


Article

Are Decision-Making Styles, Locus of Control, and Average Grades in Exams Correlated with Procrastination in University Students?

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Abstract: In this paper decision-making styles, locus of control, and average grades in exams are examined as correlates of procrastination in a sample of 185 university students (mainly female students) recruited from mandatory courses for degrees in psychology and pedagogy at the University of Catania (Italy). Method: We used the Decisional Procrastination Scale (Ferrari, Johnson, & McCown, 1995), consisting of five Likert-type items useful for analyzing the procrastination; the Decision-Making Styles (Di Nuovo & Magnano, 2013), chosen for measuring the doubtfulness, delay, proxy, and no problem styles with 15 Likert-type items; the Locus of Control of Behavior Scale (Craig, Franklin, & Andrews, 1984) used to evaluate internal and external loci of control. The data were gathered through an online anonymous questionnaire and were analyzed using the multiple linear regression model to assess how styles of decision-making, locus of control, and average grades in exams affect the decision to procrastinate in university students. The main findings of this study indicate that doubtfulness and delay decision-making styles correlate with high decisional procrastination together with low average grades at university exams. Locus of control is excluded by the proposed model. Conclusions: These findings suggest pursuing a deeper investigation of the various types of procrastination and the measures used for analyzing the academic achievement in university students.

Keywords: procrastination; decision-making styles; locus of control; university students

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1. Introduction

Procrastinating behavior is considered the avoidable delay of activities or actions that people have in mind to complete, which when performed tend to create an emotional discomfort [1]; it is viewed as the postponing of tasks due to a lack of promptness in both intention and behavior [2] and a “voluntary delay [of] an intended course of action despite expecting to be worse off after the delay” [3] (p. 66). Procrastination is a self-regulatory unsuccessful attempt that increases personal stress and decreases psychological well-being [4]. Several researchers examined the degrees of academic procrastination among university students, revealing that 70% of students procrastinate regularly and that 50% of students who procrastinate do it consistently and problematically [5,6]. They are aware that procrastinating behavior is wrong and harmful, but only a small number of them are able to overcome this behavioral tendency, even if 95% of procrastinators wish to reduce this tendency.

Procrastination is associated with different personality traits and variables, such as task aversiveness [7,8]; difficulties with time management and postponing gratification [9–11]; neuroticism [12–15]; high levels of anxiety and fear related to failure [16,17]; low resilience, inadequate coping strategies, and external locus of control [18]; low self-efficacy and reduced self-esteem [2,19]; low academic achievement [20]; high levels of self-consciousness,

self-criticism, and perfectionism [3,11,21,22]; and difficulties in self-regulation [23,24]. Regarding the relation to academic achievement, some scholars have studied the negative impact of procrastination on learning processes and learning approach in high school students and university students [25–27]. Students who actively use deep and strategic learning approaches reported better GPAs than those who adopt the surface approach [28], and students who procrastinate tend to use the surface learning approach, achieving a low GPA [28]. The more the procrastinators delay the delivery of homework assignments, writing papers, or completion of the thesis, the more they reach low academic achievements and postpone the conclusion of their degree course. Generally, the more the students tend to procrastinate, the more often will their grades be low. This last relation can be mediated by academic life satisfaction and rational beliefs about studying [26].

Ferrari and colleagues [29] identified three forms of this construct, differentiating among decisional, avoidant, and arousal procrastination. Decisional procrastination is considered to be the lack of ability to make a decision within a specified time period, while avoidant procrastination consists of “a tendency to delay completing tasks that might reveal potential poor abilities” [30] (p. 459); and arousal procrastination is “a tendency to delay tasks as a thrill-seeking experience to ward off boredom and [to] work best under pressure” [30] (p. 459). Additionally, decisional procrastination is a cognitive mechanism delaying the decision-making process to face stressful situations, thus reducing psychological pressure when dealing with different situations [31], while avoidant procrastination is viewed as a continuity of decisional procrastination [11]. In practice, decisional procrastination is a failure to make a decision in a certain time range [32] and, in light of this dysfunctional tendency, individuals intentionally choose to accomplish other tasks perceived as less stressful for them; they undervalue the time needed to complete the task, believing that they will meet the deadline [33]. According to some researchers, two methods can be used to study the tendency to postpone, to avoid the start of, to engage in, and to complete a very difficult task: the first considers procrastination as a behavioral pattern strictly linked to the characteristics of a certain situation [8,34], while the second contemplates it as a stable trait of personality [2,35,36]. The most famous measures applied to assess procrastination are represented by the General Procrastination Scale [37], the Adult Inventory of Procrastination [38], the Decisional Procrastination Scale [39], the Tuckman Procrastination Scale [40], and the Procrastination Assessment Scale for Students [41].

