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Abstract: This study explores the incidence of using electronic devices on academic procrastination in university students. The procrastination profile, screen use habits, and perceived academic performance are analyzed, assessing the impact of screen use on the psychological dimensions of procrastination. An ad-hoc instrument and descriptive and correlational techniques were used for data analysis. The results reveal that procrastination is common among students, and they perceive their academic performance as good or very good with a similar result in their grade point average, indicating that procrastination does not seem to affect their performance significantly. About 50% report frequent use of screens, and although no widespread addictive behaviors are detected, 20% may be at risk of addiction. The dimensions of self-regulation, self-efficacy, and self-esteem show an inverse correlation with screen use, suggesting that less screen use improves these dimensions and reduces procrastination. In addition, high screen use is associated with higher levels of anxiety. Self-efficacy emerges as crucial to mitigating procrastination. In conclusion, although procrastination is prevalent, it does not appear to affect academic performance significantly, but excessive use of electronic devices negatively impacts key psychological dimensions and increases anxiety.

Keywords: screen use, procrastination, university students, academic performance

1. Introduction

School dropout has been studied by numerous researchers for decades, trying to identify the main risk factors associated with this phenomenon, with the main objective of providing scientific knowledge to improve academic success and achievement rates [1–4] In recent years, knowing in advance the factors that explain students' academic underachievement has become increasingly important for higher education institutions and policymakers [1,5]. Many authors point to burnout as a crucial phenomenon in the university experience, hurting mental health, academic performance, and satisfaction, coupled with low motivation and high levels of anxiety or depression among students in higher education [6–9]. In addition, it causes student burnout that favors chronic fatigue, demotivation, and a significant decrease in performance, favoring the intention to drop out[7,10–12].

Meanwhile, just as electronic devices and screens are presented as necessary tools in university environments, their increased use has raised concerns about their potential effects on students' psychological well-being and academic performance[13,14]. Nowadays, young people spend more and more time interacting with these devices, which can lead to addiction to devices or social networks[13,15]. This addiction is characterized by emotional dependence and a feeling of discomfort when use is interrupted, significantly disrupting students' daily routines and lifestyles and sometimes leading to personal and social problems[16]. The obsession with social networks leads to students spending long hours online, neglecting other fundamental areas of their lives such as studies, work, family, or friends[17]. This lack of control over the use of electronic devices may result in poor academic performance, as students may experience difficulties concentrating and fulfilling their academic responsibilities. In addition, addiction to social networking may predispose students

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to social isolation and disconnection from reality, contributing to the manifestation of depressive symptoms and low self-esteem[18]. These emotional problems can be intensified by emotional instability, irritability, and lower frustration tolerance, further affecting students' overall well-being and mental health [19]. Constant use of social networks can lead students to experience emotional dependence and feelings of discomfort when they are not online, negatively affecting their daily routines and overall well-being [16]. This disconnection from fundamental aspects of life can lead to a lack of fulfillment of academic responsibilities and poor academic performance.

Another of the risk factors associated with demotivation and intention to drop out is procrastination, a widely observed behavior among university students that generates serious drawbacks in their academic performance, significantly hindering the teaching-learning process [20,21]. This behavior, which is very common in the general population, not only has a negative impact on the effectiveness of learning methods but also has a considerable impact on levels of personal well-being, causing states of anxiety or depression[22–24].

[25]describes this behavior as postponing or deferring an activity to a later time, substituting it for a less important one. In academia, this results in students not handing in assignments on time or not meeting teacher deadlines [26]. Procrastination creates a discrepancy between intentions and actions, which significantly increases the likelihood of students experiencing negative emotions[27–29]. This mismatch can cause students to face various unpleasant emotions, such as anxiety about assessments, constant stress due to pending assignments, burnout, and even a loss of interest in academic activities, decreasing their motivation and commitment to study [30,31].These factors create an emotionally challenging environment that can hinder students' academic performance and overall well-being. Accordingly, the study by [32] shows that procrastination is frequently associated with anxiety, stress, low self-esteem, or self-efficacy, which can lead to negative grades and even school dropout due to students' discomfort when they do not achieve their goals.

Procrastination, however, is a complex phenomenon to which many factors are associated depending on different approaches and authors and not always complementary, making it difficult to deepen the understanding of a critical phenomenon from an educational point of view. Thus, many researchers have linked procrastination to a failure in self-regulation [27–29]. However, others do not limit themselves to seeing it only as a problem of time management by students but also consider cognitive, affective, and behavioral aspects, such as overconfidence in trying to achieve a goal on time and behaviors related to self-efficacy [33]. In addition, procrastination is associated with strategies to manage negative emotions, such as fear of failure, that leads students to postpone essential and complex tasks, preferring activities that offer an immediate reward and generate a temporary sense of well-being [34,35]. Recently, the study by [36] reviews and proposes a new model of procrastination, exploring its dimensionality from three axes: personal (authoritarian parenting), pedagogical (academic performance and student dropout) and psychological (self-regulation, self-efficacy, self-esteem, motivation, personality, and anxiety). This paper focuses on those dimensions that make up the psychological axis.

