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ORIGINAL ARTICLE

Sharing, liking, surfing, and not studying! Cyberloafing by Accounting Sciences students*

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ABSTRACT

Guided by the possibility of the learning process being affected by cyberloafing behavior, this study analyzed the precedents and consequences of engagement in cyberloafing behavior by Accounting Sciences students based on personal use of the internet and technological devices in the classroom. There is little joint discussion about the precedents and consequences of this behavior, despite the diverse evidence of its importance and influence over the individuals' different living environments. Thus, these variables represent a topic of interest to understand their effects over students. Cyberloafing behavior has been linked to academic performance, learning experiences, and the emotional state of students, and so it is pertinent to understand its precedents and consequences. The implications of the research are discussed in theoretical, practical, and social terms. The personal and conscious use of the internet and technological devices should be promoted in order to provide gains both at the individual and at the organizational level in the environment the student inhabits. Structural equation modeling was applied to 404 valid participations obtained through an online survey conducted with students from different regions of Brazil. The personal precedents, such as the need for contact with friends, exert a greater effect over cyberloafing behavior. The academic precedents, such as the quality of the materials used in the classes, also presented a significant relationship with cyberloafing behavior. The consequences related with cyberloafing consisted of arriving late to class and academic meetings, procrastinating in the execution of academic activities, and isolating oneself from friends and family. These elements show that cyberloafing is the result of the environment the individual inhabits and that it has different consequences in the student's life.

Keywords: cyberloafing, cyberslacking, higher education, accounting sciences, theory of compensatory internet use.

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1. INTRODUCTION

Internet access from technological devices, such as smartphones, laptops, and tablets, has become omnipresent in different social spaces, representing an indispensable tool for the new generations that offers a range of advantages in individuals' different living environments (Kim & Byrne, 2011).

In the university environment, in particular, an exponential flow of investigations has been conducted under a positive assumption that reinforces the beliefs that the use of such technologies can lead to innovation, dynamicity, and interaction between students and teachers, promoting a more efficient teaching and learning process (Ragan et al., 2014; Samson, 2011). In contrast, discussions about the negative consequences related to the misuse of the internet and technological devices in the classroom warn of the need to establish limits and institutional policies that regulate or at least promote the conscious use of these tools (Akbulut et al., 2017; Baturay & Toker, 2015; Blanchard & Henle, 2008; Jamaluddin et al., 2015; Rana et al., 2019; Taneja et al., 2015).

In conceptual terms, misuse of the internet and technological devices in the work and educational environment has been denominated in different ways, taking into account the particular nuances of each behavior (Kim & Byrne, 2011). Among the main conceptual approaches is cyberloafing or cyberslacking (Blanchard & Henle, 2008) – which is characterized as web use for personal purposes related to distraction. Cyberloafing is a form of counterproductive behavior capable of impairing individuals' objectives and performance in their main organizational tasks.

Specifically in the educational environment, cyberloafing has been negatively related with student' learning and positively so with teachers' frustration (Akbulut et al., 2017; Baturay & Toker, 2015; Weatherbee, 2010; Yilmaz et al., 2015). Among the most common ways of students manifesting cyberloafing behavior are: accessing different social networks, such as Facebook, Instagram, TikTok, Twitter, and WhatsApp; online shopping; exchanging content through apps; searching for different information; accessing films and music; as well as other numerous functions and tools available to users (Müller et al., 2020; Yaşar & Yurdugül, 2013).

In the university context, the excessive practice of cyberloafing has been related with low academic performance (Jamaluddin et al., 2015; Yilmaz et al., 2015), with increased technology anxiety, with technology addiction, and with cyberbullying (Akbulut et al., 2016; Rana et al., 2019). These relationships become more serious when observing the other discussions in the literature. For example, Meriac (2012) warns that behaviors manifested in the university environment tend to be transferred to the organizational environment and vice-versa, so concerns focus on the possibility of this behavior also affecting other different spheres of the student's life, such as the work environment.

Adding to the attention paid to the youngest portion of the population that summarily composes the student body of teaching institutions is the fact that 87% of young Brazilians aged 18 to 24 years old access the internet every day, 84% have a smartphone, and 77% state that their lives would somehow be adversely affected if they could not use their smartphone (National Confederation of Store Managers/Credit Protection Service, 2019). Thus, the current generation of university students has an adjacent connection with these technologies used in the practice of cyberloafing.

