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Academic Procrastination of Spanish Pre-service Teachers during the COVID-19 Pandemic

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A B S T R A C T

The present study seeks to ascertain whether the academic procrastination of university pre-service teachers varied during the COVID-19 pandemic when compared to data collected from another sample (n = 794) taken before the pandemic, and the reasons that might explain this. 910 pre-service teachers responded to the PASS scale, Academic Procrastination Scale, Unintentional Procrastination Scale, Active Procrastination Scale, and the New General Self-Efficacy Scale during the pandemic. The results reflect greater procrastination than for the pre-pandemic sample; 37.8% felt that their procrastination had increased due to the pandemic, which was more evident amongst women, whereas 8.7% reported having procrastinated less, displaying the highest level of self-efficacy. In both instances, the most commonly alleged reasons were greater time management, together with changes they were forced to make in their study habits. We discuss the implications that might need to be considered when planning and organizing teaching, should a similar situation occur again.

La procrastinación académica de los estudiantes españoles de formación inicial del profesorado durante la pandemia de COVID-19

Palabras clave:
Procrastinación académica
Creencias motivacionales
Entorno de aprendizaje
COVID-19
Formación inicial del profesorado

R E S U M E N

El objetivo de este trabajo es conocer si la procrastinación académica de los estudiantes universitarios de formación del profesorado varió durante la pandemia de COVID-19 en comparación con datos recogidos de otra muestra (n = 794) antes de la pandemia y los motivos que lo justifican. Han participado 910 estudiantes, que respondieron a la escala PASS, la Escala de Procrastinación Académica, la Escala de Procrastinación Involuntaria, la Escala de Procrastinación Activa y la Nueva Escala de Autoeficacia General durante la pandemia. Los resultados indican una mayor procrastinación que la muestra prepandemia. Un 37.8% cree haber aumentado su procrastinación por la pandemia, sobre todo las mujeres, mientras el 8.7% afirman procrastinar menos, siendo los que mayor autoeficacia tienen. En ambos casos, los motivos más frecuentes han sido el disponer de más tiempo, junto a cambios en sus hábitos de estudio. Se comentan las implicaciones para la organización docente en caso de repetirse una situación similar.

COVID-19 pandemic had many consequences on all walks of human life. The impact was not only in terms of health but it also involved psychological and social effects (Chaturvedi et al., 2021) resulting from the restrictions imposed on freedom of movement and social interaction (Brooks et al. 2020), and universities were no exception. There was a greater tendency, for instance, not to follow lessons, to change degree, or to delay finishing the degree (Aucejo et al., 2020). Universities had to implement rapid impromptu changes, and were forced to constantly adapt to the health measures in a situation that had never before been experienced. Neither teachers nor students were prepared for these changes (Rapanta et al., 2020). It is worth remembering that any shift to distance or blended teaching requires prior preparation, a specific adaptation of the teaching needed, and intense motivation (Naujoks et al., 2021), since a greater degree of learning autonomy is involved (Pelikan, Lüftenegger, et al., 2021), and for which self-regulation (Bruso et al., 2020) and intrinsic motivation are essential (Cheng & Xie, 2021; Pelikan, Korlat, et al., 2021). Failure to achieve all of this may trigger maladaptive behavior.

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Procrastination

One such discordant behavior is procrastination (Klingsieck, 2013), i.e., the voluntary but irrational delaying of tasks or actions from what was planned or scheduled, and which has a damaging effect on the person in question (Steel, 2007). This type of behavior is very common in university education, where around 30% of students always procrastinate (Bäulke et al., 2021), although between 70% and 90% do so with varying frequency and in different situations (Martín-Antón et al., 2022a; Klassen et al., 2008; Ziegler & Opdenakker, 2018). This passive or involuntary procrastination differs from the delaying which other students intentionally engage in. These active procrastinators motivate themselves by deliberately postponing tasks in order to curb boredom and enhance efficiency (Pelikan, Lüftenegger, et al., 2021). Such people are able to meet deadlines and achieve goals by using the pressure of time as a spur, unlike passive procrastinators, who tend to freeze up when under pressure. Indeed, even though passive procrastinators display low levels of self-efficacy (Wäschle et al., 2014), a positive link between intentionally delaying tasks and self-efficacy has been found to exist (Choi & Moran, 2009). Yet for some it can prove to be damaging (Fernie et al., 2017) when the two types of procrastination concur (da Silva et al., 2020).

Undergraduate education degree students share many of the features of procrastinating behavior with other university students (Balkis & Duru, 2009). Nevertheless, it is a problem that may be deemed specific to this group insofar as it impacts their future professional practice (Barnová & Krásna, 2021). Many teachers procrastinate in their teaching and in their daily lives (Laybourn et al., 2019), which can then influence the procrastinating behavior of their students.

Putting off tasks tends to be seen as a problem of self-regulation of learning (Martín-Antón et al., 2022b), which leads to difficulties in time management (Sæle et al., 2017). Having more time available to carry out a task is no guarantee that it will be completed on time (Melgaard et al., 2022; Wolters et al., 2017), and knowing how to manage and organize activities within the time available is essential. Teachers can help with this by proposing tasks to be completed in the short and medium term, and with immediate feedback, thereby reducing the risk of procrastination (Valenzuela et al., 2018). However, this type of supervision and support can be limited, thus requiring greater steadfastness if longer term goals are to be accomplished (Daura et al., 2022).