Self-regulation is linked to students' management of their learning processes. A failure involving an intention-action mismatch increases the likelihood of procrastination and developing aversive feelings in students [30,37]. Furthermore, students with high self-regulation skills have better academic performance outcomes [38].

On the other hand, self-efficacy stands out as a strong predictor of performance [39], showing that higher self-efficacy is positively associated with better academic outcomes. According to [40]and [41], perceived self-efficacy not only influences academic performance but also how students approach and handle various academic and personal situations. These beliefs in their competence enable them to face challenges more effectively and with greater confidence, reducing the tendency to procrastinate and encouraging a more proactive and determined approach to their studies.

Personality is a crucial factor in understanding how students behave in academic environments. Numerous studies have established a connection between personality and individual students' educational attainment and academic performance [41]. Furthermore, a close relationship is found

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between personality traits, procrastination, and learning burnout among university students [42], with several studies showing the existence of a significant correlation between these factors [43–45].

In academic environments, exams, deadlines, and being in a highly competitive context, stress or anxiety processes can be triggered in students, which can negatively affect both students' academic performance and their mental and physical health [46,47]. Many studies suggest anxiety as a factor involved in academic procrastination [21,48] since, according to the study by [49], procrastination is a result of anxiety.

Furthermore, numerous studies have identified a relationship between increased anxiety, low self-esteem, and procrastination [50], as academic procrastination is associated with feelings of guilt in students affecting their self-esteem [51–53]. Many authors consider self-esteem as one of the factors affecting students' academic procrastination [54,55], which becomes particularly vulnerable in the context of increasing use of electronic devices and addiction to social networks. This behavior promotes procrastination and procrastination of essential tasks, which not only impairs their academic performance but also has a detrimental impact on their emotional well-being as students with low levels of self-esteem tend to seek refuge in social networks and use the internet excessively [56].

Together with low levels of self-esteem, the increasing excessive use of social networks and prolonged exposure to screens generate procrastination and demotivation behaviors in students, which is why motivation has been identified as another dimension of great importance in the procrastination of university students. The academic literature highlights the need for motivation for students to perform their learning activities effectively [57]. Also, it associates academic procrastination with a lack of motivation among students [58].

Based on the above, from an educational point of view, it is essential to empirically explore the connections between the dimensions that make up procrastination and the construct itself and how it is associated with screen use. From an academic point of view, this understanding is critical to developing effective strategies and actions that help students to manage their time better and reduce procrastination induced by excessive use of electronic devices, thus helping to improve academic performance, which could impact burnout levels and academic dropout. Therefore, this study aims to explore university students' procrastination profile according to [36]. Likewise, it aims to delve into students' screen use habits and their perception of academic performance, investigating how screen use is related to the various psychological dimensions of procrastination considered in the study. It is for this purpose that the following research questions are proposed for this study:

RQ1: Is academic procrastination a common phenomenon in the university population?

RQ2: What are students' perceptions of academic performance?

RQ3: What patterns of screen use are prevalent among university students?

RQ4: How is procrastination linked to screen use according to its dimensions, and how do these relate?

2. Materials and Methods

2.1. Design

This study pursues three objectives: On the one hand, to explore the procrastination profile of university students. To do so, based on the model proposed by [36] we analyze the level of procrastination perceived by students, as well as the score obtained for the dimensions of the construct studied and its relationship with other variables of interest. On the other hand, it delves into students' screen use habits, personal perceptions of their academic performance, and the relationship between them. Finally, to evaluate the impact of screen use on young university students, examining the relationship between screen use and the different psychological dimensions of procrastination was analyzed in the study.

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To carry out the objectives of the study, a quantitative, non-experimental ex post facto survey-type design was used. This methodology was selected to study student behavior regarding the research variables and to measure the relationship between these variables.

2.2. Sample

The sample in this study consists of 81 higher education students (Loyola Andalucía University, Seville, Spain) selected using the simple random sampling technique from the total number of subjects enrolled in undergraduate studies at the University. The inclusion criteria for the selection of participants in the present study were as follows:

- Sex: Male and Female
- Age: subjects aged between 18 and 24 years.
- Studies: students enrolled in undergraduate studies.

2.3. Instrument

Following the model of procrastination proposed by [36], an ad-hoc instrument has been developed that measures procrastination broken down into the psychological variables associated with the construct, these being self-regulation, self-efficacy, motivation, self-esteem, and Personality.

For the Self-regulation dimension, an adaptation of the Academic Self-regulation Scale (ASRS) [59] and the Emotion and Motivation Self-regulation Questionnaire (EMSR-Q) [60] was established to assess this variable. The Student Self-Efficacy Scale (SSE)[61]measures the Self-Efficacy dimension. The Motivation variable in academic settings is measured with the Academic Motivation Scale-College (AMS-C) [62]. The Rosenberg Self-Esteem Scale (RSES) [63] were used to assess students' Self-Esteem and Personality with the International Personality Item Pool (IPIP) [64]. For the Anxiety dimension, a scale combining the Text Anxiety Inventory (TAI-5 item) [65] has been established to assess anxiety in academic settings focusing on students' test anxiety, with The State-Trait Anxiety Inventory (STAI-T) [66] which measures state anxiety.