Procrastination has been considered an inefficient decision-making style [42], negatively related to the optimistic orientation [43]. It is noteworthy that people who achieve high levels of decisional procrastination are easily distractible [44], are less systematic in their decision-making processes, and search for supplementary information linked to the chosen alternatives before making a given decision [44–46]. For example, one of the most relevant experimental studies realized by Ferrari and Dovidio [47] with the participation of 130 undergraduate students found that people with high decisional procrastination are systematic and use strategic decision-making only when searching for information referred to the possible alternatives. The authors affirmed that: “people varying in levels of decisional procrastination systematically differ not only in *how long* they take to make a decision but also in *how* they make their decisions” [47] (p. 136).

As written by Magnano and her colleagues, the decision-making style is “the tendency to deal with choices according to personal tendencies” [43] (p. 2). Dealing with specific situations, people tend to use a predominant style more frequently than others. Some studies have noticed the presence of a variety of decision-making styles [44,46], underlining that individuals have a primary decision-making style and a secondary style, which they can exploit for various situations [47–49]. Furthermore, Scott and Bruce [48] called these styles “habitual response patterns” that individuals are likely to adopt for coping with a decision. Using the General Decision-Making Style Inventory (GDMS), the authors individuated a range of decision-making styles as follows: (a) the *rational style*, typically used by individuals who search for information in order to rationally evaluate the possible alternatives; (b) the *intuitive style*, typically adopted by individuals who pay attention to

details and anchor their choices to personal intuitions; (c) the *dependent style*, typically used by individuals who search for support and guidance from others; (d) the *avoidant style*, mainly utilized by individuals who tend to procrastinate a decision; and (e) the *spontaneous style*, typically chosen by individuals who are guided by a sense of immediacy and by a tendency to complete the decision-making process as quickly as possible. In line with these descriptions, the idea that procrastination is positively related to the avoidant decision-making style is recognized to be plausible.

According to the dominant decision-making style perspective, in the Italian context, Di Nuovo and Magnano [42] defined the following four styles of decision-making: (1) “doubtfulness, referred to emotional interference such as worry and anxiety regarding choices, negative emotionality, and uncertainty; (2) proxy (or delegation), including the tendency to attribute to others the responsibility of choice and to adopt an external locus of control; (3) delay (or procrastination) referred to the tendency to avoid or delay beginning or advancing through the decision-making process; finally, (4) no problem, including the ability to define goals, to plan actions, to seek information, and to evaluate possibilities carefully” [43] (p. 3). The optional choice of these styles can be linked to the expected locus of control in terms of the degree to which individuals perceive personal control in experiences of everyday life [42]; it is useful to remark that individuals adopting an internal locus of control think that events are the outcome of their behaviors and are under their direct and personal control, while individuals adopting an external locus of control assume that life events derive from the influence of the others, chance, or good fortune. The most famous tools used to measure the I-E locus of control are provided by the Rotter Internal–External Locus of Control [50]; the Nowicki–Strickland Internal–External Control Scale for Children and Adults [51,52]; the Academic Locus of Control Scale for College Students [53,54]; the Levenson Internality, Powerful Others, and Chance Scale [55]; and the Multidimensional–Multiattributonal Causality Scale, created by Lefcourt and colleagues [56]. As confirmed by Hasan and Khalid [57], university students with high academic achievements tend to have an internal locus of control, whereas those who face failures or low academic achievements are likely to have an external locus of control; additionally, university students who possess an internal locus of control are aware that their academic successes originate from intense work and their efforts, and they are likely to have a better academic performance than their peers with an external locus of control.