The COVID-19 Pandemic and Academic Procrastination

The study of procrastinating behavior during the pandemic was carried out using different approaches: health, sociological, educational … In all of them, it was found that the COVID-19 pandemic led to an increase in procrastination (Lim & Javadpour, 2021) by intensifying the origin and negative consequences of such behavior (Pelikan, Lüftenegger, et al., 2021). Students increasingly identify laziness and lack of willpower as the principal factors (Rahimi & Hall, 2021), which then generates anxiety as well as feelings of shame and guilt. Yet there are more factors – both personal (da Cruz et al., 2021) and contextual (Stoliarchuk et al., 2022) – that influenced the escalation of this behavior, and which we now detail.

Firstly, there was a general rise in the levels of academic stress (von Keyserlingk et al., 2022). Fear of COVID-19, the general apprehension caused by the lockdown, less social contact (Pelikan, Korlat, et al., 2021), or limitations on leisure, intensified the threat to mental health (Jia et al., 2021), leading to psychological problems such as anxiety and depression (Hofmann, 2021) or life changes in the way reality is perceived (Chaturvedi et al., 2021). These problems have a profound effect on task deferment (Eisenbeck et al., 2019; Wolters et al., 2017), since they are linked to poor emotional regulation and to the onset of negative feelings (Wang et al., 2022) – which are not confined to the academic sphere – thereby exacerbating the negative impact on procrastinating behavior (Unda-López et al., 2022) and performance (Hong et al., 2021).

A second consequence was the increased uncertainty, coupled with a climate of alarm, which does not augur well when envisioning a return to the pre-pandemic situation (Schimmenti et al., 2020). There is a close link between contextual unpredictability and intense procrastination (Lim & Javadpour, 2021), which leads to avoidance behavior (Schodl et al., 2018), and anticipating excuses in order to justify possible failure, and detaching this from personal competence (Yildirim & Demir, 2020).

A third aspect concerns increased feelings of loneliness and isolation (Rasheed et al., 2020) due to social distancing measures, which also had a negative impact (Bu et al., 2020). This is because cooperation with colleagues is a key factor (Jia et al., 2021), particularly in university degrees that seek to foster teamwork such as teacher training, and which encourage social and academic interaction amongst classmates so as to secure closer ties and informal support that goes beyond the academic sphere (Balkis & Duru, 2009).

A fourth aspect to consider is the fight against distraction (Meier et al., 2016). As a result, a desire for non-academic activities also predicts procrastination (Rahimi & Vallerand, 2021), since tasks tend to be put off so that other more enjoyable activities may be pursued. Those who work online are therefore more likely to procrastinate since they have a greater chance of becoming distracted (Meier et al., 2016), although only if the emotional link to the non-academic activity is obsessive (Peixoto et al., 2021).

Finally, there are the organizational and methodological changes introduced by universities, which are linked to impaired student dedication (Stoliarchuk et al., 2022). This is brought about by changes to the teaching program, such as the increased workload, too much flexibility when it comes to assignment deadlines, changes in the required standards, or a feeling of lack of support from teachers (Grunschel et al., 2013). Other difficulties are related to organization, such as changes in the required physical presence in the classroom or unforeseen alterations to the schedule (Flores et al., 2022), difficulties with online connections, or less availability of resources (Hong et al., 2021; Rasheed et al., 2020). All of this led to changes in work habits, such as structuring students' study timetable, time management, or the search for support (Naujoks et al., 2021), aspects with which procrastinators have difficulty (Melgaard et al., 2022). Research has revealed a reduction in the number of study hours and in students' sleep, which interferes with the planning, regulation, and assessment of learning, thereby increasing procrastination and impacting performance (Hong et al., 2021).

Nevertheless, some students did benefit from the changes that took place by developing greater self-management in their studies, making a greater effort, and by engaging more with classmates as well as by opening up more to new experiences (da Cruz et al., 2021). Such students also learnt to adapt to a more comfortable environment and to the possibility of studying at their own pace, and particularly to having more time available to study and make headway with their tasks (Melgaard et al., 2022).

Student self-efficacy is a key variable in procrastinating behavior – wherein low levels of self-efficacy are linked to putting off tasks (Ziegler & Opdenakker, 2018). This linkage was also impacted by the COVID-19 pandemic, in which self-efficacy plays a protecting role (Graff & Barenholtz, 2023), since those who display greater self-efficacy will not suffer as much from increased academic stress (von Keyserlingk et al., 2022) and will demonstrate greater self-regulation (Wäschle et al., 2014) and less procrastinating behavior (Klassen et al., 2008).

The Present Study

Few studies have explored the link between the COVID-19 pandemic and procrastination from an educational perspective, or have examined in depth the explanations given by students (Lim & Javadpour, 2021; Melgaard et al., 2022; Wang et al., 2022). In this regard, it may prove useful to gain insights into the reasons put forward by students themselves concerning what impact the pandemic had on their learning curve, both with regard to personal changes in the social climate as well as other changes resulting from the methodological and didactic adaptation the university institutions were forced to implement in order to adapt to the legal requirements issued by the authorities. The results to emerge may provide information that can help universities, teachers, and students anticipate those actions that would prove most relevant should the situation arise again.

As a result, this paper seeks to understand procrastinating behavior during the COVID-19 pandemic by looking closely at the underlying causes, considering self-efficacy as the moderating variable. The study examines a particularly important group – pre-service teachers – given the impact they, as teachers, will have on their students, and the link between early leaving and anxiety as well as the emotional toll of the academic experiences they had to live through (Cervero et al., 2021). Specifically, we aim to ascertain: (a) levels of procrastination in the COVID-19 pandemic compared to those from a similar sample taken prior to the pandemic, (b) the perception and explanation given by students with regard to how the situation triggered by the COVID-19 pandemic affected their procrastinating behavior, and (c) to determine whether there are differential effects depending on other variables, such as type of procrastination, self-efficacy, or gender. We expect there to have been greater academic procrastination during the pandemic and for this to have been linked mainly to academic causes stemming from the methodological adaptation undertaken by universities in response to the health measures enforced.

