticking the same response for every item) and socially desirable responses.

The resulting scale was called Academic Procrastination Scale in Spanish (in Spanish: Escala de Procrastinación Académica en español [EPAE]) and comprised 32 items (16 items specifically focused on academic procrastination in Busko's scale and the 16 items from Tuckman's final solution). Items were selected on the basis of relevance to the aim of this study, namely procrastination in academic tasks. EPAE was designed as a unidimensional instrument to measure academic procrastination. It was made up of 17 items describing procrastinating behaviours (12 from Tuckman and 5 from Busko) and 15 items describing non-procrastinating behaviours (4 from Tuckman and 11 from Busko). Examples of items are "When I have a deadline, I wait till the last minute" (procrastination) and "I generally prepare well in advance for exams" (non-procrastination). Following Tuckman (1991), participants rated the items on a 4-point scale in an attempt to described themselves when facing academic tasks (1-That is not me at all, 2-That is usually not me (i.e. That is not my tendency), 3-That is usually me (i.e. That is my tendency), 4-That is definitely me).

As the participants were Spanish speakers, but Tuckman's and Busko's scales were originally written in English, the researchers implemented the back-translation method as it is one of the recommended techniques (Epstein *et al.*, 2015). Since some items were formulated as "non-procrastination" statements, their rating scale was reversed so that a total score of repondents' procrastination level could later be calculated. The total scores were calculated by summing across the 32 items, and scores ranged from 32 to 128. As to the ordering of items, a random number generator was used to set the order of items so as to avoid that earlier items might influence the responses of the latter ones.

Data analysis

Data were reduced using Principal Component Analysis (PCA). The direct solution was rotated with an oblique rotation (Direct Oblimin) as variables (items) were associated (Child, 2006). Cronbach's alpha was used to calculate the internal consistency of the scale once a shorter version was produced following PCA. When describing students' procrastination levels, data were statistically described, groups with different procrastination levels were identified using a two-step cluster analysis, chi-square tests were used to identify any relationship between categorical variables, and mean scores were compared using independent *t* tests. All analyses were performed with statistical programme IBM SPSS version 24 (2016).

Results and discussion

Structural validity and internal consistency

Once items describing a non-procrastination behaviour were reversed so that a total score could be calculated (as explained earlier), the data of the 32 items initially proposed by the researchers in this study were component analyzed with Principal Component Analysis with Direct Oblimin rotation. The Kaiser-Meyer-Olkin (KMO) measure of sampling adecuacy showed the suitability of the data for structure detection (.931). Bartlett's test of sphericity was significant (< .000) and thus showed that component analysis may be useful with the data.

As to how many principal components to be extracted, Cattell's scree plot graph revealed 5 components before the curve straightened out. However, Kaiser's eigenvalue-greater-than-1 rule, which is the default retention criterion on SPSS, showed 7 components with eigenvalues greater

than one, thus 7 components were extracted, of which only the last one was a bipolar component. This method was followed after having forced earlier solutions to 2 factors in an attempt to produce two scales (a procrastinator and a non-procrastinator profile) (González-Geraldo and Monroy 2019; Monroy and González-Geraldo 2019). Following a second literature review, however, the authors decided to review and explore the psychometric propierties of the scale as unidimensional, leading to the results of the current study.

Regarding the criteria for the significance of components loadings, the authors followed the rule of thumb generally used (though an arbitrary one according to Child, 2006), which is to retain components with a loading greater than ± .300 provided the sample is over 50 individuals, which was indeed the case (n = 499).

The first component accounted for 32.2% of the variance explained and comprised 10 items, while component 2 and 3 had 7 items, component 4 had 9 items, component 5 had 5 items,