Findings in the literature concerning the relation between procrastination and locus of control have been inconsistent. For example, Ferrari, Parker, and Ware [58] found the substantial absence of a linkage between locus of control and procrastination, while Janssen and Carton [59] remarked that students with an internal locus of control do not procrastinate and are inclined to complete their tasks earlier than peers with an external locus of control, starting a homework assignment on an average of three days earlier than the other students. Brownlow and Reasinger [60] discovered that high procrastinators were less likely to be intrinsically motivated and less satisfied performing school tasks than low procrastinators. Furthermore, Akça [61] found that academic procrastination, external locus of control, and low academic achievements are predictors of the use of a self-handicapping strategy by university students. An Italian study carried out by Sagone and De Caroli [62] concluded that the more likely university students are to control the circumstances in their everyday life, the more they will show a positive actual and future self-concept; furthermore, the more likely these students are to take life circumstances under their control, the more they will perceive themselves as highly efficient in the academic context. Additionally, in another Italian study, Sagone and her colleagues [63] confirmed that low levels of academic self-efficacy (characterized by self-engagement and self-oriented decision-making) are positively related to general procrastination: this means that the less efficient the students are in academic activities, the more they procrastinate when making a decision.

With this evidence, we decided to assess the relations among decisional procrastination (and not general procrastination), decision-making styles, and locus of control in university

students, using average grades in exams as a discriminating variable. The choice of the construct of “decisional procrastination” and not of “general procrastination” is due to the interest of the authors in the cognitive component of this behavioral pattern. The rationale of this causal-comparative research is to examine how decision-making styles, locus of control, and average grades in exams affect decisional procrastination in university students (Figure 1). The positive (+) and (-) negative symbols shown in brackets indicate the type of relation between the chosen variables (styles of decision-making, type of locus of control, and level of average grades on exams) and decisional procrastination.

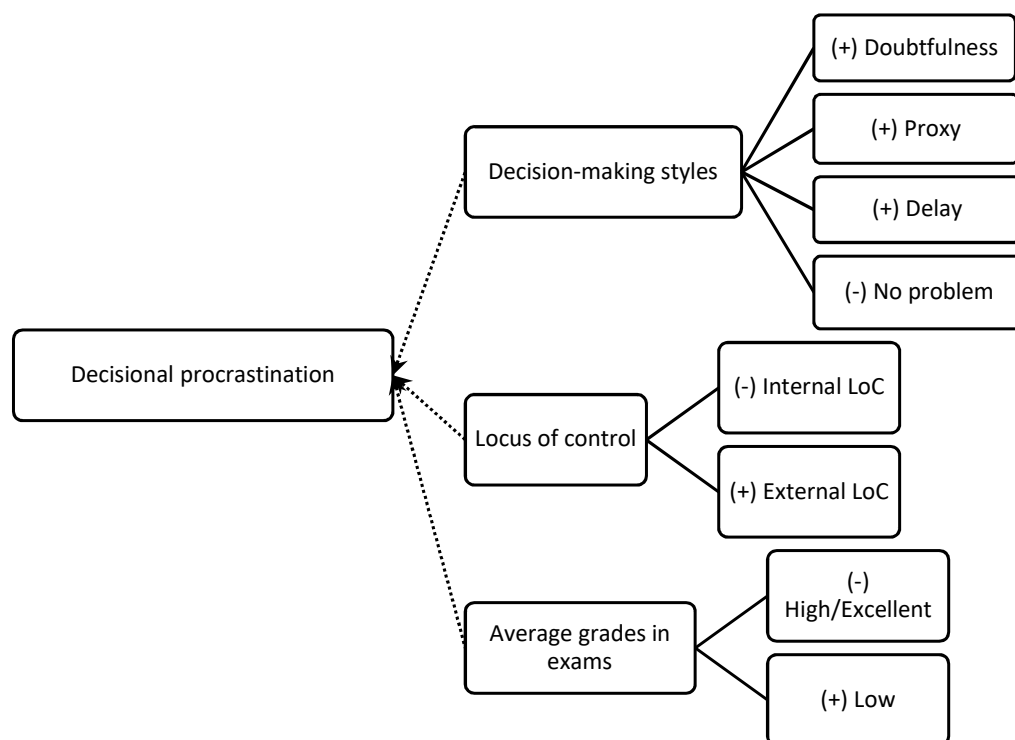


Figure 1. Model of the research design.