In turn, restricting the perspective to the area of business, composed of courses such as the Accounting Sciences one, which is observed in this study, there is interest in addressing the topic due to the fact that the professionals in this area are the ones responsible for managing the production, distribution, and generation of information for decision making in organizations and, by occupying leadership positions, they can influence the behavior of the collaborators under their leadership (Khan & Bose, 2019; Mohiuddin et al., 2018; Weatherbee, 2010).

Unlike concepts such as addiction or abuse of the internet, which are linked to pathological questions, cyberloafing sets its precepts in the impulse for distraction and the search for forms of manifesting social wellbeing (Kim & Byrne, 2011). This type of behavior arouses concerns regarding the predictors of cyberloafing in that the Theory of Compensatory Internet Use (TCIU) says that individuals use the internet to alleviate negative emotions, adapting their social needs and serving as a sort of coping strategy (Elhai et al., 2019; Kardefelt-Winther, 2014). From this perspective, concerns emerge regarding the precedents of that behavior that can be attributed to classes that are unengaging and innocuous in arousing the students' attention.

Thus, the objective of this study consists of analyzing the precedents and consequences of engagement in cyberloafing behavior by Accounting Sciences students based on personal use of the internet and technological devices in the classroom. The main justification for the research is the fact that a lack of attention during classes negatively affects students' learning (Taneja et al., 2015).

In theoretical terms, the research fills an important but still incipient space of discussion, contributing to the mapping and joint analysis of the predictors and consequences of cyberloafing, as well as to the development of the theoretical line based on TCIU. These contributions are important for identifying points that can be improved in order to make the teaching environment more engaging and attractive for students. For that reason, the investigation addresses the following research question: What are the precedents and consequences related to the cyberloafing behavior of Accounting Sciences students based on personal use of the internet and technological devices in the classroom?

The research innovates by jointly discussing, besides the types of cyberloafing behavior, its motivations, consequences, and the relational path that exists between these constructs. To answer the research question, a path model is tested and discussed based on the participation of Accounting Sciences students from five regions of Brazil.

2. THEORY OF COMPENSATORY USE OF THE INTERNET AND CYBERLOAFING

Over the years, the explanations for the causal relationships of personal internet use have been based on different theoretical *corpora*. For example, Uses and Gratifications Theory (UGT) adopts an approach focused on individual characteristics to explain the excessive and personal use of different media, such as technological devices. From this perspective, variables such as sex, age, educational level, marital status, the individual's position in their life cycle, and status at work, among other personal characteristics, are indicated as the main drivers and motivators of this behavior (Blumler, 1979; Elhai et al., 2019). In turn, other theoretical *corpora* discuss personal internet use based on a perspective anchored in compulsive behavior and mental disorders to alleviate a dysphoric mood and ameliorate real life problems (Young, 1996). In this last approach, the excessive and personal use of the internet and technological devices is analyzed under the clinical lens.

Despite the literature reporting statistically significant results for both approaches, the theoretical explanations based strictly on individual characteristics, such as those obtained with UGT, or that adopt psychological disorders as a starting point, restrict the possibility for consensus and advancement of the theoretical discussions regarding the excessive and personal use of the internet and technological devices by those who do not have mental disorders or who differ from the behavioral pattern of the groups with which their individual characteristics align (Elhai et al., 2019; Kardefelt-Winther, 2014).

Alternatively to those lenses, TCIU explains the motivators of excessive and personal internet use based on a view that stresses the adaptation of individuals in order to alleviate their negative feelings and emotions (Elhai et al., 2019; Kardefelt-Winther, 2014). Under the TCIU lens, digital media are used to satisfy each person's social needs, to escape from stressful, negative, or unengaging situations experienced in real life, with this focus being more adherent to excessive and personal internet use by most individuals (Elhai et al., 2018).

Unlike the UGT proposed in the 1970s, TCIU was proposed in 2014 by Kardefelt-Winther considering a more current environment replete with technological devices and applications, such as smartphones, mobile internet, and social media, widely present in contemporary society. Taking this scenario into consideration is important, as devices and the mobile internet have confused the boundaries between personal internet use and use at work or in educational environments.

The profusion and ambiguity of these boundaries have negative consequences for teaching institutions and the educational process, as use unconnected with educational activities in the university environment can be seen as inappropriate, given that it distracts the student's attention from the main objective of university, which is knowledge building based on interaction between the students and teachers themselves (Jamaluddin et al., 2015; Kim & Byrne, 2011). The concepts used to characterize these behaviors are also ambiguous. In the literature, some address excessive and personal internet use based on different nomenclatures, such as: the use of computing unrelated to work/learning, cyberloafing, cyberslacking, cyberbludging, loafing online, deviation of the internet, problematic internet use (PIU), personal web use (PWU), internet dependency, internet abuse, internet addiction, and internet addiction disorder (IAD).