Table 2. Pattern matrix

Item	Component				
	1	2	3	4	5
5. I put off handing in tasks or assignments till the last moment	.778				
10. I usually hand in tasks at the last moment	.759				
12. *I finish important tasks with time to spare*	.715				
21. I finish the tasks as soon as I can	.661				
4. *When I have to complete a task I usually leave it till the last moment*	.652				
14. *Leaving things till tomorrow is not my way of doing things*	.526				
1. I do not leave for tomorrow what I can do today	.358				
19. I constantly try to improve my study habits		.748			
2. When I have problems understanding a task I immediately ask for help		.624			
20. I devote time to checking my tasks before handing them in		.521			
17. *I think it is better to postpone tasks that are difficult to tackle*			.701		
18. I enjoy the thrill and the challenge of waiting till the last moment to finish a task			.634		
3. *I can easily find an excuse for not doing a task that I have been set*			.507		
24. *I put off finishing tasks unnecessarily, even when they are important*			.349		
23. *I spend the necessary amount of time on studying, even when the tasks are boring*				.863	
15. I spend the necessary amount on studying even when I find it boring				.793	
22. I usually set aside enough time to revise for exams				.533	
9. I always find time to finish important tasks				.320	
13. *I continually put off improving my study habits*					.710
8. *I promise myself I will do something but it then costs me a lot of effort to do it*					.681
7. *I put off making difficult decisions*					.671
11. *I often waste time. but I can't seem to do anything about it*					.634
16. *I am completely incorrigible when it comes to wasting time*					.511
6. *I always stick to my work plans*					.374

Note: Extraction Method: Principal Component Analysis. Rotation Method: Oblimin with Kaiser Normalization. Items presented here are in English though the instrument was administered in Spanish (see Appendix). Items in italics were adapted from Tuckman (1991) and the remaining from Busko (1998). Loadings below .30 were discarded.

and components 6 and 7 had 4 items each. As 11 items cross-loaded on more than one factor, the lowest loading was neglected if it differed by more than ± .2 from the highest loading. When the difference in loadings were less than ± .2, the item was discarded, following a general rule of thumb (see Costello and Osborne, 2005). Thus, 8 items were discarded and a second PCA with Direct Oblimin was run.

This second solution with 24 items (see Appendix) revealed a pattern matrix with 5 factors where the first component accounted for 33.1% of variance (Table 2). Three items loaded on two components simultaneously, but the difference in loadings was above ± .2 so the lowest loading was neglected and the highest loading retained on a component. This resulted in a first component with 7 items describing procrastination around tasks (how to manage or approach academic tasks); a second component with 3 items describing personal improvement; a third component with 4 items on delaying; a fourth component with 4 items on doing things at once without delay; and a fifth component with 6 items on individuals' own responsibility (or an innate incapability for not procrastinating and feelings of guilt).

It was noticed that some items had very similar wording (e.g., item 15 "*I spend the necessary amount on studying even when I find it boring.*" and 23 "*I spend the necessary amount of time on studying, even when the tasks are boring.*") and thus loaded on a common component. However, the authors decided to keep them because they could function as control items and did not bloat the component unnecessarity (Child, 2006).

Similar to Tuckman (1998), the responses to items stating non-procrastination behaviours were reversed so all items would point in the same direction and a high score in an item would mean a high level of procrastionation. Reliability by means of Cronbach's alpha was then calculated with the resulting 24 items from the second PCA and yielded a coefficient of .908, which is excellent following George and Mallery's (2003) rule of thumb for the acceptability of reliability coefficients (i.e. > .9, excellent; > .8, good, > .7, acceptable; > .6, questionable; > .5, poor; and < .5, unacceptable).

Procrastination tendencies of students

Similar to Howell *et al*. (2006), and taking the scale as unidimensional as described earlier, a total score for each participant was calculated by adding their scores in the final selection of items, thus total scores would ranged from a minimum of 24 to a maximum of 96. As the number of groups in terms of procrastination levels was initially unknown, a two-step cluster analysis using the total procrastionation score per participant was run in order to identify the appropriate number of clusters in terms of procrastination level. The cluster quality graph (silhouette plot) confirmed a good quality of results (with a silhouette coefficient of .7, when the range is -1 to +1), so the strength of the model was confirmed. Table 3 shows that most of the sample (76.6%) had "low" and "low-medium" procrastination scores, while only 23.4% reported "medium" procrastination levels. Interestingly, not a single participant scored above 67, so no one reported "above medium" or "high" procrastination levels. These results contrast sharply with previous studies, such as those by Klassen and Kuzucu (2009) in Turkey and Ellis and Knaus (1977, in Ferrari *et al.*, 2005) in the UK, in which procrastination was particularly high in over 70% of students.