2. Methods

2.1. Purpose of Study

The principal aim of this study was to investigate the role of decision-making styles and locus of control in decisional procrastination in psychology and pedagogy students at the University of Catania, East Sicily (Italy). The secondary aim was to verify the effects of these psychological dimensions on decisional procrastination after controlling for the average grades obtained by students on their exams for mandatory courses. Hence, we believe the following:

(H₁) The more the students report high levels of decisional procrastination, the more they adopt maladaptive decision-making styles (that is, doubtfulness, delay, and proxy), after controlling for average grades on university exams of the participants.

(H₂) The more the students display high levels of decisional procrastination, the more they are driven by an external locus of control in their behaviors, after controlling for average grades on university exams of the participants.

(H₃) The more the students adopt maladaptive styles of decision-making (that is, doubtfulness, delay, and proxy), the more they are influenced by an external locus of control in their behaviors, after controlling for average grades on university exams of the participants.

The differences in average grades on exams were analyzed in relation to decisional procrastination, styles of decision-making, and locus of control expressed by university students. This variable was considered one of the best predictors of low or high tendency to

procrastinate. In brief, we expected that procrastinators are more likely to use dysfunctional and maladaptive styles of decision-making and to be driven by an external locus of control in their beliefs, and this behavior was expected of students who report lower average grades on university exams than others.

2.2. Sample

A convenient sample of 185 Sicilian university students (166 female students) was recruited from mandatory courses for a degree in psychology and pedagogy at the Department of Educational Sciences of Catania University, East Sicily (Italy). The mean age was equal to 22.7 (sd = 3.4). Most of the participants were regularly enrolled at university ($n = 178$), and the remainder of them had not completed university exams within the set time period ($n = 7$). Participants were divided into senior students ($n = 110$, 8 male and 94 female students) and sophomores ($n = 75$, 11 male and 72 female students).

The Italian university system of evaluation is typically based on a range in which the minimum score to pass an exam is equal to 18 and the maximum score is equal to 30 with honors (“cum laude”). Average grades on exams between 18 and 22 are considered indexes of a very low academic performance but satisfactory to pass the exams. In the current study, a large number of students reported average grades between 23 and 26 ($n = 114$), while the remaining students obtained very good/excellent performances on exams, with average grades between 27 and 30 being with honors ($n = 71$). None of the students involved in this research reported an extremely poor academic performance, and this datum was estimated as a limit in this comparison. The missing third group of university students will be considered in the next investigation using a more balanced sample.

No significant difference was observed between psychology and pedagogy university students at the Department of Educational Sciences, University of Catania (Italy).

2.3. Instruments and Procedure

Decisional Procrastination Scale [2,35] (DPS: $\alpha = 0.74$). This scale is the Italian adaptation by Nota and Soresi [64], consisting of five statements evaluated on a five-point Likert-type scale (from 1 = “not at all true of me” to 5 = “always true of me”). University students were asked to report the extent to which they engaged in various strategies when making decisions: for example, (a) I waste a lot of time on trivial matters before getting to the final decision; (b) even after I make a decision, I delay acting upon it; and (c) I do not make decisions unless I really have to.

Decision-Making Styles [42,43] (DMS). This questionnaire is useful for analyzing the styles defined as doubtfulness (negative), delay (negative), proxy (negative), and no problem (positive decision-making style), and it consists of 15 items, each evaluated on a five-point Likert-type scale (from 1 corresponding to “totally disagree” to 5 corresponding to “totally agree”). University students were asked to indicate the extent to which they cope with different types of decisions in everyday life. Examples of items were as follows: When I have to make a decision or a choice that is important for me . . . “I feel worried and I try to put off the choice” (doubtfulness); “I’m afraid of making mistakes and ask my parents to decide in my place” (proxy or delegation); “I feel worried and I try to defer the choice” (delay or procrastination); and “I already have clear ideas and I am sure what to choose” (no problem). Cronbach’s alpha for each subscale was calculated on the sample within the study: doubtfulness, $\alpha = 0.72$; delay, $\alpha = 0.76$; proxy, $\alpha = 0.80$; no problem, $\alpha = 0.74$.

Locus of Control of Behavior Scale [50,65] (LoC: $\alpha = 0.73$). This measure consists of 14 statements (excluding three items in the original version), with each evaluated on a six-point Likert-type scale (from 0 anchored with “strongly disagree” to 5 anchored with “strongly agree”) and grouped as internal and external loci of control. University students were invited to indicate the extent to which they believe they are the creators of their own luck or destiny when putting their abilities to the test (internal LoC) or the victims of fate without any possibility to modify the situation (external LoC); e.g., “I can

anticipate difficulties and take action to avoid them” and “My mistakes and problems are my responsibility to deal with”.

