THE RELATIONSHIPS BETWEEN ACADEMIC PERFORMANCE AND PROCRASTINATION: AN EXPLORATORY STUDY WITH ACADEMICS OF GRADUATION COURSES IN ACCOUNTING SCIENCES AND ADMINISTRATION OF PIAUÍ

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ABSTRACT

In the present research, we investigated the relationship between procrastinating behavior and academic performance of students of the undergraduate course in Accounting and Administration of Higher Education Institutions (HEIs) in Piauí. The General Procrastination Scale (GPS) instrument proposed by Lay (1986) was applied to a sample composed of 771 students from public and private Higher Education Institutions, adapted to the Brazilian context by Ribeiro et al. (2014). As a data analysis technique, Partial Least Squares Structural Equation Modeling - PLS-SEM) was used. The results indicate that, regardless of the effect of the variables, course, teaching, gender, age and period, Procrastination negatively influences student academic performance. In terms of scientific relevance, the study contributes by reporting empirical evidence of the two-dimensional structure of the procrastination construct, according to GPS, in addition to isolating the

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systematic effect of the control variables Course, Teaching, Gender, Age and Period.

Keywords: Academic Performance. Procrastination. Determinants.

AS RELAÇÕES ENTRE O DESEMPENHO ACADÊMICO E A PROCRASTINAÇÃO: UM ESTUDO EXPLORATÓRIO COM ACADÊMICOS DOS CURSOS DE GRADUAÇÃO EM CIÊNCIAS CONTÁBEIS E ADMINISTRAÇÃO DO PIAUÍ

RESUMO

Na presente pesquisa, investigou-se a relação entre o comportamento procrastinador e o desempenho acadêmico de alunos do curso de graduação em Ciências Contábeis e Administração de Instituições de Ensino Superior (IES) do Piauí. A uma amostra composta por 771 discentes, provenientes de Instituições de Ensino Superior públicas e privadas, foi aplicado o instrumento General Procrastination Scale (GPS) proposto por Lay (1986), adaptado ao contexto brasileiro por Ribeiro et al. (2014). Como técnica de análise dos dados, foi utilizada a Modelagem de equações estruturais por mínimos quadrados parciais (PartialLeastSquaresStructuralEquationModeling – PLS-SEM). Os resultados indicam que, independentemente do efeito das variáveis, curso, ensino, gênero, idade e período, a Procrastinação influencia negativamente o desempenho acadêmico discente. Em termos de relevância científica, o estudo contribui ao reportar evidências empíricas da estrutura bidimensional do construto procrastinação, conforme GPS, além de isolar o efeito sistemático das variáveis de controle Curso, Ensino, Gênero, Idade e Período.

Palavras-Chave: Desempenho Acadêmico. Procrastinação. Determinantes.

1 INTRODUCTION

The diffusion of access to the internet and, above all, the popularization of smartphones, despite providing opportunities for a series of online possibilities (from access to various services to obtaining information), contributing even in the educational context, have been related to the occurrence of various psychological disorders (Contractor, Weiss, Tull & Elhai, 2017; Elhai, Dvorak, Levine, & Hall, 2017), poor sleep quality (Demirci, Akgonul & Akpinar, 2015), limited academic results (Lepp, Barkley & Karpinski, 2015; Samaha & Hawi, 2016) and the occurrence of procrastination (Przepiorka, Błachnio & DíazMorales, 2016).

It turns out that, given this breadth of opportunities for distraction arising from the "online world", it can be argued that academic results are not negatively influenced only by access to technological means, but, above all, by the systematic occurrence of the act of postponing important tasks. Fontes (2012) points out that procrastination is a phenomenon that can have permanent or temporary characteristics, and can be chronic or dysfunctional, from the moment its effects repeatedly block the very condition of performing tasks. Steel (2007) indicates that 80% of the population exhibits this behavior and that up to 50% do

so consistently. The study carried out in Latin America by Ferrari, Ocallaghan and Newbegin (2005) identified that approximately 61% of people have procrastinated at some time in their lives and 20% show chronic procrastination, the latter of which involves a regular pattern of delay behavior in regarding the tasks and activities for which they are responsible.

However, although procrastination occurs in all kinds of daily tasks and different contexts, it is in the academic environment that this behavior manifests itself in greater proportions (Alexander & Onwuegbuzie, 2007), despite being detrimental to students' academic progress and success. In higher education, in contrast to the most basic levels of education, there are more tasks to be carried out in a limited period of time, requiring greater autonomy and self-regulation of students in relation to their learning process (Polydoro, Pelissoni, Carmo , Emilio, Dantas, & Rosário, 2015).

In general, as highlighted by Sampaio (2011), the determinants of academic procrastination are varied in the literature. Studies point from environmental causes, such as parental influences, social norms, aversion or difficulty with the task, to personal aspects, such as goal orientation, attribution of causality, self-control, unrealistic beliefs, as well as related aspects. fear of social disapproval, low perception of self-efficacy and self-esteem focused on studying, difficulty with time management and planning to study and discipline for work (Ferrari, 2004).

The empirical literature has also presented evidence that the learning process and academic performance are negatively influenced by procrastination, in addition to this being associated with low levels of self-discipline, control, emotional stability and propensity to favor emotional states, such as anger, anxiety or depression. (Ackerman and Gross, 2005; Sampaio, 2011). In this context, considering the opportunity to expand studies that focus on procrastination in the environment of higher education in Accounting Sciences, we sought to investigate the relationship between procrastinating behavior and the academic performance of undergraduate students in Accounting and Administration of Higher Education Institutions (IES) of Piauí.

The research proves to be relevant in presenting additional empirical evidence for understanding the influence of procrastination on the academic performance of higher education students, which may provide educational managers with a tool for administrative measures and management of educational institutions, to provide greater academic performance, amid the activities carried out in the environment (Amaro, Semperbon, Baron Junior, & Dezevecki, 2016). Furthermore, the study contributes by reporting empirical evidence of the two-dimensional structure of the procrastination construct, according to GPS, in addition to isolating the systematic effect of the control variables Course, Teaching, Gender, Age and Period.