There may be several explanations for such skewed, and somewhat surprising, results, such as social desirability of participants when completing a self-report scale (i.e. students may not want to admit that they postpone finishing their academic tasks). In addition, participants report their own perceptions of their habits, which is a subjective opinion and thus difficult to accurately measure and compare to others' opinions. What means postponing tasks for

some individuals may simply be prioritizing and accomplishing tasks in a different order (and not necessarity delaying action) for other students. As suggested in the literature (e.g., Ferrari *et al.*, 2005), for some students submitting an assignment on the last due day is procrastination and may cause them stress and anxiety, while for others it may simply be using up all available time or may even encourage them to performe better because of the arousal and thrill they get from working under pressure until the last minute. Finally, the fact that students like their studies, do not experience task aversiveness (as suggested by Steel, 2007), and thus procrastinate little, may be a likely situation that should not be neglected. Education students in Spain are motivated students who choose these degrees because of an intrinsic interest in working as teachers or educators in the future.

Table 3. Descriptive statistics of the three groups derived from a two-step cluster analysis (*n* = 499)

	f	%	Mean procrastination score
Low procrastination level	198	39.70	39.94
Low-medium procrastination level	184	36.90	53.49
Medium procrastination level	117	23.40	66.99
Above medium procrastination level	0	0.00	> 67.00

It is worth noting that the specific features of quantitative scales definitely determine the nature of responses. While some items reveal negative nuaces such as "I am completely incorrigible when it comes to wasting time", researching this topic with open-ended questions (e.g., Do you procrastinate when accomplishing academic tasks during a typical day?, as suggested by Klassen and Kuzucu, 2009) may have led to different results. Hence, a multimethod approach is probably best where participants explain what it is for them to procrastinate and whether procrastination causes them arousal or anxiety.

After the Kolmogorow-Smirnov test confirmed normality of the sample ($p > .05$), an independent groups *t* test to identify any procrastination differences between males and females (each taken as a single group) showed that males procrastinate higher than females at a statistically significant level ($t[484] = 3.937$, $p < .000$). A more detailed analysis was done in order to identify any relation between the level of procrastination and gender, so a chi-square test was calculated using these two categorical variables. The result showed that males had a higher tendency to procrastinate at a "medium level" (as described in the cluster analysis), and a lower tendency to procrastinate at a "low level" at a highly significant level ($p = .001$) and with small effect size of .17 (Cohen, 1988), while the opposite applied to females (i.e. females tended to procrastinate at a low level more often). These results seem to support earlier studies (see Steel, 2007). As to any differences between years of study, there were no statistically significant differences in procrastination levels between first and third year students, so no further analyses with this variable were conducted. Although this result contrasts with earlier studies (e.g., Steel, 2007), it is not surprising that there are no differences between first and third year students since the age difference is negligible (2 to 4 years at most).

Conclusions

This preliminary study developed a procrastination scale in Spanish language after adapting two existing and widely used instruments in English. Component analyses helped to identify distorting items, thus a clean, final solution of 24 items was produced. The new scale, Escala de Procrastinación Académica en español (EPAE) (Academic Procrastination Scale in Spanish) has an excellent reliability coefficient

as shown in this study, and may confidently be used to measure Spanish higher education students' procrastination levels.

This study also showed that students may be classified into qualitatively different groups in terms of their procrastination score, of which over two thirds had "low" or "low-medium" procrastination scores and the rest reported a "medium" procrastination level, while no one showed higher procrastination levels. These striking results may have several explanations, as discussed earlier, and may require further analysis, particularly with the inclusion of collection of qualitative data in future studies, in order to fully understand this phenomenon.

In terms of limitations, the sample in this research study was selected non-randomly, so no generalization claims to a population may be made. Although this is a drawback worth noting, a large number of educational studies must rely on availability of participants and voluntary participation only after sampling purposefully. In this study face-to-face administration of the scale was preferred to online data collection because of the very low response rate in the latter procedure. In addition, social desirability, set response behaviour, and negative connotations derived from some scale items (as mentioned above) may have influenced and biased participants' responses.