A self-report and anonymous questionnaire was used to gather the primary data from the students attending the online courses in educational psychology and pedagogy in the 2019/2020 academic year, during the COVID-19 pandemic, by means of the Google Modules app. Participants were asked to indicate the following variables on the last page of the online questionnaire: age, gender, type of degree course, and average grade on university exams. Participation was completely voluntary, and formal consent was electronically obtained prior to starting the study. The researchers respected the Ethical Code for Italian psychologists (L. 18.02.1989, n.56), Legislative Decree for the privacy of provided data (DLGS 196/2003), and the Ethical Code for Psychological Research (27 March 2015) established by the Italian Psychologists Association.

2.4. Data Analysis

Statistical analyses were carried out using IBM SPSS 20 with the application of the following tests: descriptive analyses (mean and standard deviation, N), Cronbach’s alpha for internal consistency, t -tests for group differences (Student’s t -test), linear correlations (Pearson’s coefficient), and multiple linear regressions (MLRs) with the enter method. This method was chosen due to the controversial findings in this research topic; by using the enter method, the authors knew that each predictor would be assessed as though it was entered after all of the other independent variables and the dependent variable predicted using the difference from the predictions offered by the other variables inserted into the model.

3. Results

Descriptive analyses indicated that university students showed low levels of decisional procrastination (total sample: range 5–24, $M = 11.21$, $sd = 3.8$) and mainly tended to use an adaptive and useful decisional style based on no problem (total sample: range 2–5, $M = 3.74$, $sd = 0.66$), contrary to proxy, which was rarely adopted by this sample (total sample: range 1–3.75, $M = 1.57$, $sd = 0.54$). Controlling for the established independent variable, university students reported statistically significant differences for average grades in: decisional procrastination ($t_{(183)} = 3.109$, $p = 0.002$), proxy decision-making style ($t_{(183)} = 2.053$, $p = 0.040$), and external locus of control ($t_{(183)} = 2.044$, $p = 0.042$) (Table 1). This meant that university students who reported average exam grades between 23 and 26 were more likely to be procrastinators, inclined to use other people as a proxy for their own decisions, and external believers than those who obtained average exam grades between 27 and 30 with honors.

The statistical analysis carried out with linear correlations using Pearson’s coefficient showed significant and positive relationships between decisional procrastination and doubtfulness, delay, and proxy (Table 2), suggesting that the more the university students tended to procrastinate in their decisions, the more they were prone to adopt a dysfunctional decision-making style, exhibiting overall doubtfulness and delay, and weakly proxy. Consistently, significant and negative relationships were noted between decisional procrastination and the no problem style (Table 2), revealing that the less the university students procrastinated, the more efficient they were in their decision-making processes.

Significant and positive relationships between decisional procrastination and an external locus of control were observed (Table 3); therefore, the more the university students tended to procrastinate in their decisions, the more likely they were to attribute the events of their life to external factors (such as luck or destiny). On the contrary, negative and weak correlations were noted between decisional procrastination and an internal locus of control, indicating that the more the university students procrastinated when making a decision, the less often they adopted an internal attribution for the course of events (such as individual responsibility or personal competence).

Table 1. Differences for average grades in decisional procrastination (DPS), decision-making styles (DMS), and locus of control (LoC).

Variables	Average Grades	N	M	sd
DPS-Decisional procrastination	I	71	12.29	4.02
	II	114	10.53	3.56
DMS-Decision-making styles				
1. Doubtfulness	I	71	2.79	0.93
	II	114	2.66	0.94
2. Delay	I	71	2.38	0.85
	II	114	2.14	0.79
3. Proxy	I	71	1.67	0.62
	II	114	1.51	0.48
4. No problem	I	71	3.61	0.69
	II	114	3.82	0.64
Locus of control-LoC				
Internal locus of control	I	71	15.35	2.69
	II	114	15.86	2.37
External locus of control	I	71	18.27	7.06
	II	114	16.12	7.28

Note: I-average grades: 23–26; II-average grades: 27–30 with honors.

Table 2. Relations between decisional procrastination (DPS) and decision-making styles (DMS).