This study adopts the approach of Kim and Byrne (2011), who made a conceptual effort to differentiate and categorize the use and application of these different concepts, according to the conceptual framework shown in Figure 1.

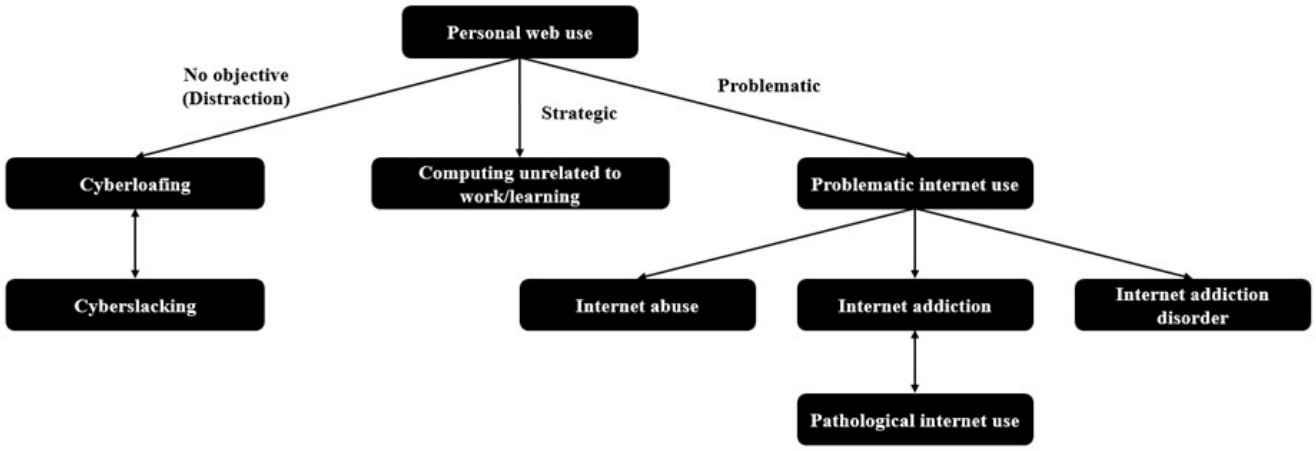

Figure 1 *Conceptual framework of personal web use from Kim and Byrne (2011) adapted to university contexts*
Source: *Adapted from Kim and Byrne (2011).*

Kim and Byrne (2011) built a conceptual framework to connect each concept of personal web/internet use with individuals' specific objectives. In this conceptual proposition, internet addiction, abuse, and addiction disorder are linked to more serious social consequences and with pathological origins. In turn, computing unrelated to work/learning is linked in its typology to the strategic use of technological devices for personal purposes, such as focusing on personal projects during work hours or in the classroom. Cyberloafing, in turn, is more focused on procrastination and is commonly done by a large portion of the population without any specific aim and not linked to any pathologies. This is the focus adopted in this research, which is aligned with TCIU.

Most of the investigations that cover cyberloafing deepen the discussions on the different types of behaviors and/or its relationship with pathological and behavioral variables, such as wellbeing, and demographic variables (e.g., Baturay & Toker, 2015; Yilmaz et al., 2015). The adaptation of data collection instruments has also been a milestone of the studies developed in this field, given that there is a need to adapt the measurement of cyberloafing to the new tools, technological devices, applications, and social networks that have been incorporated in a short time interval and have come to form part of contemporary societal behaviors (Akbulut et al., 2016).

One of the most cited and precursory studies that discussed the topic in the university environment was the one developed by Blanchard and Henle (2008), who identified two main forms of cyberloafing among American MBA students. The first involves behaviors called minor cyberloafing, consisting of receiving personal emails, accessing news websites, financial websites, auction websites, sports portals, and online shopping. The second type consists of serious cyberloafing, characterized as accessing chat rooms, online communities, and dating and music download sites, which can lead to exposure to hackers and legal punishments for the organizations that provide the physical facilities or technological tools for such activities.

The categorization of these authors has been used and has inspired various studies (e.g., Akbulut et al., 2016; Yaşar & Yurdugül, 2013; Yilmaz et al., 2015), with one of the main implications of the research consisting of linking the minimization of cyberloafing to the implementation of awareness-raising policies that conceive these behaviors as inappropriate among peers, given that the authors found a positive relationship between the norms of the social group the students and their supervisors belong to and cyberloafing.