Procrastination is not a new concept to deal with at university level. After the implementation of the European Higher Education Area (EHEA) and the promotion of new teaching and learning methods, where the student is at the centre of the teaching-learning process, and teachers should adapt their teaching conceptions and approaches to their students' learning approaches (Monroy and González-Geraldo, 2017), there is room for, at least theoretically, reconsider how and why college students delay their academic tasks and assignments. In this respect, a likely use of the EPAE scale may be to monitor and collect evidence for the idea that the pedagogical background behind the EHEA could lead to a "simplistic reading of what constructivist teaching entails" (O'Connor, 2020, p. 10). This could give ground to the notion that universities may progresively treat students like infants (Furedi, 2016), who are allowed to delay deadlines or even choose what they themselves think is good for them or not (Haidt and Lukianoff, 2018). In other words, procrastination may become a negative consecuence of a misinterpretation of the transformation of our universities in order to adapt university structure to students. This may thus be a really dangerous misconception of the *leitmotiv* "the customer is always right", particularly when universities should be aware of the advantages and disadvantages of the "neoliberal turn" in Higher Education (Tight, 2019).

Other future lines of research may wish to access students' academic record in order to compare or correlate grades and procrastination levels, and to identify any links between these two variables that may support the literature. Moreover, a comparative analysis of procrastination levels of students in different academic years (i.e. freshmen vs. final year students, or undergraduates vs. postgraduate students) may be worth conducting, although, as reported in this study, no differences between first- and third-year students may be found probably because the age difference is usually small. As suggested by Steel and Ferrari (2012), a longitudinal study tracking academic behaviour of high school students through to their college years may shed light on the procrastinating habits of students and identify any link between this "self-regulatory deficit" and academic performance and academic success.

In addition, an association between academic procrastination and other variables related to "not so positive" academic practices, such as academic cheating, may be worth analyzing in an attempt to examine the relationship between procrastination and dropout or possible motives towards plagiarism (Muñoz-Cantero *et al*., 2019).

Given the excellent psychometric properties of the EPAE scale, it may be useful for monitoring students' learning, as high levels of procrastination are related to poor academic performance, as shown by previous studies (e.g., Steel, 2007; Tuckman, 1998; Zarick and Stonebraker, 2009). Thus, academic authorities may decide to administer it to identify those students at risk of poor academic performance or dropout (ideally at early stages of studies), and thus develop intervention programmes accordingly. This would, in turn, reduce university dropout rates and foster retention. Furthermore, the EPAE may be useful to Counselling and Psychological Services at universities in order to identify possible cases of anxiety at an early stage. Reducing procrastination levels among university students may decrease their stress while improve the quality of the teaching-learning process. Nevertheless, it is worth noting that procrastination may not be negative per se, as it depends on the relation between an individual and his/her context. In some instances, procrastination may be a useful and effective tool for planning and organizing one's studies.

Conflict of interest

No potential conflict of interest was reported by the authors.

Declaration of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

Álvarez-Blas, O. R. (2010). Procrastinación general y académica en una muestra de estudiantes de secundaria de Lima metropolitana. *Persona, 13,* 159-177.

Bäulke, L., Eckerlein, N. and Dresel, M. (2018). Interrelations between motivational regulation, procrastination and college dropout intentions. *Unterrichtswissenschaft, 46*(4). https://doi.org/10.1007/s42010-018-0029-5

Busko, D. A. (1998). *Causes and consequences of perfectionism and procrastination: a structural equation model* (doctoral dissertation). http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.456.4450&rep=rep1&type=pdf

Child, D. (2006). *The essentials of factor analysis*. Continuum.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum.

Costello, A. B. and Osborne, J. (2005). Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation, 10*(7), 1-9.

Epstein, J., Miyuki-Santo, R. and Guillemin, F. (2015). A review of guidelines for cross-cultural adaptation of questionnaires could not bring out a consensus. *Journal of Clinical Epidemiology*, *68*, 435-441.

Ferrari, J. R., O'Callagham, J. and Newbegin, I. (2005). Prevalence of procrastination in the United States, United Kingdom, and Australia: arousal and avoidance delays among adults. *North American Journal of Psychology,* 7(1), 1-6.