Variable		Doubtfulness	Delay	Proxy	No Problem
Decisional procrastination	<i>r</i>	0.572 **	0.720 **	0.287 **	−0.559 **
	<i>Sig.</i>	0.000	0.000	0.000	0.000
	<i>N</i>	185	185	185	185

All correlations are statistically significant at $p < 0.001$.

Table 3. Relations between decisional procrastination (DPS) and locus of control (LoC).

Variable		Internal Locus of Control	External Locus of Control
Decisional procrastination	<i>r</i>	−0.285 **	0.404 **
	<i>Sig.</i>	0.000	0.000
	<i>N</i>	185	185

All correlations are statistically significant at $p < 0.001$.

Additionally, positive and moderate correlations were found between an external locus of control and doubtfulness, delay, and proxy, whereas negative correlations were observed between an external locus of control and the no problem style (Table 4). This meant that the more likely the university students were to use dysfunctional decision-making styles, the more inclined they were to attribute the cause of their failures to external factors, such as luck, coincidence, or destiny. Additionally, weakly negative correlations were found between delay and internal locus of control, while moderate positive correlations emerged between the no problem style and an internal locus of control (Table 4). This datum confirm that the less likely the university students were to utilize the delay style, the more they were prone to attribute the cause of their successes to internal factors, such as self-competence, commitment, responsibility, and self-efficacy.

Table 4. Relations between locus of control (LoC) and decision-making styles (DMS).

Variable		Doubtfulness	Delay	Proxy	No Problem
Internal locus of control	<i>r</i>	−0.082	−0.213 **	0.014	0.442 **
	<i>Sig.</i>	0.267	0.004	0.849	0.000
	<i>N</i>	185	185	185	185
External locus of control	<i>r</i>	0.573 **	0.477 **	0.520 **	−0.416 **
	<i>Sig.</i>	0.000	0.000	0.000	0.000
	<i>N</i>	185	185	185	185

All correlations are statistically significant at $p < 0.001$.

The analysis of multiple regressions confirmed the validity of the hypothesized model (except for the locus of control dimensions) according to which decisional procrastination was positively predicted by doubtfulness, delay, and average exam grades but negatively predicted by the no problem style (Table 5). Considering average grades, the more the students reported high/excellent grades on their exams, the more they reduced their tendency to procrastinate when making a decision; on the contrary, the more the students obtained low average grades, the more they tended to procrastinate.

Table 5. Multiple regressions for decisional procrastination (DPS)—Total sample.

Model	<i>R</i>	<i>Adjusted R²</i> <i>Square</i>	<i>F</i>	<i>Sig.</i>	Coefficients		
					β	<i>t</i>	<i>Sig.</i>
doubtfulness	0.768 ^a	0.574	36.347 ^b	0.000	0.176	2.456	0.015
delay					0.528	7.575	0.000
proxy					−0.118	−1.948	0.053
no problem					−0.154	−2.280	0.024
internal locus					−0.073	−1.304	0.194
external locus					0.020	0.311	0.756
average grades					−0.123	−2.492	0.014

^a. Dependent variable: DPS; ^b. Predictors: (Constant) average grades, doubtfulness style, internal locus of control, proxy style, external locus of control, no problem style, and delay style.

4. Discussion

This study provides a contribution regarding decision-making styles, locus of control, and average grades on exams as correlates of decisional procrastination in university students. Much past research investigated the behavioral component of procrastination, underestimating the significance of the cognitive element included in the decisional form of procrastination. More recently, a considerable corpus of empirical research has increased its attention to the various forms of procrastination, discovering the different impacts of this psychological phenomenon on academic achievement (frequently measured as a GPA score), academic satisfaction, self-efficacy, learning approach, decision-making process, and other cognitive and personality traits [66–68]. Despite the very high percentage of students recognized by other researchers as being procrastinators [1–3], participants in this online investigation showed low levels of decisional procrastination and used the adaptive decision-making style based on the absence of problematic coping with situations (that is, the no problem style). To explain this last datum, it is possible to underline that most of the students achieved high average grades on their exams at university, and this fact could be the principal concurrent cause of low procrastination in their behavior; university students who reported average exam grades between 23 and 26 were more likely to be procrastinators, inclined to use other people as a proxy for their own decisions, and external believers than those who obtained average grades between 27 and 30 with honors. These findings are in line with those obtained by other authors who used the GPA as an index of academic achievement. For example, Kim and Seo [67] realized an interesting meta-analysis of 33 studies concerning the relation between procrastination and academic achievement, strengthening the evidence that procrastination is negatively

related to low academic achievement, even if this relation depends on the type of measures or indices provided by the researchers. The authors sought to explain the contradiction of these findings saying that the significance of the correlation between procrastination and academic achievement is given by the measurement of performance with GPA, quiz score, assignment grade, or course grade, excluding the mid-term or final examination score and homework assignment.