Yaşar and Yurdugül (2013) pointed out that checking emails, accessing social media, and visiting news websites feature among the main cyberloafing practices of Turkish university students. These behaviors were justified by the students as derived from the need to rest, seek relaxation, and accompany website updates. The results of the research highlight the importance of considering students' behavior in the structuring of educational processes and policies. In addition, it draws attention to the possible motivators of cyberloafing, enabling the scope of study to be widened in order to cover the motivations and consequences of cyberloafing in a combined and inter-related way.

Yilmaz et al. (2015) highlight variables that condition the different types of cyberloafing manifested by Turkish students. The data collection instrument used in the study was the one adapted from Blanchard and Henle (2008) by Yaşar (2013) that subdivides the behaviors into "individual," "research," "social," and "news." In all the

dimensions, significant differences were found between the male and female genders, with the male group generally presenting higher levels of cyberloafing. Differences were also found between students from different departments (e.g. Information Systems Management *vs.* History) and according to the quantity of hours of daily internet use. The location of the internet connection, in turn, did not condition the behavior and this may be due to mobile access or also because there are no restrictions on the use of mobile devices at home, at university, in the dormitory, and other spaces that students frequent.

Just like Yilmaz et al. (2015), in the study of Baturay and Toker (2015) the male gender presented a more intense relationship with cyberloafing. Daily internet use, as well as being in the initial phase of the university course and having fewer years of experience with the internet, were also positively related with cyberloafing. Seeking forms of using technological devices in the classroom may be a solution for minimizing cyberloafing. In addition, the study reinforces the importance of considering the most recent internet use activities in the instruments that seek to measure excessive and personal web use.

Taneja et al. (2015) tested a model with 13 hypotheses relating intrinsic motivation, extrinsic motivation, engagement in the classroom, and apathy in relation to the material of the discipline with a lack of attention. At a second level, the authors related consumerism, escapism, lack of attention, cyberslacking anxiety, and the distraction of others with the attitude. Finally, attitude, subjective norms, descriptive norms, and the perception of behavioral control were related with the cyberslacking intention of North American students. The various implications of the study include drawing attention to the need to implement policies that raise awareness of appropriate use of the internet and technological devices, as well as teachers making the material used in the classroom and teaching techniques less apathetic, with the aim of engaging the students.

Akbulut et al. (2016) sought to overcome the inadequacy of some behaviors of the scale from Blanchard and Henle (2008) and from Kalayci (2010) by arguing that these data collection instruments were inspired by behaviors shown in the workplace, but which are scarcely manifested in the university environment. In the scale developed by these authors, the items were grouped into five factors, namely factor 1 – sharing, factor 2 – buying, factor 3 – real time updates, factor 4 – accessing online content, and factor 5 – gaming and betting. The research results of Akbulut et al. (2016) provide some opportunities for methodological, theoretical, and empirical advancements. In methodological terms, the factors focused on social media reinforce the importance of including items and seeking greater detail regarding the use of different social networks as a form of cyberloafing. In the theoretical and empirical field, analyzing the different forms of cyberloafing and its antecedents is pertinent for understanding the motivators and seeking specific forms of minimizing the consequences of this type of behavior.

Rana et al. (2019) identified the influence of attitude (constituted by a lack of attention, apathy in relation to the material of the discipline, and distraction by others), of the subjective norm, of perceived threat, of perceived behavioral control, and of escapism on the cyberslacking intention of undergraduates and postgraduates of the business school of a British university. Attitude followed respectively by perceived behavioral control, the subjective norm, and escapism was positively related with cyberslacking intention. In contrast, perceived threat was negatively related with cyberslacking. The fact that attitude presented a positive relationship reinforces the importance of teachers elaborating simple and easy materials and explanations in order to minimize apathy in relation to the material of the discipline. The educational policies can also be focused on with the aim of raising the students' perception that these excessive behaviors are not tolerated in the classroom.

The research highlighted provides an agenda for investigations focused on the empirical aspects of analyzing the cyberloafing of higher education students. The joint study of the precedents and consequences of cyberloafing, the use of the TCIU lens, and the mapping of these behaviors with a focus on the national picture are the opportunities that guide this investigation and form the basis for the research contributions in understanding the behavior of this portion of modern society.