Flett, G. L., Stainton, M., Hewitt, P. L., Sherry, S. B. y Lay, C. (2012). Procrastination automatic thoughts as a personality construct: an analysis of the Procrastinatory Cognitions Inventory. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 30*, 223-236.

Furedi, F. (2016). *What's happened to the university? A sociological exploration of its infantilization*. Routledge.

Furlan, L. A., Heredia, D. E., Piemontesi, S. E. and Tuckman, B. W. (2012). Análisis factorial confirmatorio de la adaptación argentina de la Escala de Procrastinación de Tuckman (ATPS). *Perspectivas en Psicología*, *9,* 142-149.

Garzón-Umerenkova, A. and Gil-Flores, J. (2017). El papel de la procrastinación académica como factor de la deserción universitaria. *Revista Complutense de Educación, 28*(1), 307-324.

George, D. and Mallery, P. (2003). *SPSS for Windows step by step: a simple guide and reference, 11.0 update* (4th ed.). Allyn and Bacon.

González-Geraldo, J. L. and Monroy, F. (2019). Development of a procrastination scale in Spanish and measurement of students' procrastination tendencies. Paper presented at the Fifth International Conference on Higher Education Advances (HEAD'19), Valencia, Spain, June 26-28. http://ocs.editorial.upv.es/index.php/HEAD/HEAD19/paper/view/9357

Haidt, J. and Lukianoff, G. (2018). *The coddling of the American mind: how good intentions and bad ideas are setting up a generation for failure.* Penguin UK.

Howell, A. J., Watson, D. C., Powell, R. A. and Buro, K. (2006). Academic procrastination: the pattern and correlates of behavioral postponement. *Personality and Individual Differences, 40*, 1519-1530.

IBM Corp. (2016). *IBM SPSS Statistics for Windows, version 24.0.* IBM Corp.

Klassen, R. and Kuzucu, E. (2009). Academic procrastination and motivation of adolescents in Turkey. *An International Journal of Experimental Educational Psychology, 29*(1), 69-81. http://dx.doi.org/10.1080/01443410802478622 doi:10.1080/01443410802478622

Lindblom-Ylänne, S., Saariaho, E., Inkinen, M., Haarala-Muhonen, A. and Hailikari, T. (2015). Academic procrastinators, strategic delayers and something betwixt and between: an interview study. *Frontline Learning Research, 3*(2), 47-62.

Monroy, F. and González-Geraldo, J. L. (2019). Preliminary study of Spanish Education students' academic procrastination levels. Poster presented at the AIDIPE, Madrid, Spain, June 19-21.

Muñoz-Cantero, J. M., Rebollo-Quintela, N., Mosteiro-García, J. and Ocampo-Gómez, C. I. (2019). Validation of a questionnaire of attributions to the detection of coincidences in academic work. *RELIEVE, 25*(1). https://doi.org/10.7203/relieve.25.1.13599

Natividad-Sánchez, L. A. (2014). *Análisis de la procrastinación en estudiantes universitarios* (doctoral dissertation). http://mobiroderic.uv.es/1bitstream/handle/10550/37168/Tesis%20Luis%20A.%20Natividad.pdf?sequence=1&isAllowed=y

O'Connor, K. (2020). Constructivism, curriculum and the knowledge question: tensions and challenges for higher education. *Studies in Higher Education.* https://doi.org/ 10.1080/03075079.2020.1750585

Rodríguez, A. and Clariana, M. (2017). Procrastinación en estudiantes universitarios: su relación con la edad y el curso académico. *Revista Colombiana de Psicología, 26*(1), 45-60.

Semprebon, E., Amaro, H. D. and Beuren, I. M. (2017). A influência da procrastinação no desempenho acadêmico e o papel moderador do senso de poder pessoal. *Arquivos Analíticos de Políticas Educativas, 25*(20). http://dx.doi.org/10.14507/epaa.25.2545

Solomon, L. J. and Rothblum, E. D. (1984). Academic procrastination: frequency and cognitive-behavioral correlates. *Journal of Counseling Psychology, 31*(4), 503-509.

Steel, P. (2007). The nature of procrastination: a meta-analytic and theoretical review of quintessential self-regulatory failure. *Psychological Bulletin, 133*(1), 65-94.