Method

Participants

The sample is made up of 910 Spanish university students who were taking degrees in infant and primary education or the master's degree in secondary education (Table 1), on 14 university campuses located in various regions of Spain. Most (88%) were taking official onsite degrees, although the health measures imposed forced them to temporarily pursue a blended learning course (onsite teaching and synchronous online teaching). The results obtained in this sample were compared to those obtained from 794 university students (622 of whom were female) taking the same degrees and who studied on eight university campuses in the region of Castilla y León – the results for which were collected immediately prior to the pandemic (Martín-Antón et al., 2022b).

Variables and Instruments

The research adopts a multi-methodological approach, using measures taken from various self-reports which complement one another by measuring a range of different procrastination variables, together with qualitative information. Specifically a number of scales was used.

Procrastination Assessment Scale-Students (PASS; Solomon & Rothblum, 1984; adapted to Spanish by Garzón-Umerenkova & Gil 2017)

This scale comprises two parts. The first part contains 18 items on a five-point Likert scale, ranging from 1 (*never*) to 5 (*always*), identifying how often the student postpones tasks, to what extent their behavior poses a problem for them, and to what extent they would wish to change this behavior. The second part contains 26 items with the same response format, and which corresponds to the reasons why they procrastinate. These are grouped into three factors based on an exploratory factor analysis and cluster analysis (Gil et al., 2020): (a) "fear and insecurity", which includes reasons such as anxiety when faced with being assessed, perfectionism, or little self-confidence; (b) "inadequate response to task demands", due to a tendency to feel overwhelmed, coupled with inadequate time management, or task aversion; and (c) "excitement seeking and dependence on others", the reasons for which are rooted in risk-taking, peer pressure, and dependence and help-seeking. The scale displays suitable psychometric properties, with internal consistency indices of between .70 and .80 in the authors' original study.

Table 1. Distribution of the Sample

	Pre-pandemic (n = 794)		Pandemic (n = 910)	
Characteristics	n	%	n	%
Age				
18-22 years old	597	75	634	70
23-24 years old	87	11	110	12
25-35 years old	82	10	118	13
> 35 years old	28	4	48	5
Gender				
Female	622	78	637	70
Male	172	22	273	30
Level				
Bachelor's degree	699	88	749	82
Master's degree	95	12	161	18

Academic Procrastination Scale (Busko, 1998)

This is a 16-item scale offering five-point Likert scale responses that deal with academic procrastination in everyday tasks involved in academic study, ranging from 1 (*always, it always happens to me*) to 5 (*never, it never happens to me*), whose adaptation to the Spanish university context is structured in four factors (Martín-Antón et al., 2022a): (a) task aversion, (b) poor time management, (c) low emotional and motivational self-control, and (d) risk assumption. It displays good psychometric properties: S-B $\chi^2(71) = 197.71$, $p < .001$; S-B $\chi/df = 2.78$, CFI = .99, NNFI = .98, RMSEA = .044, 90% CI [.037, .052]. The reliability coefficients measured using McDonald's omega lie within the range .72-.94

Unintentional Procrastination Scale (UPS; Fernie et al., 2017)

This scale evaluates the general behavior of postponing activities (not necessarily academic), even though the person does not initially intend to do so. It is made up of six items offering a four-point Likert type response, ranging from 1 (*I disagree*) to 4 (*I totally agree*). It has a unifactorial structure, a Cronbach alpha of .89, and an acceptable fit in the confirmatory factor analysis (Fernie et al., 2017): $\chi^2(9) = 10.77$, $p = .300$, CFI = .99, TLI = .99, RMSEA = .038. In our study, the psychometric properties are also acceptable: $\chi^2(9) = 21.01$, $p < .001$, CFI = .99, TLI = .99, RMSEA = .052, 90% CI [.048, .057], a weighted root mean square residual (WRMR) = .0823, with a McDonald's omega reliability coefficient = .90.

Active Procrastination Scale (APS; Choi & Moran, 2009; adapted to Spanish by Suárez-Perdomo & Feliciano-García 2020)

This scale specifically identifies procrastinating behavior that is undertaken consciously in order to optimize performance – also known as intentional procrastination. It consists of 16 items offering seven-point Likert type responses, ranging from 1 (*I totally disagree*) to 7 (*I totally agree*), and which are grouped into four factors: (a) satisfaction at the outcomes, (b) preference for pressure, (c) intentional decision, and (d) ability to meet deadlines. This same structure is obtained in the adaptation to Spanish, with internal consistency indices between .70 and .80 and adequate fit values: CFI = .97, GFI = .95, RMSR = .046, SRMR = .029.

New General Self-Efficacy Scale (NGSE; Chen et al., 2001)

This scale is made up of eight items offering a seven-point Likert type response, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), which measure motivational beliefs linked to the ability to achieve the desired outcomes. It has a unifactorial structure with adequate internal consistency and is stable over time. Chen et al. (2001) analyzed reliability by applying the scale to the same subjects with two weeks' difference. The scale evidenced high internal consistency at both points (α = .85 and α = .86). Moreover, the test-retest reliability coefficients over time were high (Chen et al., 2001). In our study, the psychometric properties are acceptable: $\chi^2(20)$ = 56.14, p < .001, CFI = .99, TLI = .99, RMSEA = .045, 90% CI [.042, .048], WRMR = .09, with a McDonald's omega reliability coefficient = .94.