3. METHODOLOGICAL APPROACH

3.1 Population, Data Collection, and Sample

The data were collected using an online survey conducted on the Survey Monkey® platform. The study population is composed of undergraduates of 1,639 on-site Brazilian Accounting Sciences courses with an "active" status according to the Ministry of Education in January of 2020. Having collected the registration data of the Accounting Sciences courses, we accessed the website of the higher education institutions (HEIs) to locate the email of the coordination, of the secretariat, or of the communication department so that the research could be divulged to the students. This process was carried out during January and February of 2020. After searching the information of 1,639 courses, we located the contacts of 835 courses.

The 1,639 Accounting Sciences courses consulted have 227,302 places authorized by the Ministry of Education, with the 835 courses contacted representing 100,729 places or 44.31% of the total. This number is an approximation of the population contacted, given that it is impossible to delimit the exact number of students regularly enrolled in the aforementioned courses. The data collection was carried out in March of 2020, but was interrupted by the COVID-19 pandemic, which led to the suspension of teaching activities at a large number of institutions.

We initially obtained 718 participations, of which 186 were eliminated as they were not fully completed, along with 128 because they involved first year students who were at the start of the course and, consequently, did not yet have a consolidated perception of their cyberloafing behavior manifested during the classes. Therefore, the remaining answers considered to be valid totaled 404 participations.

3.2 Research Instrument and Methodological Concerns

Following the recommendations and procedures of Baturay and Toker (2015) and Taneja et al. (2015), the items from the online questionnaire were elaborated and adapted from previous studies (Akbulut et al., 2016; Baturay & Toker, 2015; Blanchard & Henle, 2008; Rana et al., 2019; Taneja et al., 2015), considering the Brazilian context, as well as the most used tools and social networks. The process of elaborating and adapting the items involved the joint participation of three professors and researchers in the area of Accounting Education and Teaching, the first one being a teacher of the Scientific Research Methodology discipline, the second from Quantitative Methods, and the third from Higher Education Methodology, all with experience in research and evaluating studies in this area.

In addition to this process, there was the participation of five PhD students and six Master's students in Accounting, all belonging to research projects linked to the area of Accounting Education and Research and most with teaching experience. In this stage, each statement of the research instrument was face validated, discussing the theoretical alignment and understanding of the items. Discussions were held regarding the adaptation and inclusion of elements in the questionnaire and the final version was composed of four sections.

The first section measured the cyberloafing practices through 16 items, such as liking photos on Facebook and Instagram. The second was dedicated to identifying the possible precedents of cyberloafing based on 14 items divided into two second-order constructs, one dedicated to identifying the personal precedents, such as being tired, and the other for the academic precedents, such as a lack of quality of the materials presented by the teachers. The third section embodied the consequences of cyberloafing based on six items, such as procrastination in the execution of academic activities. Finally, the fourth section was dedicated to identifying the respondents' profile. It warrants mentioning that, in the data collection instrument, the technological devices were detailed as smartphone, notebook, tablet, and other devices.

Regarding the methodological procedures, we used an ordinal, one-dimensional, 11-point scale labeled at the extremities alone. This treatment follows the recommendations of Cummins and Gullone (2000), as it aims to overcome the limitations that exist in other types of scales, such as the Likert or Likert-type scales that have semantic and qualitative labels in all the scores. Therefore, the first and second sections used the label 0 = never and 10 = always and the third section used the label 0 = rarely and 10 = very often.

In addition, we included a graphical representation that indicated a continuum, helping the respondent to understand that it concerned a scale of intensity/frequency. In ethical terms, at the start of the questionnaire an informed consent form was presented, indicating that

participation was voluntary, anonymous, that it could be interrupted at any time, and that the data would be processed in aggregate form, preserving the individuality and anonymity of the respondents, as recommended by National Health Council (CNS) Resolution n. 510/2016. The study lies within the scope of a wider end-of-doctorate research project registered with the CEP/SD Research Ethics Committee of the researchers' institution, under case number 42700921.8.0000.0102.

From the conception of the research instrument, common method bias was an inherent concern due to the characteristics of the study, namely: (i) self-reported data; (ii) a dependent and independent variable collected in the same questionnaire; and (iii) cross-sectional data collection. Thus, the recommendations of Chang et al. (2010) were adopted, in which the presentation of the questions did not follow the order of the relationships of the model tested and prior to the data analysis the Harman test was applied, which "ignores the structural model and measurement model, estimating the exploratory factor analysis (EFA) with all the items in the same analysis, generally employing the unrotated principal components method" (Bido et al., 2018, p. 388).