For the evaluation of the use of electronic devices, the instrument created is based on the selection of ten items from the Adolescent Preoccupation with Screen Scale (APSS) [67] and the adaptation of the nine-item version of the Social Media Disorder Scale (9-item SMD scale) [68].

The final instrument (SHAPE: Screen Habits and Academic Procrastination Evaluation) consists of 80 Likert-type items ranging from 1 to 5, with 1 being the lowest (never) and 5 the highest (always), which answer the question: To what extent do you agree or disagree with the following statements? In addition, to measure procrastination and academic performance levels, students were asked to indicate their perception of procrastination, academic performance, and grade point average. Therefore, the final instrument consists of 83 items: 80 items measuring the dimensions of the study, two items referring to the student's perception of their procrastination and performance, and a final item referring to their average grade. The questionnaire was introduced with an informed consent and information sheet to ensure all students understood the items. Throughout the process, the students were accompanied by a researcher to clarify and resolve any doubts regarding their understanding of the items.

2.4. Data Analysis

Descriptive and correlational techniques are used to analyze the data obtained; for the descriptive analysis, frequencies and measures of central tendency and dispersion such as mean, minimum, maximum, and standard deviation are used. Pearson's correlation coefficient was used to identify the possible relationships between the dimensions of procrastination that most influence screen use in university students and the strength and direction of these. All calculations and statistical analyses were done using SPSS software, version 24.

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3. Results

3.1. Characteristics of the Sample

The sample resulting from the study is made up of 81 students, 73 of whom are females and 8 males, with an age range between 18 and 24 and an average age of 20. The sample distribution by year shows that more than 80% of the sample corresponds to students from the first three years, with the first year being the most represented with 35.8% of the sample, followed by the third year with 27.2%. The least represented year in this sample corresponds to fourth-year students, with a meager 1.2% of the total.

3.2. Internal Structure of the Instrument

To explore the instrument's validity, after data collection, the instrument's internal consistency was calculated by means of Cronbach's Alpha coefficient with a result of α=.795 for the instrument, obtaining good reliability. The result of the internal consistency by scale factors is also generally positive, except for the value for the personality dimension, as shown in Table 1.

Table 1. Reliability coefficients per scale.

Scale	Nº item	α-Cronbach
Screen Use	18	0,886
Self-Regulation	10	0,774
Self-Efficacy	10	0,859
Motivation	12	0,824
Self-Esteem	10	0,856
Personality	10	0,545
Anxiety	10	0,831
Total (n=81)	80	0,795

3.3. Level of Procrastination as Perceived by Students

About RQ1 of the study, which seeks to determine whether academic procrastination is a common phenomenon in the university population, the results (Figure 1) show that only 1.2% say that they never procrastinate, and 7.4% say that they almost never procrastinate. Thirty-seven percent of the sample said that they sometimes procrastinate, 39.5% procrastinate almost always, and 14.8% say that they always procrastinate, which means that more than 90% of the sample falls between the values Sometimes and Always.

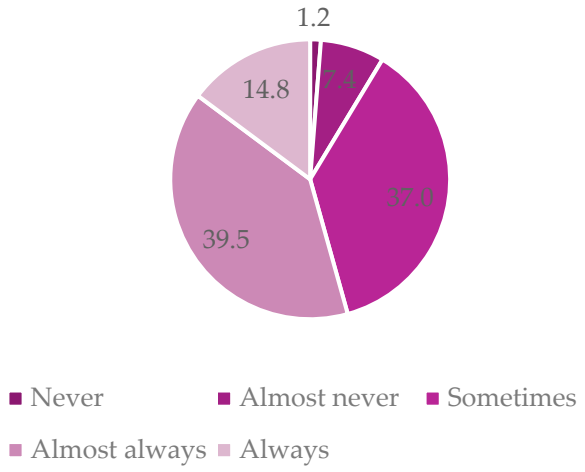

Figure 1. Procrastination perceived by students.

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Furthermore, to analyze the construct in-depth, in addition to perceived procrastination, students were asked to respond to the items selected for each of the dimensions extracted from the model linked to procrastination (Self-regulation, Self-efficacy, Motivation, Self-esteem, and Anxiety). The descriptive statistical results obtained are shown in Table 2.

Table 2. Descriptive statistics for the dimensions of procrastination.

Dimensions	N	Minimun	Maximun	Mean	Standard dev.
Self-Regulation	81	2,30	4,60	3,5000	,56236
Self-Efficacy	81	2,40	5,00	3,9815	,53528
Motivation	81	2,33	4,17	3,3138	,46084
Self-Esteem	81	2,30	4,90	3,7025	,59033
Anxiety	81	1,60	4,90	3,4667	,70338
1= Never, 2 = Almost never, 3 = Sometimes, 4 = Almost always, 5 = Always					

Self-efficacy is identified as the variable with the highest mean of 3.98, presenting a maximum value of 5 and a minimum value of 2.4, close to the central value of the scale (3), being the scale that obtains the most positive results.