Steel, P. and Ferrari, J. (2012). Sex, education and procrastination: an epidemiological study of procrastinators' characteristics from a global sample. *European Journal of Personality*, 27(1). https://doi.org/10.1002/per.1851

Tight, M. (2019). The neoliberal turn in Higher Education. *Higher Education Quarterly, 73*(3), 273-284. https://doi.org/10.1080/03075079.2020.1750585

Tuckman, B. W. (1991). The development and concurrent validity of the Procrastination Scale. *Educational and Psychological Measurement*, *51*, 473-480.

Urbina-Nájera, A. B., Camino-Hampshire, J. C. and Cruz-Barbosa, R. (2020). University dropout: prevention patterns through the application of educational data mining. *RELIEVE, 26*(1), https://doi.org/10.7203/relieve.26.1.16061

Zarick, L. M. and Stonebraker, R. (2009). I'll do it tomorrow the logic of procrastination. *College Teaching, 57*(4), 211-215.

Appendix

Escala de Procrastinación Académica (Academic Procrastination Scale in Spanish)

Esta escala explora tu manera de afrontar tu trabajo académico. Siempre que encuentres el término "tarea" debes interpretar que se refiere a cualquier tipo de trabajo, ensayo, escrito, presentación, etc., que el profesor haya encomendado. Valora cada ítem según tu caso:

1. Ese NO soy yo de ninguna manera.
2. Ese NO es normalmente mi estilo.
3. Ese es normalmente mi estilo.
4. Ese soy claramente yo.

Nota para el administrador del instrumento: la valoración de los ítems con asterisco debe ser invertida para que pueda calcularse la puntuación final.

	1	2	3	4
1. No suelo dejar para mañana lo que puedo hacer hoy*				
2. Cuando tengo dificultad para entender una tarea busco ayuda inmediatamente*				
3. Me las arreglo para encontrar una excusa para no hacer alguna tarea que debo realizar				
4. Cuando tengo que realizar una tarea normalmente la dejo para el último momento				
5. Dejo para el último momento la entrega de tareas o trabajos				
6. Siempre sigo los planes de trabajo que he planificado*				
7. Retraso tomar decisiones difíciles				
8. Me prometo hacer algo y luego me cuesta hacerlo				
9. Siempre dispongo de tiempo para acabar tareas importantes*				
10. Normalmente entrego mis tareas en el último momento				
11. Suelo perder el tiempo pero no soy capaz de hacer nada al respecto				
12. Termino las tareas importantes con suficiente antelación*				
13. Continuamente pospongo mejorar mis hábitos de trabajo				
14. Posponer tareas hasta mañana no es mi manera de actuar*				
15. Invierto el tiempo necesario en estudiar incluso si me resulta aburrido*				
16. Soy incorregible perdiendo el tiempo				
17. Creo que lo mejor es postergar las tareas que son complicadas de abordar				
18. Disfruto del reto y la emoción de esperar hasta el último momento para terminar una tarea				
19. Constantemente trato de mejorar mis hábitos de estudio*				
20. Dedico tiempo a revisar las tareas antes de entregarlas*				

	1	2	3	4
21. Termino las tareas lo antes posible*				
22. Normalmente me preparo para los exámenes con suficiente antelación*				
23. Al estudiar invierto el tiempo necesario incluso en tareas aburridas*				
24. Innecesariamente retraso acabar tareas, incluso cuando son importantes				

Resumen

Diseño de una escala de procrastinación en español y medición de los niveles de procrastinación de estudiantes de educación