In addition to this Introduction, the study is divided into four topics. Initially, a brief contextualization about the occurrence of procrastination is carried out, followed by: discussion of its occurrence in the academic scenario; review of related literature; and the development of hypotheses. In topic 3, the methodological aspects are reported, namely the processes inherent to the collection and analysis of data. Then, the data obtained are reported and discussed. Finally, the final considerations are presented, with the report of the

limitations of the research, as well as the indication of opportunities for the development of future research.

2 THEORETICAL FRAMEWORK

2.1 Brief Contextualization about Procrastination

In general, procrastination can be understood as the voluntary postponement of an intended, necessary or personally important activity, despite the subject expecting negative consequences that would outweigh the positive ones from this postponement (Klingsieck, 2013). Procrastination is understood as a dynamic behavior that changes throughout life, depending on the interaction between the individual, the task and the lived context (Wolters, 2003; Schouwenburg, 2004), involving environmental aspects, motivational, cognitive and cognitive processes. metacognitive (Costa, 2007; Steel, 2007).

For Enumo and Kerbauy (1999), although procrastination is a very recurrent behavior, it is little studied, especially in relation to tasks of daily living. Procrastination has been considered a failure in the processes of self-regulation of behavior (Steel & Klingsieck, 2016). Self-regulation is the conscious and voluntary process, through which the individual manages their own behaviors, thoughts and feelings in a cyclical way and directed to the achievement of personal goals (Bandura, Barbaranelli, Caprara, & Pastorelli 2001). Among the common failures of self-regulation, there is the procrastination of different types of tasks, whose central point of the phenomenon is the difficulty of connecting intention and action, therefore, the individual who procrastinates tends to have difficulty programming what he wants or plans (Steel, 2007).

Those who procrastinate invariably consider this behavior to be something bad, harmful and foolish, and most individuals express a desire to change this behavior (Solomon, & Rothblum, 1984). It is noteworthy that procrastination is not the same as doing nothing, not being synonymous with idleness, but performing other less important activities instead of the intended one (Schouwenburg, 2004). Chronic procrastination is considered the tendency to procrastinate in a variety of situations that seem necessary to achieve goals (Ferrari, Johnson & McCown, 1995; Schouwenburg, Lay, Pychyl & Ferrari, 2004) and affects approximately 20 to 25% of the adult population at various times countries (Ferrari, O'callaghan & Newbegin, 2005). Chronic procrastinators, compared to non-procrastinators, spend less preparation time on tasks that are likely to succeed and more time on projects that are likely to fail (Lay, 1990); they underestimate the total time needed to complete a task (Bur & Kemp, 1994); spend less time searching for information needed to complete tasks (Ferrari & Dovidio, 2000); initiate tasks within the deadline (Lay & Burns, 1991; Pychyl, Morin, & Salmon, 2000); and are "present-oriented" (Blatt & Quinlan, 1967; Ferrari et al., 1995). Procrastinators report difficulties in structuring their time and consider their time use less meaningful than non-procrastinators (Vodanovich, & Seib, 1997).

A wide variety of studies link procrastination with personal behavioral factors such as lack of motivation, deficiencies in self-regulation, external locus of control, perfectionism, disorganization, and poor time management (Ackerman & Gross, 2005; Phillips et al., 2007). According to Ferrari (1994), procrastination can be divided into functional (behavior in which individuals voluntarily and consciously

delay the performance of an activity, therefore, describes a constant and acceptable behavior) and non-functional (refers to a predisposition to postpone the activity) beginning of work or its conclusion, which, of course, has negative consequences for the individual, such as anxiety and bad mood).

For Knaus (2000), procrastination is divided into: social and personal. Social procrastination is a natural postponement when performing an obligation, failing to start the activity at that moment, being quite recurrent when carrying out group activities, in which some people do not participate directly in carrying out the activity, harming everyone in the group. On the other hand, personal procrastination happens when a person unnecessarily puts off carrying out an activity that ends up directly affecting that person's life, such as failing to make a medical appointment, affecting their own life.

However, for Chu and Choi (2005), procrastination can be segmented into active and passive. For the authors, in active procrastination, individuals know the importance of carrying out the activity, however, by having the option to choose whether or not to perform the obligation at that moment, in the vast majority of cases, they end up giving up an activity to perform another. , and active procrastinators are able to manage their time and make the best choices regarding priority activities. However, passive procrastination they do not have the intention of postponing, however they end up postponing for lack of inability to make a decision in a timely manner, that is, they do not have to act quickly when making the decision in carrying out activities (Chu & Choi, 2005).

2.2 Procrastination in the Academic Scene

Regarding the term procrastination in the academic context, Ferrari (1995) explains that the phenomenon is related to the voluntary delay in fulfilling their academic responsibilities and may be due to the student's intention to carry out an academic activity in due time, but not being sufficiently motivated or not feeling the urge to do so, because of the aversion he has to doing the task, or is found to be low self-regulation, low or high level of performance anxiety (Klassen, Krawch, Lynch, & Rajan, 2007).

It is estimated that procrastination is a phenomenon that affects about 70% of university students in tasks related to academic life (Ferrari, O'callaghan, & Newbegin, 2005). Although procrastination covers all types of tasks, it is in the school environment that greater relevance should be given, as it is in these environments that students have a high obligation to meet deadlines, whether to read a book, to deliver a work, to conduct seminars, studying for exams, among others, and all this depends on meeting deadlines established by institutions (Ferrari, O'callaghan, & Newbegin, 2005). Procrastination is a controversial behavior, as people know the obligations that must be done, but end up not doing it at that moment, so it has been considered a failure in behavior that leads to wasted time, poor performance and increased stress (Chu & Choi, 2005).