Self-esteem presents a mean value of 3.70, with a similar range of data to self-efficacy, with a minimum of 2.3 and a maximum of 4.9, very close to the maximum value of the scale.

Self-regulation obtained a mean of 3.5. In the range of data for this dimension, the minimum value presented is 2.3, and the maximum is 4.6.

The mean for the Anxiety scale is 3.46, slightly above the mean value. Its minimum value is the lowest of all the scales, with a minimum of 1.6, very close to the minimum value (1). However, it has a maximum value of 4.9, close to the maximum value (5) and the second-highest maximum value among the dimensions, making it the dimension with the broadest range of responses.

The descriptives for Motivation show results very near to the average value of the scale, with 3.31 being the scale with the lowest average value, with maximum data of 4.17 and minimum values of 2.33.

The means of the dimensions are shown in Figure 2.

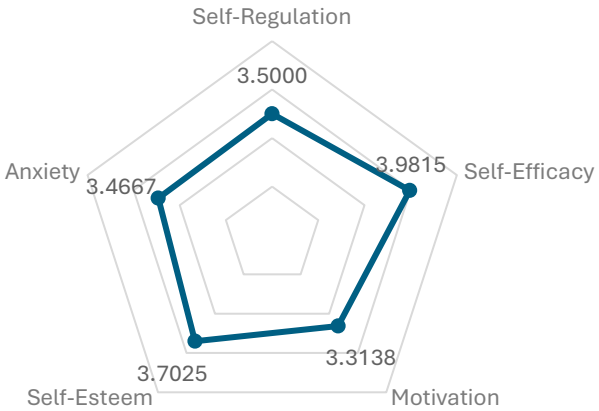

Figure 2. Mean per item for the Procrastination dimensions.

3.4. Perceived Academic Performance

According to RQ2 of the study, which seeks to assess how university students perceive their academic performance, the results show a student population in which 64.1% of respondents say they consider themselves to be good or outstanding students, compared to 34.6% who consider themselves average students and a meager 1.2% of the sample who consider themselves to be poor students (Figure 3).

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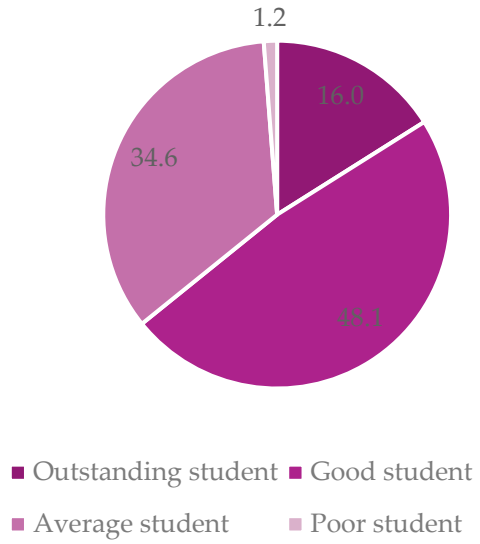

Figure 3. Perceived academic performance of students.

The students were also asked to indicate the approximate average grade for the course to contrast these data. Both results converge since only 17.30% of the respondents have an average grade between 5 and 6.9 (Pass), 69.10% present data between 7 and 8.9 (Good), and 13.6% obtain an average higher than 9 (Excellent). (Figure 4).

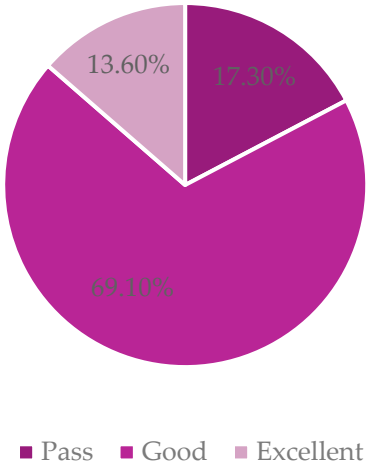

Figure 4. Distribution of the sample for the mean score variable.

3.5. Screen Usage Habits of Students

Regarding screen and social network use referred to in RQ3 of the study, which analyses the predominant screen use patterns among university students, the results are shown in Figure 5. Respondents answered Never or Hardly ever in most of the items related to problematic behaviour, for example, in the item 'I often argue with other people because of social networks' with 61.7% of young people answering Never and 29.6% Hardly ever or 'I have had serious conflicts with my parents and siblings because of my use of social networks' where 67.9% Never show this behaviour and 19.8% Hardly ever. Moreover, in general terms, they show high use of screens, since items such as 'I stay on screens longer than I want to', with 45.7% of students answering Almost always and 37% recognising that they always do so (which represents 84.7% of the sample), as well as the item 'I go to bed late because I have been using screens' with results of 35.8% Almost always and 27.2% of

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students who always show this behaviour (63% of the total). Also, more than 70% of respondents admit that they sometimes or almost always try to spend less time on social networks but fail.