The results of the linear correlations produced substantial confirmations of the hypothesized relationships between decisional procrastination and the three decision-making styles, two negative (doubtfulness and delay) and one positive (no problem) (see Figure 1); in addition, decisional procrastination and all styles of decision-making were related to the external locus of control. These last results were consistent with the findings of Akça [61] and Meyer [69] in terms of a “self-handicapping strategy” used by university students to wait until the very last minute to perform a task perceived as highly difficult for them (academic procrastinating behavior) or to assert that external events affected their performances (external locus of control).

Considering the multiple linear regressions in detail, our results were not completely confirmed because decisional procrastination was positively predicted by doubtfulness, delay, and average grades on exams and negatively predicted by the no problem style, but the dimensions of locus of control were excluded from the observed model. These findings constituted a further confirmation of those obtained by Ferrari and his colleagues [2] in the university context, excluding the influence of the locus of control. Controlling for the value of significance, we declare that delay and doubtfulness can be considered predictors of high procrastination in university students with low average grades on exams, whereas the no problem style may be a predictor of low procrastination in students with high/excellent average grades on university exams.

If we consider only the relationship between procrastination and locus of control, our results confirmed those obtained by Carden, Bryant, and Moos [70], according to which internally oriented college students showed significantly lower academic procrastination, lower levels of anxiety, and higher academic achievement than the externally oriented ones. Another recent piece of evidence is that of Akbay and Delibalta [71] according to which the more the academic procrastination of university students decreases, the more the academic external locus of control decreases, confirming the relationship between locus of control and procrastination in university students, in connection with academic perfectionism and risk-taking behavior. In addition, Sari and Fakhruddiana [72], in a study of 80 Indonesian university students completing their thesis, found that there is a significant negative correlation between internal locus of control and academic procrastination as well as a negative correlation between social support and academic procrastination. Lastly, in a sample of 60 Malaysian college students, Prihadi and colleagues [73] discovered the mediation role of locus of control between academic procrastination and learned helplessness: therefore, college students who possess an adequate internal locus of control are not affected by helplessness learned in past experiences when submitting their work or completing their tasks on time.

Additional studies will be useful to understand the differences in relation to the locus of control effects, considering the differences in relation to the type of measures adopted to evaluate procrastination in its various forms (general, decisional, avoidant, arousal, active, passive, etc.). The proposed model in this study can be further investigated by including a group of university students with extremely poor academic performance to understand the influence of low average grades in decisional procrastination and the role of academic achievement.

5. Limits and Conclusions

The current study presents some weaknesses. First, the study variables were measured from the same source (university students), thus creating a single-source bias; it would be more beneficial to control for this effect at the research design stage. For example, future

research should collect the ratings from two separate groups, comparing university students regularly enrolled at university with those who have not completed their university degree course within the set time period. Noteworthy is the fact that there may be reverse causal relationships for the hypothesized purpose of the current study. Decision-making styles and locus of control may be the consequences of decisional procrastination rather than its antecedents, i.e., high procrastination in an academic context could generate maladaptive decision-making styles and an external locus of control. It is therefore suggested that future longitudinal research on procrastination, together with other variables linked to decisional styles and locus of control (for example, self-efficacy and academic resiliency) are required to better understand their relationships. Furthermore, we cannot consider the sample of our study as being representative, considering the fact that we used a convenient sampling and took into account the lack of a third group of university students with extremely poor academic performance (in terms of very low average exam grades between 18 and 22). Despite the abovementioned limitations, the rationale of this study is to empirically test the relationships between decisional procrastination, decision-making styles, and locus of control, which have been poorly investigated in the literature. Its significant results recommend that additional research should be undertaken to replicate these findings with a large sample, to analyze the motivations underlying the tendency to procrastinate in students during the current pandemic, and to estimate the influence of personality traits in decision-making styles and locus of control.

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