Schouwenburg (2004), in the educational context, defines procrastination as the act of delaying the beginning or completion of the course of action or decision aimed at studying. Usually, the task is replaced by another, less important activity, and discomfort is often manifested by acting in this way, which may be the total or partial postponement (Milgran, Mey-Tal & Levison, 1998). Ackerman

and Gross (2007) point out that some students systematically put off relevant academic situations, such as studying for exams, doing assignments and reading important academic texts. Although the delay in starting the study may be associated with difficulty in formulating learning objectives, Schouwenburg et al. (1995) argue that, in many cases, this phenomenon is related to the student's intention to postpone their tasks. Students often engage in activities such as sleeping, reading, or watching TV rather than studying (Pychyl, Lee, Thibodeau, & Blunt, 2000). Procrastination reduces well-being (Van Eerde, 2003), increases negative feelings such as shame or guilt (Fee & Tangney, 2000), increases symptoms of serious mental health problems such as depression (STRONGMAN, BURT, 2000), and affects health behavior, such as delaying seeking appropriate care for health problems (Sirois, Melia-Gordon, & Pychyl, 2003; Stead, Shanahan & Neufeld, 2010).

2.3 Literature Review on Procrastination

Research on procrastination is relatively recent, dating from the 1980s onwards (eg, Green, 1982; Solomon & Rothblum, 1984; Rothblum, Solomon, & Murakami, 1986; Lay, 1986; Beswick, Rothblum, & Mann, 1988). Lay (1986) was one of the forerunners of studies on procrastination, proof of this is that her questionnaire is commonly used in empirical research, such as, for example, Sobral (2003), Ribeiro et al. (2014); Silva et al. (2016), Moleta Ribeiro and Clemente (2017) and Vicente, Miranda and Freitas (2014).

Lay (1986) found in his research that procrastination was positively related to measures of disorganization, regardless of the need for achievement, energy level and self-esteem, thus there is a strong link between procrastination and measures of organization or disorganization. Howell and Watson (2007) state that the focus on mastery of the course material is associated with a reduced (for mastery students) or high (for students with avoidance mastery) problematic dilatory behavior, perhaps because mastery learning requires deliberate effort and sustained that it is vulnerable to delay interruptions.

According to Ribeiro et al. (2014), male students tend to be more procrastinators. Costa (2007) found that, in general, female students procrastinate less in daily study than male students. Silva et al (2016) found that female students are associated with non-procrastinating behavior, while male students are more associated with procrastination. Balkis and Duru (2009) indicated that the tendency to manifest procrastinating behavior was greater among men. For Van Eerde (2003), sex seems to be correlated with procrastination, with women being less likely to procrastinate more than men. Thus, it can be concluded that men seem to be more procrastinators than women (Brownlow & Reasinger, 2000; Clark & Ill, 1994; Prohaska, Morril, Atiles, & Perez, 2000).

Bariani and Sampaio (2011) highlighted the high frequency of postponed academic tasks and the significant presence of unpleasant feelings among procrastinating university students, such as anxiety, self-depreciation, demotivation and low perception of self-efficiency. Most students claimed that lack of time makes them procrastinate. It is important to note that postponing less important tasks in favor of other priorities is considered healthy and necessary, not just for academic life. However, this "lack of time" needs to be analyzed with

caution, as it can be the result of inadequate planning of commitments and poor time management (Rosário, Núñez, & Pienda, 2006).

The results obtained by Corkin, Yu and Lindt (2011) reinforce the notion that active delay differs from procrastination. In addition, students who reported higher levels of active delay also received better grades. These findings support the fact that active delay is a distinct form of delay from procrastination, which may be more positive due to its associations with some adaptive self-regulatory processes and academic performance. Carranza and Arlith (2013) concluded that female students (33.7% of the sample) and students aged between 16 and 20 years (44% of the sample) are the ones with the highest levels of procrastination. In addition, Engineering and Architecture students were those who showed the highest level of procrastination. More recently, Ribeiro et al (2014) concluded that students with high levels of procrastination tend to have reduced school performance, results consistent with the studies by Rothblum, Solomon and Murakami (1986) and Popoola (2005). The results obtained by Ribeiro et al (2014) have important implications for course coordinators, teachers and, mainly, for the students themselves, in this transition between adolescence and adulthood and, later, for professional life.

Using the years from 1986 to 2018 as a time criterion, a survey was carried out in the Bases Speel, Periodicals capes, Anpad, Ebsco, Elsevier, Scielo, Doaj, Sciencederect and Scopus, 61 articles on the subject were selected, published in national and international journals in that time interval. As a result, it was noted that procrastination is still a subject little studied in Brazil, proof of this is that of the articles found, only 18% are national, the other 82% are international.

Research related to procrastination carried out up to the time of Lay's study has largely developed within educational and psychological contexts (LAY, 1986). The year 2017 had the highest number of published articles, with 87% of them being international and only 13% being national. It can be seen that studies present different approaches and environments on procrastination, with a constant concern regarding the causes, effects and consequences, and how to avoid procrastination (Solomon & Rothblum, 1984; Day, Mensink, & O'Sullivan, 2000). ; Enumo & Kerbauy, 1999; Bariani & Sampaio, 2011); how to minimize it (Day, Mensink, & O'sullivan, 2000); personality characteristics that influence procrastination (Orpen, 1998; Moon & Illingworth, 2005; Tuckman, 2007; Rotenstein, Davis, & Tatum, 2009); personal aspects (Beswick, Rothblum, & Mann, 1988; Howell, 2006; Klassen & Kuzucu, 2009) and gender and age (Costa, 2007; Balkis & Duru, 2009; Iskender, 2011).

2.4 Academic Performance and its Determinants

The measurement of academic performance presents many challenges, since it can be considered a multidimensional construct that is influenced by numerous factors (Rodrigues, Resende, Miranda, & Pereira, 2016). In this aspect, according to Miranda, Lemos, Oliveira, & Ferreira, 2015), different proxy's, depending on the intended objectives, have been adopted by scientific studies to model academic performance, the most common being: grade of an evaluation; grade of a discipline; average grade for the period; average academic performance in the course; and exams external to the educational institution.