3.3 Data Analysis Technique

The data analysis was conducted using the structural equation modeling (SEM) technique calculated based on partial least squares path modeling (PLS-PM), operationalized with the use of the Smart PLS® software version 3.2.0 and bootstrap resampling that does not assume data normality with 5,000 resamples. The use of the technique is warranted as SEM enables the constructs to be represented by multiple scale statements with the aim of relating them with distinct latent variables (Sanchez, 2013).

The SEM is subdivided into the analysis of the measurement model and of the structural model, both presented in the results section. In addition, in order to consider the dichotomies of the relationships analyzed based on the demographic characteristics of the respondents and to identify possible differences at the causal network level, at the structural level, at the measurement level, and at the latent variables level we employed group comparison approaches based on t-test bootstrapping using a bi-group analysis (Sanchez, 2013). The grouping variables were defined based on the literature that indicates the possibility of gender, age, time of access, and consumerism, embodied by the type of HEI, being conditioners of cyberloafing (Akbulut et al., 2016; Baturay & Toker, 2015; Taneja et al., 2015; Yilmaz et al., 2015).

The minimum adequate sample size for using the SEM technique was fulfilled according to the parameters of effect size $f^2 = 0.15$, 5% significance level (α err prob = 0.05), power (1-β err prob) = 0.95, and the number of predictors = 2, which indicated the need for a minimum number of 107 participations.

4. RESULTS

4.1 Respondents' Profile

The mean age of the respondents was 24.38 years old and the median was 22. Of these, 262 (64.85%) were of the female gender and 142 (35.15%) were of the male gender. In relation to the HEIs, 260 (64.36%) respondents attend public institutions and 144 (35.64%) attend private or community institutions. The term predominantly being taken is formed of 131 (32.43%) respondents who are in the 7th or 8th term (4th year), followed by 120 (29.70%) who are in the 5th or 6th term (3rd year), 111 (27.47%) who are in the 3rd or 4th term (2nd year), and 42 (10.40%) students who attend the 9th or 10th term, given that there are institutions in which the Accounting Sciences course lasts for five years. Finally, the mean daily hours connected to the internet indicated that 27 (6.68%) students stay online for at least 2 hours, 201 (49.75%) students indicated between 2 and 6 hours, 98 (24.26%) from 7 to 10 hours daily, 63 (15.59%) from 11 to 16 hours, and 15 (3.72%) stay online from 17 to 24 hours.

In order to present the applications and websites accessed by the participants, we elaborated Table 1, which hierarchizes a stacking by age, gender, and time of daily access to the internet or to technological devices based on the main apps and websites that enable cyberloafing behavior.

Table 1
Hierarchical stacking of apps, websites, and tools by number of respondents

Apps and sites	Groupings: Age/Gender/Time of daily access to the internet and technological devices								Total
	Younger (<= 22 years old)[e]				Older (> 22 years old)				
	Female		Male		Female		Male		
	<= 6 h[f]	> 6 h	<= 6 h	> 6 h	<= 6 h	> 6 h	<= 6 h	> 6 h	
WhatsApp	84	60	27	38	70	44	43	32	398
	21.11%	15.08%	6.78%	9.55%	17.59%	11.06%	10.80%	8.04%	100%
Instagram	74	56	25	34	62	40	30	25	346
	21.39%	16.18%	7.23%	9.83%	17.92%	11.56%	8.67%	7.23%	100%
Facebook	63	46	18	20	49	28	25	26	275
	22.91%	16.73%	6.55%	7.27%	17.82%	10.18%	9.09%	9.45%	100%
Music apps[a]	36	34	10	21	23	26	17	10	177
	20.34%	19.21%	5.65%	11.86%	12.99%	14.69%	9.60%	5.65%	100%
Netflix	34	36	12	17	22	22	18	6	167
	20.36%	21.56%	7.19%	10.18%	13.17%	13.17%	10.78%	3.59%	100%
Food apps[b]	22	24	11	16	26	21	15	10	145
	15.17%	16.55%	7.59%	11.03%	17.93%	14.48%	10.34%	6.90%	100%
Games	26	25	9	21	15	14	15	9	134
	19.40%	18.66%	6.72%	15.67%	11.19%	10.45%	11.19%	6.72%	100%
LinkedIn	27	11	10	12	16	9	11	10	106
	25.47%	10.38%	9.43%	11.32%	15.09%	8.49%	10.38%	9.43%	100%
Twitter	24	22	7	17	9	6	9	11	105
	22.86%	20.95%	6.67%	16.19%	8.57%	5.71%	8.57%	10.48%	100%
Ads[c]	11	6	7	5	11	9	16	9	74
	14.86%	8.11%	9.46%	6.76%	14.86%	12.16%	21.62%	12.16%	100%
Telegram	8	6	4	5	4	7	6	4	44
	18.18%	13.64%	9.09%	11.36%	9.09%	15.91%	13.64%	9.09%	100%
TikTok	8	10	1	4	6	5	3	4	41
	19.51%	24.39%	2.44%	9.76%	14.63%	12.20%	7.32%	9.76%	100%
Dating[d]	4	5	3	3	1	5	2	6	29
	13.79%	17.24%	10.34%	10.34%	3.45%	17.24%	6.90%	20.69%	100%