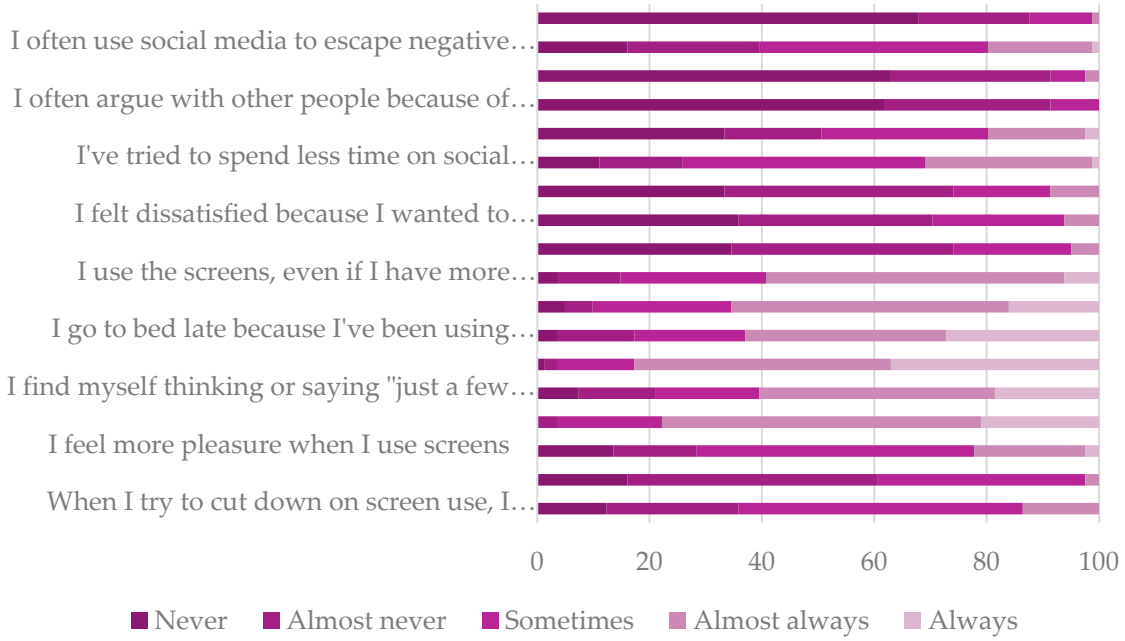

Figure 5. Distribution of the sample for the Screen Use dimension.

The descriptive statistics for the Screen Use variable (Table 3) show that the mean value obtained for the items is 2.69, the dimension with the lowest mean. Its minimum value obtained is 1.22, which is below the minimum values obtained for other scales, and it has a maximum value of 3.67, slightly above the mean value of the items (3).

Table 3. Descriptive statistics for the Screen Use dimension.

Dimension	N	Minimun	Maximun	Mean	Standard dev.
Screen Use	81	1,22	3,67	2,6968	,53835
1= Never, 2 = Almost never, 3 = Sometimes, 4 = Almost always, 5 = Always					

3.6. Relationship between Screen Use and Academic Procrastination According to Its Dimensions

About the fourth and last RQ of the study, which aims to analyse how procrastination is linked to the use of screens and how the different dimensions of the research are related, a correlational study of the variables was carried out to find out the possible relationships between them and the extent to which they do so. The results obtained are shown in Table 4.

Table 4. Correlation of study dimensions.

		SELF-ESTEEM	SELF-REGULATION	SELF-EFFICACY	MOTIVATION	ANXIETY	PERSONALITY
SCREEN USE	Pearson correlation	-,402**	-,359**	-,307**	-,124	,361**	,096
	Sig. (bilateral)	,000	,001	,005	,268	,001	,391
SELF-ESTEEM	Pearson correlation	1	,186	,407**	,131	-,507**	,079
	Sig. (bilateral)		,097	,000	,243	,000	,483

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SELF-REGULATION	Pearson correlation	1	,376**	,190	-,148	,168
	Sig. (bilateral)		,001	,089	,189	,134
SELF-EFFICACY	Pearson correlation		1	,327**	-,279*	,243*
	Sig. (bilateral)			,003	,012	,029
MOTIVATION	Pearson correlation			1	,000	,242*
	Sig. (bilateral)				,999	,030
ANXIETY	Pearson correlation				1	,203
	Sig. (bilateral)					,070

**. Correlation is significant at the 0.01 level (bilateral).

*. Correlation is significant at the 0.05 level (bilateral).