Despite this variety of measures to capture academic performance, it is noteworthy that all these measures, to a greater or lesser degree, have limitations in capturing effective student performance (Rangel, & Miranda, 2016). In this line, although the average academic performance index in the course has limitations, mainly related to focusing only on the result and not the learning process (Araújo, Camargos, Camargos, & Dias, 2013), this has been the main proxy used. to model academic performance, given that it captures the average student performance throughout the course of the university course.

In the view of Vasconcelos, Diniz and Andrade (2012), the student's academic trajectory is structured through Academic Performance indices, a measurement tool, aimed at the evaluation of results. Given the above, in the present study, we chose to model academic performance through the academic performance coefficient.

Important research efforts have been carried out in the investigation of the determinants of academic performance, with effects related to three main axes being mapped: faculty, covering academic training (Wilson, 2012; Miranda, Casa Nova, & Cornacchione, 2013), professional training (Miranda, Casa Nova, & Cornacchione, 2013) and the teaching method (Abeysekera, 2011; Martins, &Marinho, 2019); institutions, including school infrastructure (Campbell, 2007; Abbas, & Lopes, 2020), school organization (Guney, 2009); and, finally, focusing on the student body, relating issues of gender (Garkaz, Banimahd, & Esmaeili, 2011), age (Abdullah, 2011), race (Bibbins, & Fogelberg, 2002), demographic (Santos, Vilhena, Antonelli , & Meurer, 2020), absenteeism (Martins, & Marinho, 2019), learning styles (Lizote, Alves, Teston, & Olm, 2019; Abbas, & Lopes, 2020), hours of study and motivation (Martins, & Marinho , 2019), affirmative actions (Miranda, Lima, Andrade, 2020), behavioral variables such as self-esteem, self-efficacy, self-control, optimism and locus of control (Polese, Bortoluzzi, & Antonelli, 2019) and use of information and communication technologies (Medeiros, Antonelli, & Portulhak, 2019).

In this regard, recognizing that academic performance is systematically influenced by a wide range of factors, and considering that the literature has presented empirical evidence that the learning process and academic performance are negatively influenced by procrastination (Ackerman and Gross, 2005; Sampaio, 2011), it was decided, in the present study, to investigate the direct effect of procrastination on academic performance.

2.5 Development of Hypotheses

Procrastination is a form of self-regulation failure (Steel, 2007; Tice & Bratslavsky, 2000) that is self-defeating in the sense that it is related to negative effects on academic performance. For Ribeiro et al. (2014), low academic performance is associated with high levels of procrastination. According to Baptista (2013), procrastination has a negative influence on academic performance, resulting in low grades, delay in studies and in carrying out activities and difficulty in meeting established deadlines. In view of the above, the first hypothesis is formulated:

H1: Procrastination negatively influences academic performance.

Clariana and Rodríguez (2012) highlight that students tend to procrastinate less at previous educational levels, such as high school, making this behavior more recurrent in higher education, especially at the beginning of the first year of university, although they tend to reduce procrastination in higher education last few years before earning a university degree. From this perspective, the first research hypothesis is formulated:

H2- Students tend to procrastinate more intensely in the initial periods of the course than in the final periods.

Studies have been carried out in order to analyze the relationship between age and procrastination, with very different results. Ferrari, O'Callaghan and Newbegin (2005) argue that procrastination seems to tend to decrease with age. Along these lines, Van Eerde (2003), in a meta-analytic review of the literature, argues that age is negatively correlated with procrastination and that there seems to be a greater probability of finding procrastinators in younger age groups. Some more recent works have confirmed this trend (Blouin-Hudon, & Pychyl, 2015).

Rabin et al. (2011) identified the opposite effect, that is, that older university students may, in certain cases, be more inclined to procrastinate in their studies. However, the study carried out by Lowinger et al. (2014) did not identify a relationship between age and academic procrastination. Thus, the second hypothesis is formulated:

H3- Students procrastinate with greater intensity when they are younger, because as they acquire maturity, procrastination tends to decrease.

Costa's (2007) study investigated the procrastinating behavior of elementary school students in Portugal. For this, he built a procrastination assessment instrument. The results showed that a higher level of procrastination in daily studies occurs with females. The research conducted by Balkis and Duru (2009), with 329 female Turkish university students and 251 male Turkish university students, indicated that the tendency to manifest procrastinating behavior was greater among men.

The individual's gender is an empirical variable of substantial relevance in studies of psychological phenomena, including procrastination (Stewart & Mcdermott, 2004). It is known that gender can influence the way people face everyday tasks (Vieira & Ruy, 2006). It is admitted, therefore, that there is a difference between the procrastinating behavior presented by men and women, motivated by provided and objective experiences, or priorities attributed to each gender (Ribeiro, Avelino, Colauto, & Nova, 2014). In this regard, the fourth hypothesis is formulated:

H4- Female students tend to procrastinate more intensely than male students in the academic environment.

When compared to face-to-face students, distance learning students, due to the characteristic of this type of teaching, tend to present a higher level of self-regulation of their learning, that is, monitoring, regulation and control of their cognition, motivation and behavior taking into account in view of achieving its goals (Monnerat, Pessoa, & Ferreira, 2016). Furthermore, as previous studies found inconclusive evidence about the relationship between procrastination and course, exploratory research sought to assess the existence of a significant

difference between the course and procrastination and between the type of teaching and procrastination. Thus, H5 and H6 arise.

H5- There is a significant difference between student coursework and procrastination.

H6- There is a significant difference between type of teaching and procrastination.

3 METHODOLOGICAL PROCEDURES

As for the approach, the aforementioned study can be classified as quantitative since quantification is part of the entire process, from data collection, treatment to data analysis. The present research can be classified as exploratory since this type of research, for Gil (2010), aims to know more about the subject, of which it is little explored. In order to provide more information, helping to delimit the theme, directing the objectives and the elaboration of hypotheses, or revealing new types of aspects regarding the subject (Andrade, 2009).