Note: *Guiding question: What apps, sites, and tools do you access on your smartphone, notebook, tablet, and other technological devices?; [a] Spotify, Deezer, and other music apps; [b] Nomenclature used in the research instrument "Food apps (for example, iFood, Rap, Uber Eats, and similar)"; [c] Nomenclature used in the research instrument "Ad apps (for example, OLX, Zap, Imóveis, Meu Carro Novo, and similar)"; [d] Nomenclature used in the research instrument "Dating apps (for example, Tinder)"; [e,f] Grouping defined based on the median.*
Source: *Elaborated by the authors.*

Social networks occupy the first three positions among the most-used apps, websites, and tools. Of the 404 respondents, 398 access WhatsApp, followed by 346 who use Instagram and 275 who access Facebook. It is also noted that music apps, such as Spotify, and streaming apps (e.g. Netflix) also feature in the first positions of the listing. The fact that social networks occupy the first three places converges with the discussion of Taneja et al. (2015), who identified that social network use is linked to the main cyberloafing objective of the students, which is communication among friends during class time.

Yaşar and Yurdugül (2013) and Akbulut et al. (2017) also indicated that social networks are among the most common forms of cyberloafing in the classroom. In practical terms, tools such as WhatsApp focus their main resources of instantaneous communication between users and on the sharing of information in real time, delineating an invitation to engage in cyberloafing when these behaviors are not seen as prejudicial by the students. After identifying the apps and websites that enable cyberloafing behavior, we proceeded to analyze the proposed model using SEM.

4.2 Measurement Model, Structural Model, and Group Comparison Approaches

The Harman test did not indicate any common method bias problems, while the first-order factor test did not result in a scenario with only one factor extracted, nor did the factor with the higher percentage of explained variance (26.89%) concentrate the greatest part of the variance of the items analyzed (> 50%) (Bido et al., 2018; Podsakoff et al., 2012). The variance inflation factor (VIF) analysis indicated the absence of multicollinearity between the items of the scale, given that the values were below 5 (Hair et al., 2014). Thus, we proceeded to analyze the SEM measurement model.

In the measurement model, the internal consistency and independence of the latent variables are assessed based on the convergent validity and discriminant validity indicators. Table 2 presents the convergent validity indicators and model fit, together with the mean, standard deviation, and median of the items of the evaluated model.

Table 2
Measurement model – Convergent validity indicators

Items	Mean	St. Dev.	Med.	Loading	CR	AVE
Academic precedents						
Quality of the materials presented by the teachers	5.00	2.91	5.00	0.614		
Lack of interest in the subjects discussed in the classroom	4.19	2.94	4.00	0.758	0.81	0.47
Difficulty understanding the material	3.74	3.04	3.00	0.707		
Demotivation with the course	2.91	3.14	2.00	0.773		
I don't pay attention in the classes, as it's easy to cheat in the assessments	0.47	1.36	0.00	0.543		
Personal precedents						
Influence of peers who use technological devices	2.27	2.72	1.00	0.658		
Contact with friends	4.22	2.89	4.00	0.743	0.83	0.56
Laziness	3.24	2.96	3.00	0.779		
Technology addiction	3.87	3.36	4.00	0.800		
Cyberloafing						
Accessing news sites	3.60	2.87	3.00	0.592		
Accessing curiosity sites	3.00	2.90	2.00	0.680		
Liking photos on Facebook or Instagram	4.95	3.35	5.00	0.729		
Reading news on Facebook or accessing the Facebook timeline	3.56	3.35	3.00	0.603		
Listening to podcasts	0.58	1.63	0.00	0.557		
Accessing WhatsApp	7.76	2.68	9.00	0.651		
Watching films, online games, sports matches, or other entertainment programs	1.20	2.50	0.00	0.654	0.90	0.41
Listening to music	1.14	2.56	0.00	0.639		
Accessing email	5.77	3.11	6.00	0.677		
Shopping online	1.26	2.34	0.00	0.681		
Looking at ad apps	1.21	2.24	0.00	0.664		
Carrying out bank transactions	2.02	2.66	1.00	0.652		
Accessing financial investment apps and websites	2.00	2.73	0.00	0.540		
Accessing gaming apps	1.82	2.71	0.00	0.560		
Consequences						
Arriving late to class	0.99	2.11	0.00	0.608		
Arriving late to academic meetings	0.47	1.47	0.00	0.574	0.84	0.52
Procrastinating in the execution of academic activities	4.77	3.43	5.00	0.730		
Isolating yourself from those close to you	3.15	3.19	2.00	0.830		
Isolating yourself from family	2.87	3.13	2.00	0.830		
Model fit indicators – RMSEA					0.050	