As shown in Table 4, the analysis results show significant correlations between screen use and self-esteem, self-regulation, self-efficacy, and anxiety. As for the strength of the correlations, all of them show a significant correlation at a level of 0.01, indicating a solid and reliable correlation between the variables. Observing the direction of the correlations obtained, we find an inverse or negative correlation between the use of screens and self-esteem, self-regulation and self-efficacy. Therefore, those with higher use of electronic devices and social networks will also have lower self-esteem, self-regulation and self-efficacy. On the other hand, a direct or positive relationship is found between screen use and anxiety levels, with those who use screens more frequently also tended to have higher levels of anxiety. These results indicate that screen use impacts most of the dimensions studied, thus affecting students' procrastination. These correlations are depicted in Figure 6

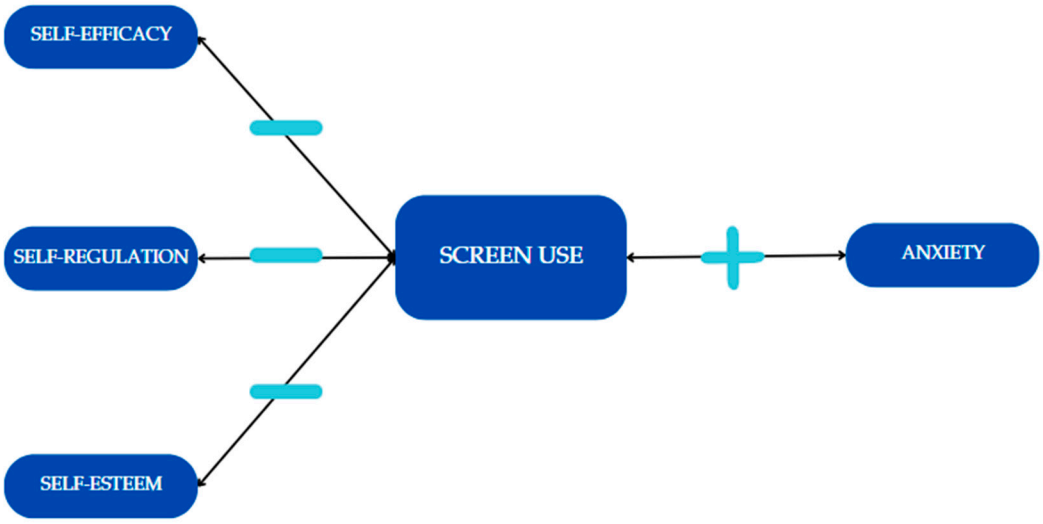

Figure 6. Relationship between the screen use dimension and the dimensions of academic procrastination. Source: Own elaboration.

Furthermore, as shown in Table 4, the analysis results show correlations between the different dimensions of procrastination included in the study. It is observed that the anxiety dimension correlates negatively with self-esteem and self-efficacy. On the other hand, the self-efficacy dimension correlates positively with the self-regulation, self-esteem, motivation and personality dimensions. Similarly, the dimensions of motivation and personality correlate positively with each

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other. Looking at the direction of the correlations, students with lower anxiety levels will have better self-esteem and higher self-efficacy. Higher levels of self-efficacy will improve self-regulation, self-esteem, motivation and personality. Finally, a positive correlation is observed between personality and student motivation, with the students' personality being a determining factor in their motivation levels. About the power of the correlations, four of them present, as in the previous case, a significant correlation at the 0.01 level. In the case of the correlation observed between self-efficacy with anxiety and personality and motivation with personality, the level of significance presented by these correlations is significant at the 0.05 level, so these results are reliable but not as strict as those that present a significance at the 0.01 level. These correlations are depicted below in Figure 7.

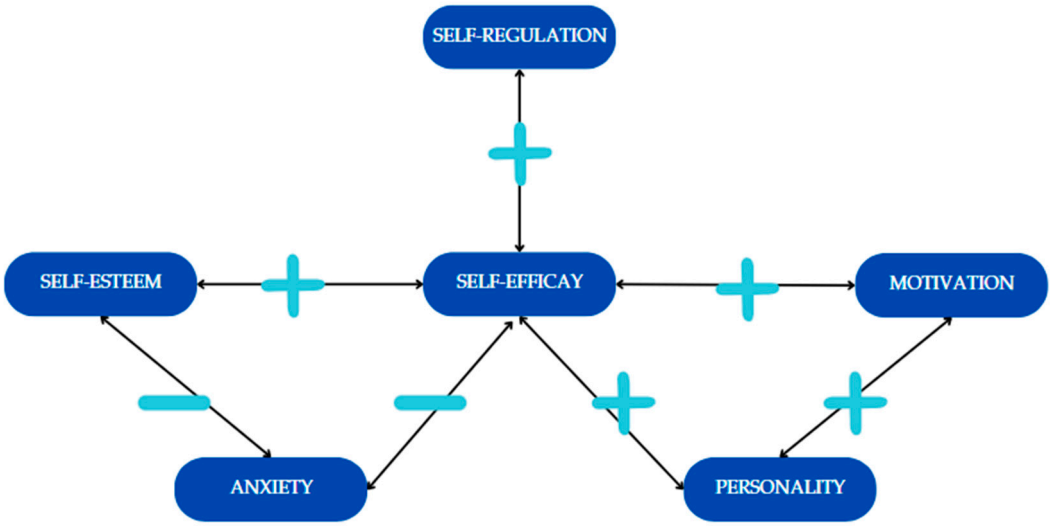

Figure 7. Relationship between the dimensions of academic procrastination. Source: Own elaboration.