The sample consisted of 807 respondents who participated in the study, there were 36 cases of missing values that were excluded from the sample, leaving only 771 respondents able to participate in the research. As for the procedures used, the research is of the survey type, conducted through the application of a questionnaire to academics from higher education institutions in Piauí, located in the cities of Floriano, Parnaíba and in the capital Teresina, both from public and private colleges, in the modalities of face-to-face teaching of undergraduate courses in Accounting Sciences and Administration, in different periods of the course. The research consists of authorizations from higher education institutions for the application of the questionnaire, in which the time and date were informed before the application. It is important to highlight that the survey was applied to all students who were in the classrooms on the days of collection. In addition, they signed a consent form.

The data collection instrument used came from Ribeiro et al. (2014), adapted from Lay (1986), consisting of 20 (twenty) questions, with a five-point Likert scale response, as follows: (1) totally disagree, (2) disagree, (3) rejected, (4) agree, and (5) strongly agree. In this questionnaire, students are asked to express "not only if the statements correspond to something extremely characteristic or extremely uncharacteristic, but also to inform their degree of characterization" (Ribeiro et al, 2014, p. 395). Academics were also asked to inform their gender, age, period attended, whether the educational institution is public or private, which type of education is in person or at a distance, and the academic performance coefficient.

Data related to gender, teaching and course were tabulated as follows: male 0 (zero), female 1 (one); private 0 (zero), public 1 (one); Administration 0 (zero), Accounting 1 (one). With this the variables are categorically transformed into numbers.

3.1 Ethical and Legal Aspects

This work was submitted to Plataforma Brasil as a way of guaranteeing and respecting all the precepts established in Resolution No. 466/2012, No. 510/2016

and No. 580/2018 of the National Health Council. The commitment to secrecy, confidentiality and non-maleficence in relation to the research is highlighted, and that the research was only carried out after the institutions authorized it through a letter of consent, as well as the signing of the free and informed consent form of all participants research subjects.

3.2 Data Analysis Technique

The Partial Least Squares Structural Equation Modeling (PLS-SEM) was used as a data analysis technique. This is a multivariate statistical technique that allows researchers to model a series of relationships between dependent and independent constructs in a simpler, systematic and comprehensive way (Campana, Tavares & Silva, 2009). The PLS-SEM technique was used due to the fact that the study is predominantly exploratory, given that the literature on the subject is still scarce and, above all, because it proposes a second-order model, something hitherto not carried out by the literature to the authors' knowledge.

4 ANALYSIS AND DISCUSSION OF RESULTS

4.1 Descriptive Analysis of Respondents

As previously presented, the analyzed sample consisted of 771 valid observations, from six Higher Education Institutions (HEIs). Regarding the research participants, it was noted that the average respondent is young (average age of 22.63 years), is halfway through the course (average of 5.18) and has an average academic performance of 8.03 points. After completing this brief analysis of the characteristics of the respondents, the descriptive analysis of the items is presented below.

4.2 Descriptive Analysis of Items

It was found that, in general, the averages of the items were relatively high. Item 1 - I often see myself performing tasks that I intended to do on previous days, and Item 19 - I am continually saying, "I'm going to do it tomorrow", exhibit the highest averages (3.73 and 3.50), with standard deviations of (1.027 and 1.263), respectively. Therefore, these were the most relevant items for academics. However, Items 3 - When I finish reading a library book, I return it immediately, regardless of the scheduled return date, and 13 - I prefer to leave earlier for an appointment, showed the lowest averages (2.38 and 2 .43), with standard deviations of 1.355 and 1.324, respectively. Most of the items showed a negative asymmetric distribution (concentration of above-average performances), which leads to the presence of relatively high perceptions of academics. The totality of negative kurtosis numbers exhibits a platykurtic distribution, that is, with observations relatively dispersed around the mean, allowing the conclusion that there is a moderate degree of dispersion of the means attributed by academics.

4.3 Preliminary Treatment of Data

There were no cases of multivariate outliers and the 36 cases of missing values were excluded from the sample. The analysis was followed by evaluating the level of collinearity between the indicators and the reliability of the scale. Preliminarily, the collinearity of the indicators of the construct 'Procrastination' was analyzed, it was noted that the average correlation coefficients of 0.81, positive and statistically significant at 0.01. There was a positive and moderate correlation between the items on the procrastination scale. Therefore, there must be the elimination of variables that do not correlate with any other or that have a high correlation with the other variables (R > 0.9) (Field, 2009). Thus, it appears that there are no high levels of multicollineerity in the items on the procrastination scale. Analyzing Cronbach's alpha coefficient, values greater than 0.9 are considered excellent; between 0.8 and 0.9, as good; between 0.7 and 0.8, reasonable; from 0.6 to 0.7, weak; and less than 0.6, as undesirable (Pestana, & Gagueiro, 2005), due to the value of 0.81 for Cronbach's Alpha in the 'procrastination' scale, it is concluded that there is a good level of internal consistency.

4.4 Preliminary Analysis of the Factor Structure of the GPS model

Lay (1986) proposed the General Procrastination Scale (GPS) as a unidimensional scale for measuring procrastination behavior. However, later studies have questioned this assumption, presenting evidence of the existence of a two-dimensional structure (Ferrari, Özer, & Demir, 2009; Mariani & Ferrari, 2012; Argiropoulou & Ferrari, 2015). In this aspect, given the lack of definition of the factorial structure of the GPS, an Exploratory Factor Analysis (EFA) was conducted, using Principal Component Analysis, with Varimax rotation, as the factor extraction method. The values of 0.879 for the Kaiser-Meyer-Olkin and the statistical significance of the Bartlett Sphericity test (<0.001) indicated the adequacy of the data for performing the EFA. Using the Kaiser criterion (eigenvalues greater than 1.0), an initial solution with five factors was obtained, as shown in Table 1:

Table 1
Initial GPS solution with five dimensions

	Components				
	1	2	3	4	5
Item14 - I usually start a job right after it is assigned to me.	0,588				
Item15 - I often finish a task earlier than necessary.	0,565				
Item3 - When I finish reading a library book, I return it immediately, regardless of the scheduled return date.	0,547				
Item20 - I usually finish all the tasks I have to do before I settle down and relax for the night.	0,526				
Item8 - I usually make decisions as quickly as possible.	0,518				
Item6 - I usually return calls promptly.	0,485				
Item18 - I usually do all the things I plan on doing in one day.	0,48				
Item 9 - I usually take a long time to start the work I have to do.		0,701			
Item10 - I usually have to rush to complete a task on time.		0,68			
Item19 - I'm continually saying, "I'm going to do this tomorrow."		0,554			
Item7 - Even with tasks that require little effort, just sitting down and doing them, I see that they are rarely completed, remaining pending for days.		0,456			
Item16 - I always seem to finish shopping for birthday and Christmas gifts at the last minute.			0,796		
Item17 - I usually buy even an essential item at the last minute.			0,777		
Item13 - I prefer to leave early for an appointment.	0,479				
Item12 - In preparation for a deadline, I often waste time doing other things		0,37			
Item11 - When getting ready to go out, I rarely have to do anything at the last minute.				0,67	
Item4 - When it's time to get up in the morning, most of the time, I get straight out of bed.				0,57	
Item2 - I don't do assignments until just before the due date.		0,438			
Item1 - I often find myself performing tasks that I intended to do on previous days.					0,642
Item5 - An email may wait several days before being replied to.					0,626

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Source: Prepared by the authors.

According to Table 1, it can be noted the existence of two main factors (covering 14 of the 20 items) and three factors comprising only six items (Item1, Item4, Item5, Item11, Item16, Item17). At this point, in line with Argiropoulou and Ferrari (2015), analyzing the scree plot and the interpretability of the resulting factor structure, it was decided to retain two factors labeling them as 'Unintentional Procrastination' (Factor 1), in view of the retention of items with negative aspects to a procrastinating behavior and 'Intentional procrastination' (Factor 2), given the predominance of positive aspects to a procrastinating behavior (Ferrari, Özer, & Demir, 2009; Fernie, Bharucha, Nikčević, & Spada, 2017). It is noteworthy that item 12 did not present a standardized factor loading above the 0.40 threshold (Hair Jr. et al., 2009), however, as the constructs will be analyzed in terms of composite reliability in the PLS-SEM analysis, we chose yourself for not excluding it at this stage of the research.

5.5 Analysis of the Measurement Model

Initially, the measurement model of the factor structure indicated in the preliminary analysis via EFA was evaluated, that is, 'Unintentional Procrastination' with 8 items (Item3, Item6, Item8, Item13, Item14, Item15, Item18 and Item20) and 'Procrastination intentional' with 6 items (Item2, Item7, Item9, Item10 and Item12 and Item19). However, since some items (Item3, Item6, Item8 and Item 13 in the dimension 'Unintentional procrastination') and (Item2 and Item10 in the dimension 'Intentional procrastination') had a low standardized factor loading (>0.7) resulting, consequently, at low levels of convergent validity of the dimensions, it was decided to remove them from subsequent analyses. The final version of the measurement model is presented in Table 2:

Table 2
Final evaluationof the Measurement Model

Standardized Factor Loads	Procrastination	
	Unintentional Procrastination	**Intentional Procrastination**
Item14		0,778
Item15		0,781
Item20		0,743
Item18		0,639
Item9	0,761	
Item19	0,708	
Item7	0,724	
Item12	0,704	
Average Variance Extracted (AVE)	**0,544**	**0,525**
Composite Reliability	**0,826**	**0,815**
Fornell-Larcker Criterion*	**Unintentional Procrastination**	**Intentional Procrastination**
Unintentional Procrastination	**0,737**	0,559
Intentional Procrastination	0,559	**0,725**

*Note: On the main diagonal, the Average Variances Extracted (AVEs) are reported and, off the diagonal, the values of the correlations between the model constructs squared are presented.
Source: Prepared by the authors.

It is noteworthy that the previous literature has evaluated the fit quality of the measurement model of the GPS scale, in a confirmatory approach - CB-SEM (reporting only the indicators of fit quality of the index models - goodness-of-fit - GOF, that is is, χ2, Root Mean Square Error of Approximation - RMSEA, Comparative Fit Index - CFI, Tucker-Lewis Index - TFI, among others), without, however, effectively evaluating the validity of the measurement model according to the criteria proposed by Hair Jr. et al. (2009), ie: composite reliability; indicator reliability; convergent validity; and discriminant validity.

This type of analysis (disregarding validity and reliability measures), still according to Hair Jr. et al. (2009), does not allow the testing of a structural model (relationship between constructs), the purpose of this research. At this point, as reported in Table 2, it can be noted that the remaining items individually have a standardized factor loading sufficiently above the 0.40 floor (Hair Jr. et al, 2014) - the lowest value, 0.639, was reported for Item18. Regarding Composite Reliability, since the reported values were above the 0.60 threshold (0.826 for 'Unintentional Procrastination' and 0.815 for 'Intentional Procrastination', it can be concluded that

there are high levels of internal consistency in both latent constructs. The Average Variance Extracted (AVE) values were also higher than the floor of 0.5, indicating the existence of a sufficient level of convergent validity. the squared values of the AVE's of both latent constructs are higher than the correlation coefficient between them, it can be concluded that there is discriminant validity (Nascimento & Macedo, 2016).

After completing the analysis of the measurement model,then the evaluation of the structural model is carried out.