Change in Procrastination

After completing the questionnaires, students were asked whether they thought the COVID-19 pandemic had altered their level of procrastination when carrying out academic tasks. If it had increased or diminished, they could then state the reasons through an open response question.

Procedure

This study was approved by the CEIm Research Ethics Committee (PI 21-2258), and by those in charge of data protection. Students were sent a message informing them of the aims of the research, the ethical considerations involved, and requesting their informed consent. A message was sent to the students informing them of the aim of the research and requesting their cooperation in filling out surveys by accessing a link, which first informed them of the ethical safeguards, the ethical research committee's code of approval, and the informed consent which, unless accepted, prevented them from completing the survey. Together with the surveys, they were asked about their age, university and campus, degree studies, and year of the degree.

The data collected refer to the period between November 2020 and December 2021, which was the period corresponding to the second state of emergency decreed in Spain, in which universities were forced to implement protective measures, such as social distancing, or specific semi-online or online periods of teaching when people tested positive. This was why participants were asked whether or not they felt that the situation triggered by the pandemic had altered (by either increasing or reducing) their procrastinating behavior and – if they answered affirmatively – the cause or causes which they attributed to said change. They were also asked about the mode of teaching (on-site, blended, or online) set out in their curriculum, regardless of whatever changes might have occurred as a result of the pandemic.

The results obtained were compared to those collected in another sample of undergraduate education degree students just prior to the pandemic (Martín-Antón et al., 2022b), and which were collected between October 2017 and June 2019.

Statistical Analyses

A mixed analysis approach was used, using quantitative and qualitative data analysis techniques. We first conducted the student *t* test of two independent groups in order to determine differences between the results of the pre-pandemic sample and the current study, including a calculation of the size of Hedges' *g* effect, with the cut-off points: (a) *g* = .20 small effect size, (b) *g* = .50 moderate effect size, and (c) *g* = .80 large effect size. We calculated the chi-squared statistic (χ^2) to ascertain whether there were differences in the frequency of cases in variations in procrastination (reduction, no variation, increase) and gender, calculated using the adjusted standardized residual (ASR), with significant differences being deemed to exist when the value exceeded the range [-1.96, 1.96]. For effect size, we calculated Cramer's V, whose cut-off points are (*df* = 2): (a) ϕ_c = .07, small effect size, (b) ϕ_c = .21, moderate effect size, and (c) ϕ_c = .35, large effect size. In order to further explore the differences between the three groups, we calculated the ANOVA, with post-hoc analysis using the Bonferroni method, calculating the effect size, η^2, with cut-off points: (a) η^2 = .01, small effect size, (b) η^2 = .06, moderate effect size, and (c) η^2 = 0.14, large effect size. We used the IBM SPSS Statistics statistical package, version 28 (2021).

In order to analyze the reasons put forward by the students, we carried out an initial categorization of the open responses by

Table 2. Differences between Pre-pandemic and Pandemic Procrastinating Behavior

	Moment						
	Pre-pandemic (n = 794)		Pandemic (n = 910)				Hedges' g
Instrument and variable	*M*	*SD*	*M*	*SD*	*t*	p	
PASS							
Academic procrastination	16.14	3.80	17.02	4.33	-4.43	< .001	0.22
Procrastinating is a problem	17.66	4.54	18.61	5.28	-3.95	< .001	0.19
I wish to curb this behavior	20.36	5.66	20.53	6.02	-0.60	.550	-
Fear and insecurity	31.08	7.93	32.02	9.17	-2.25	.025	0.11
Inadequate task response	21.66	5.52	23.24	5.84	-5.72	< .001	0.28
Search for excitement	12.39	3.88	12.22	3.93	0.90	.370	-
Academic Procrastination Scale							
Task aversion	6.05	2.12	6.27	2.22	-2.08	.037	0.10
Poor time management	11.45	3.33	11.63	3.76	-1.04	.299	-
Low emotional and motivational self-control	9.56	2.86	10.02	3.06	-3.19	.001	0.16
Risk taking	7.71	2.43	7.38	2.43	2.80	.005	0.14

conducting a Synonym-Based Word Frequency query, generating word clouds, and cluster analysis, through the NVIVO computer program, v. 12. Categories were subsequently triangulated and negotiated with three experts in educational psychology.

Results

Differences between Pre-pandemic and Pandemic Procrastination

There are significant differences in virtually all the variables analyzed (Table 2), with higher scores in the pandemic, albeit with small effect sizes. This behavior is perceived as being more problematic than before the pandemic, but without any differences in the intention to reduce such behavior. As regards the causes, the greatest differences are found in the inadequate response to task demands. Nevertheless, in the variables related to intentional procastination there are either no differences (search for excitement) or these are even lower during the pandemic (risk taking).

Table 3. Changes in Procrastinating Behavior and Gender (N = 910)

Group		Gender	
		Male	Female
Has decreased	*n* (%)	30 (38%)	49 (62%)
	ASR	1.6	-1.6
Has not changed	*n* (%)	158 (32%)	329 (68%)
	ASR	1.7	-1.7
Has increased	*n* (%)	85 (25%)	259 (75%)
	ASR	-2.7	2.7

Note. $\chi^2(2, N = 910) = 8.36$. $p = .015$.

Changes in Procrastination in the Pandemic

Thirty-eight percent of participants believe that the COVID-19 pandemic increased their postponing of activities, whereas 9% managed to reduce this behavior. The remaining 53% perceived no changes. This distribution is not uniform if we take gender into account (Table 3), with proportionally more women feeling that they increased such behavior, with a small effect size.