4. Discussion

Screens and electronic devices are now widespread, significantly transforming how university students interact with the world around them. While bringing numerous benefits, this transformation has also posed considerable challenges, particularly in academia. The accessibility of social media and other forms of digital entertainment has led to increased procrastination, directly affecting students' academic performance.

The sample of this study focuses mainly on the first years of undergraduate studies, with more than 80% of the participants belonging to the first three years of university studies. First-year students are the most represented by these. The decision to focus on first-year students is due to recommendations in the scientific literature that this population is at a higher risk of dropping out [69]. This research highlights the importance of students being actively involved in their studies in order to achieve academic success [70], as those with low motivation or involvement, who miss classes, procrastinate or hand in assignments late, are less likely to succeed and have a high probability of dropping out of their studies [71]. For this reason, it is crucial, as other studies suggest, to carry out research to help reduce this risk by analysing the causes of dropout in the early years [69], with procrastination emerging as one of these.

The instrument (SHAPE: Screen Habit and Academic Procrastination Evaluation) has proven reliable in measuring procrastination through its psychological variables and screen use in university students. Internal consistency analyses, with a Cronbach's Alpha of α=.795 for the instrument, confirm good overall reliability. Although the personality dimension showed slightly lower internal consistency, the overall factor reliability results were positive.

The results obtained about the phenomenon of procrastination reveal it as a widespread behaviour among students to a greater or lesser extent, as more than 90% of those surveyed recognise

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that they procrastinate from Sometimes to Always. More than 50% of the sample acknowledges procrastinating Always or Almost always, so we are faced with a widespread behaviour among university students nowadays, as only 1.2% of the surveyed population acknowledges not procrastinating Ever. The data converge with other studies that point to academic procrastination as a widespread behavioural tendency, being quite common among university students [21], so it is necessary to study it in academic contexts in order to understand students' time management [72].

Likewise, different studies relate this behaviour to academic performance, negatively affecting students' learning [20,73,74] since when students avoid starting or completing their academic tasks, it generates delays that can negatively affect their results [75]. On the other hand, this study analyses the academic perception of students, obtaining very positive results, with more than 60% of respondents considering themselves to be good or very good students. Furthermore, these data are consistent with those obtained when students were asked about their overall average mark, with more than 60% showing average values of 'Good'. This data seems to reveal that, although students recognise that they are procrastinators, this behaviour does not seem to affect their academic performance, thus diverging from the results expected from the literature where a direct inverse relationship between procrastination and academic performance is suggested [74], whereby those with high levels of procrastination are expected to have poorer academic results. However, these data are considered preliminary and inconclusive as the results may mask a problem that impacts higher grades or a lack of awareness of procrastination behaviours in the short and medium term. These results may coincide with the study by [76] where it is mentioned that individuals who procrastinate tend to have a lower than average level of awareness, being guided more by desires and dreams of success that are not aligned with a realistic assessment of their responsibilities adding further that, according to [77], it is stated that procrastination arises from cognitive distortions and erroneous thoughts. These data need to be further explored, with more extensive studies looking at these aspects and students' feelings of conscientiousness.

Regarding students' screen usage habits, almost 50% of the responses are between the values Sometimes or Almost always, which reveals high use of screens and social networks among the respondents who try to reduce screen usage without success. Many studies refer to the increase in the use of social networks in recent years [78] and how university students spend a high proportion of their time on the Internet or social networks, triggering procrastination processes [79]. Although the data do not reveal generalised addictive behaviours, the need to be alert is highlighted, as items such as 'I spend too much time on screens', 'I find myself thinking or saying "just a few more minutes" when I use screens' or 'I stay on screens longer than I would like' obtained response percentages for the maximum value of the scale (Always) of 21.1%, 18.5% and 37% respectively. Therefore, more than 20% of the students admit to always displaying this behaviour in their daily lives, so that, in other words, 2 out of 10 students could have a critical case of screen addiction.

As for the psychological dimensions of procrastination, self-regulation, self-efficacy, and self-esteem are those that have shown a significant and inverse correlation with the use of screens, so the less students use electronic devices or social networks, the better their level of self-regulation, self-efficacy and self-esteem, thus reducing procrastination behaviours. This data is consistent with the findings of [17], who found that more than 50% of the students surveyed demonstrated a lack of self-regulation when performing or fulfilling their academic commitments due to the excessive use of social networks. On the other hand, [80] demonstrated in their study how electronic device addiction decreased self-efficacy in university students. [81] indicate that improving self-efficacy can mitigate device addiction levels among students, thereby reducing procrastination. Similarly, many studies relate self-esteem levels to the use of social networks and screens, showing in their results a negative correlation between the dimensions in which a higher level of addiction to electronic devices or social networks translates into a decrease in self-esteem levels [82,83].