5.6 Structural model analysis

The structural model investigated in the present study is reported in Figure 1:
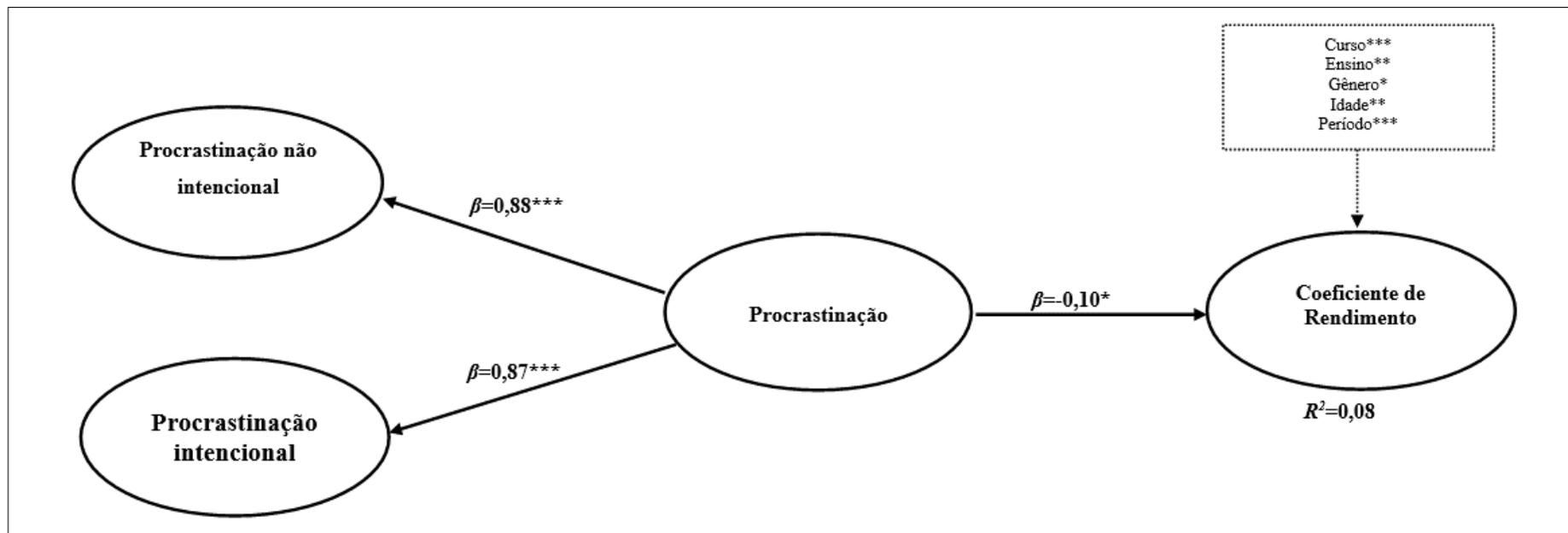
Figure 1 - Result of the proposed structural model
Where: * and *** Statistically significant at the level of 0.10 and 0.001, respectively.
Estimation: Outer model analysis algorithm: PLS Regression; Default inner model analysis algorithm: Warp3; Resampling method used in the analysis: Stable3.
Source: Prepared by the authors.

As reported in Figure 1, regardless of the effect of the control variables (Course, Education, Gender, Age and Period), it is noted the existence of a negative and direct relationship, year level of 0.10, between Procrastination and income coefficient, thus making it possible to achieve the general objective of this study. Therefore, it was not possible to refute H1 (procrastination negatively influences academic performance). Other hypothesis tests were carried out, involving age, gender, course and education, as can be seen in Figure 2.

As can be seen in Figure 2, the hypotheses can be confirmed: H3 (students procrastinate to a greater degree when they are younger than older ones, because as they gain experience with maturity, procrastination will decrease), evidencing the existence of a significant difference according to age, thus, it can be observed that the older the age, the lower the level of procrastination and vice versa; H5- (There is a significant difference between the student's course and procrastination), demonstrating that Accounting Science students tend to procrastinate less than Administration students; and H6- (There is a significant difference between type of education and procrastination), indicating that students from public institutions tend to procrastinate less than those from private education.
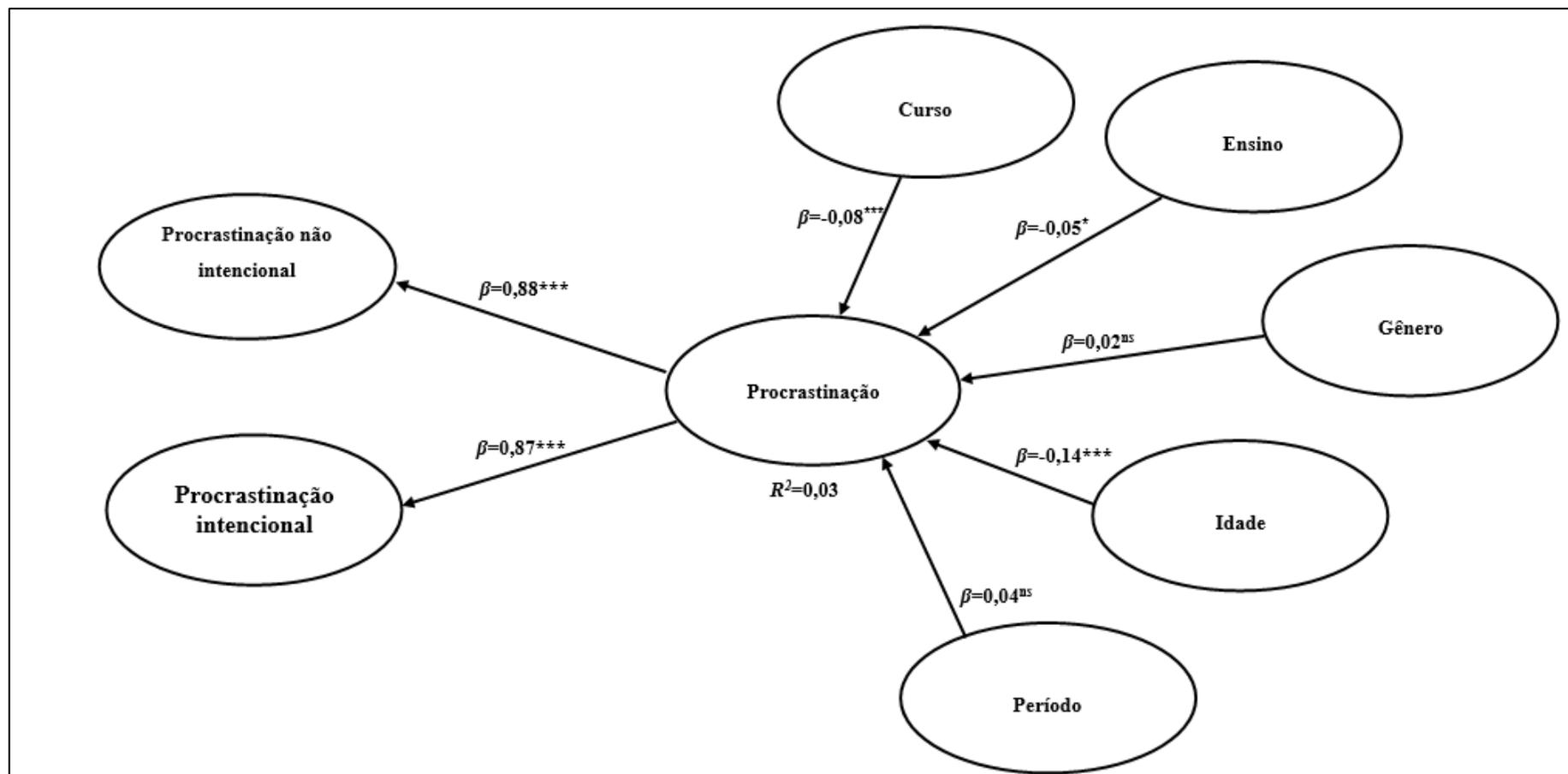
Figure 2
Test of hypotheses involving course, teaching, gender, age and period.
Source: Prepared by the authors based on the outputs of the PLS software used.