When analyzing the differences between these three groups (Table 4), in most variables the group which believes they increased the delaying of tasks has higher scores in general and in academic procrastination than the other two groups – albeit with small effect size – with the greatest differentiating factors being fear and insecurity, inadequate response to task requirements, and poor time management. These respondents also obtain the highest scores in intentional procrastination. However, they are the least able to meet the deadlines set for tasks, the least able to withstand pressure, and the least satisfied with their results, although in this regard they equal those who believe they have been able to reduce delaying tasks. It is worth highlighting that those who feel that their procrastination has changed (has either intensified or diminished), are those who most consider such behavior to be problematic. However, only those in whom it has increased express a greater desire to reduce their procrastination – even though they actually fail to do so.

When looking at self-efficacy, the results follow a similar trend to the rest of the variables studied, with statistically significant differences between the three groups, $F(2, 907) = 4.99$, $p = .007$, with a small effect size, $\eta^2 = .011$. These differences occur between those who consider their procrastination increased ($M = 27.24$, $SD = 7.26$) and the group where it has not changed ($M = 28.58$, $SD = 6.46$), and those who consider it decreased ($M = 29.18$, $SD = 6.80$), but not between these latter two groups.

Table 4. Differences between Students Who Have Reduced, Increased or not Changed their Procrastination as a Result of the Pandemic

	Procrastination									
	1 Less (n = 79)		2 The same (n = 487)		3 More (n = 344)					
Instrument and Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	F(2, 907)	*p*	η^2	Post hoc[1]
PASS										
Academic procrastination	16.03	3.41	16.41	4.33	18.09	4.31	17.95	< .001	.038	1 = 2 < 3
Procrastinating is a problem	18.54	5.10	17.09	5.15	19.63	5.33	11.23	< .001	.024	2 < 1 = 3
I wish to curb this behavior	19.34	5.93	19.75	6.16	21.89	5.57	14.79	< .001	.032	1 = 2 < 3
Fear and insecurity	31.26	8.49	30.23	8.95	34.73	8.98	25.91	< .001	.054	1 = 2 < 3
Inadequate task response	23.12	5.32	22.21	5.82	24.71	5.68	19.23	< .001	.040	1 = 2 < 3
Search for excitement	12.27	3.58	11.70	3.77	12.83	4.13	7.51	.001	.016	1 = 2 < 3
UPS										
Involuntary procrastination	13.58	4.66	14.72	5.12	16.95	4.62	27.35	< .001	.057	1 = 2 < 3
Academic Procrastination Scale										
Task aversion	6.19	2.08	6.01	2.23	6.64	2.18	8.31	< .001	.018	1 = 2 < 3
Poor time management	10.82	3.58	11.29	3.87	12.31	3.53	9.63	< .001	.021	1 = 2 < 3
Low emotional self-control	9.83	3.42	9.77	2.94	10.40	3.09	4.48	.012	.010	1 = 2 < 3
Risk taking	6.89	2.11	7.17	2.46	7.78	2.38	8.03	< .001	.017	1 = 2 < 3
APS										
Satisfaction at the outcomes	14.89	4.72	15.41	5.01	14.47	5.22	3.48	.031	.008	1 = 3 < 2
Preference for pressure	16.96	6.01	16.71	6.36	15.17	6.64	6.38	.002	.014	1 = 2 < 3
Intentional decision	13.10	5.25	12.64	5.49	14.06	5.53	6.76	.001	.015	1 = 2 < 3
Ability to meet deadlines	20.51	6.14	20.02	6.04	17.58	6.31	17.98	< .001	.038	1 = 2 < 3

Note. [1]Significant group differences.

Reasons for the Increase/Reduction in Procrastinating Behavior

The main reasons given to justify the increase are time, assignments and study, and motivation (Figure 1).

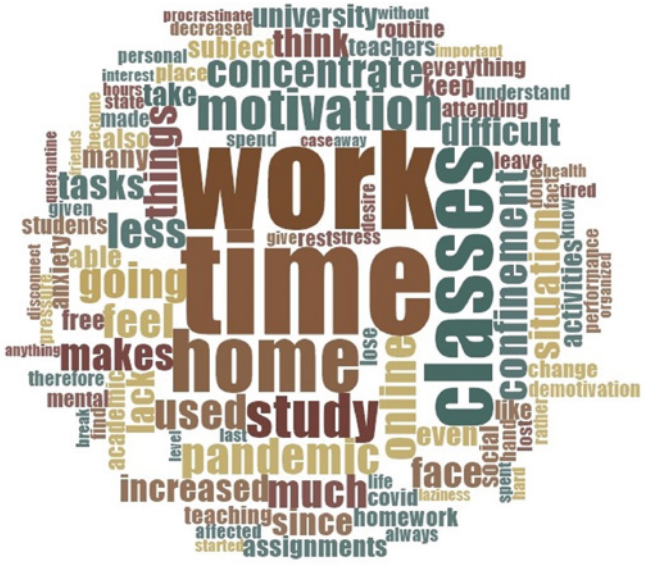

Figure 1. Word Cloud of Reasons for Increased Procrastination.