On the other hand, anxiety is found to have a significant direct correlation with students' screen use habits, which means that a high use of electronic devices increases students' anxiety levels. Many studies relate high levels of stress, anxiety or depression among individuals with social network addiction behaviours, having an impact on the quality of life of students who have this addiction [84–

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86]. For this reason, if we reduce the stress or anxiety levels among our students, we will help reduce screen addiction behaviours and procrastination habits, as well as improve their academic performance and quality of life.

The relationships between the psychological dimensions of procrastination and the interconnection between the different variables analysed in the study are observed. Self-efficacy is presented as a central dimension correlating with all the dimensions studied and is therefore extracted as a critical variable to mitigate procrastination habits among university students. The dimensions of self-regulation, self-esteem, motivation and personality show a direct correlation with self-efficacy, so students with higher levels of self-efficacy will also have good self-regulation, high self-esteem, higher levels of motivation and a relationship with their personality traits. These studies are similar to those found in the literature, such as the study by [87], which showed a significant positive correlation between self-efficacy and motivation and a positive correlation between self-regulation. This research also showed that self-regulation and self-efficacy influence students' academic performance. Similarly, other studies found that self-efficacy significantly enhanced motivation, determining the level of success in accomplishing assigned tasks [88,89]. The study conducted by [90] reveals that self-esteem significantly influences students'self-efficacy and life satisfaction, underlining the importance of self-esteem for students' personal and psychological development. These data reveal that improving students'self-efficacy translates into improved self-regulation with higher motivation and self-esteem, helping to reduce procrastination and improve students' academic outcomes and dropout rates.

Self-efficacy also correlates directly with personality traits, measured in the big five personality traits of openness to experience, conscientiousness, extraversion, agreeableness and neuroticism. This same result is shown in the study by [91], where four factors (extraversion, neuroticism, conscientiousness and openness) were predictors of self-efficacy in the sample analysed, which may help predict procrastination behaviours in students according to their personality traits.

On the other hand, the anxiety dimension presents an inverse correlation with self-efficacy, with students with lower levels of self-efficacy presenting more significant anxiety symptoms. Many studies have shown a negative correlation between self-efficacy and anxiety symptoms [92,93]. Self-efficacy is considered a vital factor in coping with negative emotions in adolescents and improving their mental health, as those individuals with a high level of self-efficacy have low symptoms of depression or anxiety [94]. Likewise, anxiety correlates negatively with students' self-esteem, as in [95] study, which indicates that individuals with higher anxiety are more likely to have lower self-esteem. Thus, students with lower self-efficacy will have higher levels of anxiety, leading to lower self-esteem. Therefore, working on self-efficacy with students is not only interesting in terms of improving procrastination but also focuses on their mental health, helping to improve self-esteem and reduce anxiety.

Finally, it was found that student personality is directly related to student motivation, so motivation levels in university students vary according to their characteristics. The results are consistent with those obtained in [96] study, in which he showed how motivation varied significantly according to the personality types of the individuals analysed. More motivated students procrastinate less in their academic tasks, so depending on the student's personality traits and their motivation levels, we can predict how likely they are to engage in procrastination behaviour.

The studies presented highlight how excessive use and abuse of social media and prolonged exposure to screens contribute significantly to the increase in procrastination among students in academic settings. This phenomenon is worrying in a context where researchers are increasingly aware of aspects such as motivation, mental health and anxiety, which are negatively affected by the massive use of social media and excessive screen consumption among young people.

It is, therefore, imperative to highlight the importance of addressing these dimensions in the educational setting. It is essential to develop strategies that assess and predict the negative impact of these behaviours on students' academic performance and implement effective intervention programmes. These programmes should be designed to educate and encourage a balanced and healthy use of electronic devices. Measuring impact and designing tailored strategies can help

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educators create learning environments that promote students' psychological well-being and academic success, better preparing them to meet the challenges of today's digital world.

5. Conclusions

This study highlights the complexity and relevance of the use of screens and electronic devices in the academic life of university students. Research has shown that although procrastination is prevalent among students, affecting more than 90% of them to some degree, its adverse effects on academic performance are inconclusive. Although most students consider themselves good or very good academically, the study suggests further analysis to understand procrastination's long-term implications better.

The instrument used to measure procrastination and its psychological variables has been shown to be reliable, with adequate internal consistency. However, the need to improve certain aspects related to the personality dimension was identified to increase the instrument's accuracy.

The results also indicate a high correlation between excessive use of electronic devices and psychological variables of procrastination, such as self-regulation, self-efficacy, self-esteem, and anxiety. In particular, the study found that high screen use is associated with lower levels of self-regulation, self-efficacy, and self-esteem and higher levels of anxiety.

Furthermore, the study underlines the importance of self-efficacy as a central dimension that correlates with all other dimensions studied. Better self-efficacy seems to mitigate the adverse effects of excessive use of electronic devices by decreasing procrastination habits, improving mental health, and reducing anxiety symptoms.

Finally, it highlights the urgent need to develop educational strategies that promote a balanced and healthy use of electronic devices. Implementing effective intervention programs that address these behaviors can help educators create learning environments that promote students' psychological well-being and academic success. This information is crucial to prepare students to meet the challenges of today's digital world and reduce the risk of early college dropout.

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