Regarding the tests of the hypotheses: H2- (Students tend to procrastinate with greater intensity in the initial periods of the course, than in the final periods), and H4 (Female students tend to procrastinate more intensely than male students in the academic environment), no empirical evidence was obtained, in the analyzed sample, that could allow its confirmations.

5 CONCLUSIONS

Academic procrastination is a topic of interest to both psychologists, educators and students themselves, and any contribution to their understanding will be helpful in finding effective solutions to control unwarranted delays in completing assignments.

Considering the aspects related to procrastination in the academic environment, the general objective of the study was to analyze the relationship between procrastinating behavior and the academic performance of undergraduate students in Accounting Sciences and Administration of Higher Education Institutions in Piauí, using the methodology An analysis technique was used, the modeling of structural equations by partial least squares - PLS-SEM. Regarding the variables course, education, gender, age and period, it was found that procrastination has a negative and direct relationship with the coefficient of academic performance, thus making it possible to achieve the general objective of this study and, consequently, to test and confirm a H1, similar results with the findings by Rotenstein et al (2009) who researched the relationship between procrastination and academic performance, in the Accounting course, identified that there is a negative and significant relationship of procrastination in the performance of academics in the school environment. Students' procrastinating behavior negatively influenced their academic performance in everyday classroom life (Burka & Yuen, 1991; Rothblum et al., 1986; Enumo & Kerbauy, 1999).

H3, on the other hand, showed that as students gain experience with maturity, procrastination tends to decrease, evidencing the existence of a significant difference according to age, thus, the objective of this hypothesis was reached. Similar results with those of Ferrari, O'Callaghan and Newbegin (2005) show us that procrastination appears to a greater degree in younger students. Findings also found by Van Eerde (2003) exist a greater likelihood to find procrastinators in younger age groups. However, more recent research such as those by (BLOUIN-HUDON, PYCHYL, 2015) and Rabin et al. (2011) identified the opposite effect, that is, that older students tend to present more procrastinating behavior. However, a study carried out by Lowinger et al. (2014) did not identify any relationship between age and academic procrastination.

Regarding the other hypotheses, such as H2- (Students tend to procrastinate with greater intensity in the initial periods of the course, than in the final periods); H4 (Female students tend to procrastinate more intensely than male students in the academic environment), the results differ from the research by Costa (2007) who analyzed the procrastinating behavior of elementary school students in Portuguese institutions, in periods different, their results show that females tend to procrastinate more than males, there was also a significant relationship in the level of procrastination and period attended by students. Klassen and Kuzucu (2009) also found evidence that females tend to procrastinate more than males. The

results of research by Clariana and Rodeíguez (2012) show that procrastination tends to be high in the initial periods of the course and tends to decrease in the final periods. As limitations of the research, there is the fact that it was carried out only with academics from higher education institutions in Piauí, from the bachelor's degree courses in Accounting and Administration, from face-to-face teaching, and it was not analyzed whether the behavior of distance learning students with regard to procrastination, they are also related to the selected variables as well as data analysis techniques.

Once questions are noted (Ferrari, Özer, & Demir, 2009; Mariani & Ferrari, 2012; Argiropoulou & Ferrari, 2015) about the unidimensionality of the General Procrastination Scale (GPS), as originally proposed by Lay (1986), and the The present study advances by empirically investigating the two-dimensional structure of the scale. Additionally, by investigating the direct effect of procrastination on academic performance, the study contributes to the literature, namely with regard to determinants related to the student body axis. The results achieved by the current research will serve to contribute to the literature, and can be used as a source of research for other studies that will address the subject in other perspectives, since the subject is vast, however, little researched in areas of higher education in Brazil. Brazil. In this context, it suggests other research with the same technical approach, with a different sample, for example, composed of distance learning academics, with different courses, gender, age and public and private institutions, analyzing the level of procrastination and academic performance of these students, using other potential factors such as cognitive ability and motivation as a means of alleviating procrastination, since the distance learning modality (EAD) is an option to meet the growing need for education in a society whose population needs to have a good level of education and constantly updating their skills throughout life, being one of the ways to make education accessible to everyone, including people who live in areas with little structure, difficult access, or who have work or family limitations (Gunawardena , & Mcisaac, 2004).

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