Having established the categories (Table 5), the most common are the failure to adapt pre-pandemic routines and habits (22.3%), and inadequate time management (17.2%), as a result of believing they had more time than they needed, which was not the case. Demotivation is another reason (15.1%), and is triggered by the changes in the course teaching method, added to which are the mental health problems brought on by the pandemic (13.4%), such as anxiety, depression, and so on. Another reason is the loss of social relations (7.6%), the increased workload, or the demands of the course (6.1%), although the feeling that the course is easier to pass (4.7%) means that they end up failing to devote sufficient time to actually passing it. Finally, worthy of note is the shift in priorities expressed by some students (4.1%), where the pandemic led them to reflect on the importance of other life activities beyond those of an academic nature.

As regards the reasons why they believe they reduced their procrastinating behavior, the factor which most often appears is, again, time, together with the organization of work and study (Figure 2).

Figure 2. Word Cloud of Reasons for Reduced Procrastination.

As regards the categories of reasons (Table 6), the most noticeable by far is optimal time management (40.6%), which allows them to be freer, and even to curb the feeling of inactivity, thereby promoting better organization of their studies (21.9%), favoring new learning strategies (12.5%), such that they see the

Table 5. Frequency and Description of Reasons for Increased Academic Procrastination Caused by the COVID-19 Pandemic

Category	*n*	%	Operational Definition
Changes in routine	114	22.3	Previous study habits were not suited to the demands of the new tasks: planning, places to study (not being able to go to the library…), not doing work face-to-face, assignment deadlines at the end of the year rather than during the year. In sum, all of this has led to difficult concentrating when having to complete tasks.
Time management	88	17.2	Perception of having more time available to perform tasks, when this was not in fact the case
Demotivation	77	15.1	Due to changes in methods: changing from online or blended learning, changes in the kinds of tasks, deadlines, or assessment.
Mental health problems	69	13.4	Problems of anxiety and depression caused by the pandemic, which hindered concentration
Lack of social relations	39	7.6	Lockdown, confinement, and social distancing measures. Lack of relations with classmates or teachers
Greater workload and/or demands	31	6.1	Changes in teaching methods (blended, continuous assessment …) has meant attaching greater importance to handing in assignments, which became noticeable in the number, length and/or the demands involved.
Less demands	24	4.7	It seems to have been easier to pass the courses (continuous assessment…), which has led to putting off tasks, but unsuccessfully.
Prioritizing non-academic activities	21	4.1	What they have experienced during the pandemic has made them realize the importance of making the most of their time to enjoy other –non- academic– experiences: family relations, friendships, or other life-enriching experiences.
Poor organization	17	3.3	By the university, such as the schedules established, types of teaching, use of virtual environments, resources used for assessment.
Laziness	6	1.2	Lack of interest in performing everyday activities or actions, not only academic tasks, but also in their everyday life.
Lack of time	2	0.4	Less time available as a result of having to do other –non-academic– activities they did not have to do before the pandemic.
Don't know/don't answer	24	4.6	Did not know or did not answer

Table 6. Frequency and Description of the Reasons for Reduced Academic Procrastination Caused by the COVID-19 Pandemic

Category	*n*	%	Operational definition
Time management	39	40.6	Changes in methods (online or blended lessons, continuous assessment…) allowed for more free time, thereby enabling tasks to be completed sooner. In certain cases, having more time available because of the limited opportunities for leisure and social relations has led them to become more active as a result of not being able to stand the feeling of simply doing nothing.
Better organization of study time	21	21.9	They improved planning and organization in order to have more time for other (non-academic) tasks
Changes in teaching methods	12	12.5	Less pressure to study and to complete tasks, being able to go over documents, watch the videos at different times, and not being solely dependent on face-to-face lessons. The change to continuous assessment.
More tasks	7	7.3	The number of tasks increased, which forced them to devote more time
New study habits	7	7.3	The demands of the new tasks has meant having to devise new learning strategies, work and study habits, and which are more suited to the student's traits vis-à-vis the task required.
Mental health	2	2.1	Anxiety, uneasiness, stressing experiences caused by the pandemic. One escape route for this has been to focus on doing academic tasks. Completing these as soon as possible (because of what might happen). The pandemic and the lockdown have even helped to deal with mental issues, which has positively impacted their studies.
Don't know/don't answer	8	8.3	Did not know or did not answer

situation as an opportunity to improve. For others, however, this was driven by the increased workload (7.3%), which led them to refocus their learning strategies (7.3%), so as to be more certain of success.

Discussion

This paper aims to study changes in the various kinds of procrastination related to the COVID-19 pandemic. Overall, the results obtained in this research indicate that the academic, social, and health situation that arose as a result of the pandemic had negative repercussions on students' academic careers. This concurs with the findings of the majority of studies, although they do indicate that the effect varied enormously in individual terms, particularly amongst the variables most closely related to procrastinating behavior. For example, Aucejo et al. (2020) show how a quarter of people surveyed had reduced the time they studied each week by five hours, whereas another quarter had increased it.

Overall, in our study there are higher scores in procrastinating behavior compared to the data collected in another sample of similar characteristics that was taken prior to the pandemic, and which concurs with the findings obtained in studies from different countries (Unda-López et al., 2022), with this increasingly being perceived as problematic behavior. The cause where the biggest difference was found was in not being able to respond appropriately to the demands of the task, either as a result of feeling overwhelmed or as a result of greater aversion thereto, which is directly linked to motivation. This also led to there being less emotional and motivational self-control. In this vein, da Cruz et al. (2021) reported increased frustration, emotional instability, and lack of motivation, which negatively impacted students' academic performance.

Nevertheless, we did find a lower score in procrastination due to risk taking, similar to what occurs with the search for excitement (both dimensions are indicators of intentional procrastination) in the sample of students surveyed during the pandemic. It should be remembered that those who deliberately delay a task are able to make full use of the deadline so as to respond adequately to the task (Wolters et al., 2017). However, the type of teaching to which they were accustomed had to change because of the pandemic, which may have meant that, because they were faced with a totally alien situation, they were not able to calculate the exact amount of time required.