INTRODUCCIÓN. La procrastinación académica, esto es, postergar la realización de tareas académicas, es un fenómeno muy extendido, especialmente entre los estudiantes universitarios. Una fuerte tendencia a procrastinar está relacionada con el bajo rendimiento académico, intenciones de abandonar los estudios, así como con características psicológicas tales como la impulsividad, depresión, y falta de autocontrol, de autoeficacia, de organización o de autoestima. Aunque existen varias herramientas para medir la tendencia procrastinadora de los estudiantes, es este un fenómeno aún poco estudiado en España, de ahí la pertinencia de analizarlo. Esta investigación tuvo por objetivos: 1) diseñar una escala de procrastionación fiable en idioma español y 2) medir la tendencia procrastinadora de estudiantes universitarios de Educación. **MÉTODO.** Se diseñó una escala Likert para recoger información de 499 estudiantes de la Facultad de Educación de dos universidades públicas españolas. **RESULTADOS.** Se obtuvo una escala de 24 ítems (Escala de Procrastinación Académica en español, EPAE) con una excelente fiabilidad (.908) para medir la procrastinación en estudiantes universitarios. El análisis por conglomerados reveló cuatro grupos en función del nivel de procrastinación. Más del 76% de los participantes mostró una tendencia baja o baja-media a procrastinar, mientras que el 23% reportó un nivel intermedio. **DISCUSIÓN.** Los resultados apuntan a la necesidad de explorar este fenómeno en profundidad y con herramientas fiables con el fin de poder detectar qué estudiantes tienen una alta tendencia a procrastinar. Dicha detección podría ir acompañada de una intervención para reducir dicha tendencia, lo que podría disminuir la tasa de abandono y mejorar el rendimiento académico del alumnado.

Palabras clave: *Tasa de abandono, Estudiantes universitarios, Educación superior, Psicometría.*

Résumé

Élaboration en espagnol d'une échelle de procrastination et mensuration des niveaux de procrastination des étudiants universitaires en éducation

INTRODUCTION. La procrastination académique, c'est-à-dire le report de l'exécution des tâches académiques, est un phénomène très répandu, notamment chez les étudiants universitaires. Une tendance forte à procrastiner est liée à une faible réussite scolaire, à l'intention d'abandonner les études et à des caractéristiques psychologiques telles que l'impulsivité, la dépression et les manques de maîtrise de soi, d'auto-efficacité, d'organisation ou d'estime de soi. Bien qu'il existe plusieurs outils pour mesurer la tendance procrastinatrice des étudiants, il s'agit d'un phénomène

encore peu étudié en Espagne d'où la pertinence de son analyse. Cette recherche a eu pour objectifs 1) de concevoir en langue espagnole une échelle de procrastination fiable, et 2) de mesurer la tendance procrastinatrice des étudiants universitaires en éducation. MÉTHODE. Une échelle de Likert a été créée pour recueillir des informations auprès de 499 étudiants de la Faculté d'Éducation de deux universités publiques espagnoles. RÉSULTATS. Une échelle de 24 items (Échelle de Procrastination Académique en espagnol, EPAE) a été obtenue avec une fiabilité excellente (.908) afin de mesurer la procrastination chez les étudiants universitaires. L'analyse d´agrégats a révélé quatre groupes en fonction du niveau de procrastination. Plus de 76 % des participants ont montré une tendance faible ou faible-moyenne à procrastiner, tandis que 23 % ont montré un niveau intermédiaire. CONCLUSION. Les résultats soulignent le besoin d'explorer ce phénomène en profondeur avec des outils fiables afin de détecter les étudiants ayant une forte tendance à procrastiner. Cette détection pourrait s'accompagner d'une intervention visant à réduire cette tendance, ce qui pourrait diminuer le taux de décrochage en améliorant la réussite académique des étudiants universitaires.

Mots-clés : *Taux de décrochage, Etudiants universitaires, Enseignement supérieur, Psychométrie.*

Author profiles

Fuensanta Monroy (corresponding author)

Fuensanta Monroy works full time at the Department of Research Methods in Education (University of Murcia, Spain). Her research interests focus on teacher training, approaches to teaching, approaches to learning, academic procrastination, and factors which may play a role in teaching and learning following the Student Approaches to Learning tradition.
ORCID ID: http://orcid.org/0000-0002-9813-3068
E-mail: fuensanta.monroy@um.es
Correspondence address: Departamento MIDE, Campus de Espinardo, University of Murcia, 30100 Murcia (Spain).

José L. González-Geraldo

José L. González-Geraldo teaches and researches into Theory and History of Education at the University of Castilla-La Mancha (Spain). His PhD involved the SAL theory, approaches to teaching and the Emerging European Higher Education Area. He is currently interested in what makes higher education higher and any type of postmodern turn regarding historiography.
ORCID ID: http://orcid.org/0000-0003-1698-0122
E-mail: joseluis.ggeraldo@uclm.es