The change in procrastination has not, however, been the same across all students. In fact, 53% of students in our study report that they did not alter their procrastination, and indeed the frequency and reasons for doing so do not differ significantly from the 9% who believe that they have in fact managed to reduce it. The remaining 38% are those who feel that their procrastination has increased. This group contains a higher proportion of women compared to those in the other two groups. In this regard, although this behavior is more common amongst men (Martín-Antón et al., 2022b), the greater psychological effect of the stress and anxiety caused by the pandemic may have been felt more by women – as reported by Carranza et al. (2022) – which has then influenced how they perceive their academic performance and satisfaction with their degree.

There is agreement between the belief of there having been a change in procrastination due to the pandemic and the results found in the different types of procrastination. Specifically, participants who believe that their procrastination has increased are, indeed, those who display the highest levels in all the variables compared to those who consider there has been no change, or that their procrastination has decreased, which would indicate that the pandemic has proven to be particularly damaging for students who tend to procrastinate most (Stoliarchuk et al., 2022). This trend is evident not only in academic tasks but also in other everyday situations. Laybourn et al. (2019) found that teachers who postponed work-related tasks also did so in their daily lives.

Participants who claim their procrastination has changed (either increased or decreased) are the ones who most feel that this poses a problem, although only amongst those who have seen an increase is there a greater intention to curb such behavior (Rahimi & Hall, 2021). However, they in fact fail to do so, since they are the group least capable of meeting task deadlines, which then triggers anxiety, feelings of frustration, reduced intrinsic motivation, and leads to avoidance behaviors (Schodl et al., 2018).

The reasons put forward by students for both the increase or decrease in procrastinating behavior as a result of the COVID-19 pandemic are similar, albeit in the opposite direction: changes in routines, time management, how students organize their studying, motivation, or greater demands or workload. These are causes linked to procrastination, but that the socio-health and academic situation triggered by the pandemic only served to exacerbate.

Specifically, we found that fear and insecurity when faced with academic situations is what most differentiates students who believe their procrastination has increased due to the pandemic from those who believe it has diminished or has remained unchanged. This reason is related to academic stress, less self-confidence, and even perfectionism, which is brought about by having to face new kinds of tasks. These results concur with results by Melgaard et al. (2022),

who explore the consequences of the pandemic and reveal that procrastinators are more concerned and anxious about their exams and their grades. In this vein, the findings of Rahimi and Hall (2021) indicate that the increase in procrastination during the pandemic was triggered by the fear of failure. Added to this is a large number of students in our study who attribute their increased procrastination to problems of mental health, stress, or anxiety triggered by the socio-health situation, which concurs with the findings of Hofmann (2021) or Chaturvedi et al. (2021), who report an impact on sleeping habits, social life as well as mental health repercussions, such as increased levels of anxiety and stress.

A second cause which most accounts for the increased procrastination in our study is the inadequate response to task requirements, which is linked to the tendency to feel overwhelmed (Rahimi & Hall, 2021). In this line, Melgaard et al. (2022) point out that, since the pandemic, procrastinators have had difficulty structuring their daily routines compared to those who are not procrastinators. Likewise, Chaturvedi et al. (2021) report less time being dedicated to lessons and to self-learning.

Indeed, the most common reason cited by students who feel they have increased this behavior is not knowing how to adapt their habits and study environment, which clearly points to a failure to self-regulate. This concurs with the results obtained by Jia et al. (2021), who find a negative link between procrastination and self-regulated learning, identified as a lower use of learning strategies, poorer mood adjustment, or difficulties in self-evaluation, organizing their environment, time management, or the search for help, which in turn is linked to perceived student inefficacy. Likewise, Naujoks et al. (2021) show how the use of strategies designed to structure the study environment is negatively related to procrastination. It is also important to remember the importance of time management as an appropriate response to tasks. This is an important argument, both for students who have reduced as well as for those who have increased their procrastination in task postponement, although in the opposite sense. Specifically, the mistaken belief that they have more time available has led them to increase putting off compulsory tasks. Several studies have found that procrastinators are more prone to postpone their tasks and not to make the most of the extra time available (Melgaard et al., 2022; Sæle et al., 2017: Steel, 2007; Unda-López et al., 2022; Wolters et al., 2017). Nevertheless, students who reduce their procrastination benefit by making headway with their tasks and by finishing on time so as to then be able to devote themselves to other activities. As a result, having more time available is no guarantee of being able to complete a task more successfully. What does bring success is the ability to define objectives, establish plans, handle contingencies, and so meet deadlines (Pelikan, Lüftenegger, et al., 2021; Stoliarchuk et al., 2022).

The third reason we find to be most related to increased procrastination during the pandemic is inappropriate emotional and motivational management. Being able to handle emotions was a key factor during the pandemic, where balancing changes in academic activities with changes in everyday situations proved crucial. Peixoto et al. (2021) show that students who succeed in striking a balance with other areas of their life are more satisfied with life as a whole and procrastinate less. Where this has not been the case, there has been a tendency to defer activities that are less satisfying, which is linked to less intrinsic motivation. Pelikan, Lüftenegger, et al. (2021) find that students who are more innately motivated are those who procrastinate less and who are more persevering and resolute. Similarly, Melgaard et al. (2022) show how the greatest difference between procrastinators and non-procrastinators is motivation, where non-procrastinators display greater satisfaction with academic achievement. Demotivation, on the other hand, is linked to mental problems brought on by the uncertainty triggered by the COVID-19 pandemic. Doğanülkü et al. (2021) find that – due to the fear of COVID-19 – failure to tolerate uncertainty predicted procrastination and led to avoidance behavior in individuals (Schodl et al., 2018). Demotivation was also prompted by the decline in social relations (Pelikan, Korlat, et al., 2021). In fact, peer dependence is another variable in which there are differences between students who most procrastinate and others. It should be remembered that one of the most significant changes brought about by the pandemic was the reduced social interaction due to social distancing measures (Brooks et al., 2020; Bu et al., 2020).

There are also differences in the search for excitement, or risk taking, and which are indicators of active procrastination. This has also been seen to be higher amongst those who feel they have increased task postponement (da Silva et al., 2020), yet without being successful, since they are less tolerant of pressure, fail to meet deadlines and, as a result, do not feel satisfied with the outcomes (Fernie et al., 2017), which would point to unsuccessful intentional procrastinating behavior.

The final notable cause found in the study – and which is linked to increased procrastination during the pandemic – is the organization of teaching, involving matters such as changes in timetables, type of teaching, increased workloads, and demands. Flores et al. (2022) show how students whose method of instruction was changed because of the pandemic exhibited greater anxiety, tiredness, and stress, in addition to experiencing greater difficulty concentrating and avoiding distraction. The feeling of receiving less attention or help from teachers was also found to be evident. Stoliarchuk et al. (2022) show that 41% of those surveyed are unhappy at the increased academic workload, and that 38% have a very negative view of the use of distance teaching as an alternative to conventional face-to-face instruction. Melgaard et al. (2022) find that online or blended teaching methods have had a negative impact on procrastinators, while synchronous teaching was reported to have proved positive for non-procrastinators. Grunschel et al. (2013) reported greater procrastination amongst students whose teachers were too lax, over-demanding, or whose teaching was non-systematic. These students experienced difficulty finding help from teachers when seeking to resolve doubts outside the classroom (e.g., accessing personal tutorial sessions).

All of this is determined by the degree of self-efficacy (da Silva et al., 2020; Wäschle et al., 2014). We find that students who believe their procrastination has increased are those who display least self-efficacy, which is in line with Pelikan, Lüftenegger, et al. (2021), who note that people who procrastinate least view themselves as being highly competent, and are more intrinsically motivated than students who exhibit less perceived competence (Pelikan, Korlat, et al., 2021; Wolters et al., 2017), added to which they also have less need for support. Even in the case of procrastinators, von Keyserlingk et al. (2022) show that student self-efficacy was key to constraining the stress caused by task postponement (Klassen et al., 2008).

Limitations

This paper does, however, evidence certain limitations, due mainly to the use of self-reports as the data collection technique, and which we sought to minimize by employing various instruments that measure procrastination, in addition to the qualitative information provided by students. A further limitation concerns having compared data from a sample taken during the pandemic with data from another sample taken prior to the pandemic. It would have been desirable to conduct a longitudinal design, although many of the participants would probably have finished their degree during the pandemic, and in 2019 nobody could have foreseen the situation that was to unfold with the pandemic. We do, nevertheless, draw on two broad samples, from various university campuses, and from the same university

degree courses. We cannot overlook either the different teaching methods employed in the various teacher training degrees, both in the specific courses as well as in the actual degrees and universities themselves. This involves, for instance, the different importance and weight attached to assignments, examinations, weekly readings, joint tasks, etc., differences which are even more evident between bachelor's and master's degrees (Rahimi & Hall, 2021). Moreover, many of the measures were adopted at all the universities, since they were imposed at a national scale and not only in the field of education (e.g., social distancing measures). However, other measures were specifically applied by the regions or universities, such that certain individual student experiences might not be comparable. Finally, further inquiry could have been carried out into how the pandemic might have impacted self-efficacy. Although its link to procrastination has been widely studied, it has not been explored to such an extent as a dependent variable of student behavior.

Conclusions

The findings reveal how university authorities not only need to make the organizational changes required to adapt to external measures – whether they be health, educational or regulatory – but that they must also consider what effect these changes have on student learning processes. They must encourage teachers to introduce the right measures so as to help them become aware of the changes this implies for the tasks assigned, and what impact this will have on how studies are organized. It will also involve monitoring the tasks that will move progressively from a more first-hand supervision to gradually requiring greater autonomy. Moreover, many universities have launched psychological care services to help minimize the impact of the pandemic amongst members of the university community. Such services may be expanded to the area of educational psychology so as to offer measures aimed at enhancing self-regulation, time management, and reducing academic stress – akin to the academic guidance departments found in secondary education. In preventive terms, programs focused on providing training in learning strategies could also be implemented – in particular metacognitive programs geared towards enhancing self-regulation. Other possible measures include: diversifying teaching methods, such as offering gamification activities aimed at boosting motivation; providing detailed information on assessment, or even carrying out simulations; not assigning long-term academic tasks, but rather splitting them up so that students receive teachers' feedback, which would help them to gauge how efficient they are being in their learning processes; and making use of technological tools integrated in university learning management systems (LMS, like Moodle, Blackboard Learn, or Canvas), such as those related to visual e-learning, and which control all the student's activities. It would also prove enlightening to conduct follow-up of graduates – those who have taken much of their university degree course during the pandemic – since the increased procrastination many of them have manifested may aggravate the already procrastinating behavior they exhibit when they become practicing teachers, with the subsequent repercussions this might have on their future pupils.

Conflict of interest

The authors of this article declare no conflict of interest.

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