Note: *St. Dev. = standard deviation; Med. = median; CR = composite reliability; AVE = average variance extracted; RMSEA = root mean square error of approximation. Convergent validity parameters (Hair et al., 2014; Sanchez, 2013): loading > = 0.70 (ideal); loading > = 0.40 < 0.70 (acceptable); CR > 0.70; AVE > 0.50. Parameter of model fit indicators (Hair et al., 2009): RMSEA < 0.10 (acceptable).*
Source: *Elaborated by the authors.*

The convergent validity indicators presented in Table 2 enable us to verify whether the items that compose the theoretical proposition of each construct have the ability to represent the latent variables that we intend to measure (Sanchez, 2013). Items CL3 "accessing dating websites/apps," CL8 "accessing Facebook Messenger," PP1 "laziness," PP3 "family contact," AP6 "flexibility by the teachers," PP7 "work commitments," AP7 "self-confidence that you will pass a discipline," and CQ6 "failing to meet previously agreed deadlines" were removed as they impaired the one-dimensionality of the latent variables.

The other items, which have loadings lower than 0.70, but higher than 0.40, were maintained in order to preserve the informational content of the research instrument, due to the fact that their exclusion would not provide gains in the AVE and due to the research instrument having been developed recently, as indicated by Hair et al. (2014). The AVE indicator illustrates how much the variation of the items was considered in the formation of the latent variable (Sanchez, 2013), with values above 0.50 being recommendable, and values above 0.40 being accepted.

The personal precedents and consequences constructs obtained AVE values above 0.50. In turn, academic precedents and cyberloafing presented AVE values above 0.40, thus it was not pertinent to exclude new items due to the fact that there were no positive effects over composite reliability (Hair et al., 2014). To analyze the internal consistency of the indicators, composite reliability was prioritized, which does not have the Cronbach's alpha limitations in relation to sensitivity to the number of items of the scale (Hair et al., 2014; Sanchez, 2013), with the statistical parameter values being met. Finally, the model fit indicator (RMSEA) was shown to be adequate.

The discriminant validity indicators are shown in Table 3.

Table 3
Measurement model – Correlation and discriminant validity indicators

Variables and indicators	Precedents		Cyberloafing	Consequences
	Academic	Personal		
Discriminant validity – cross loadings				
Cross loadings (maximum)	0.48	0.56	0.53	0.49
Cross loadings (minimum)	0.17	0.35	0.04	0.15
Associated construct (maximum)	0.77	0.80	0.68	0.83
Associated construct (minimum)	0.54	0.66	0.55	0.57
Discriminant validity – Fornell-Larcker criterion and heterotrait-monotrait ratio (HTMT)				
Academic precedents	**0.68**[1]	0.87	0.63	0.62
Personal precedents	0.62	**0.75**	0.69	0.71
Cyberloafing	0.52	0.60	**0.64**	0.34
Consequences	0.46	0.54	0.30	**0.72**

Note: *[1] the lower part of the matrix presents the correlation between the constructs. Discriminant validity parameters (Hair et al., 2014; Henseler et al., 2015; Sanchez, 2013): for the cross loadings the minimum values of the associated construct should be above 0.50 and the lowest value of the associated construct should be higher than the values of the cross loadings; for the Fornell-Larcker criterion (diagonal line of the matrix) the square root of the AVE of each construct should be higher than the greatest correlation of the latent variable with any other latent variable of the model; and for the HTMT (upper part of the matrix) the values should be below 0.90.*

Source: *Elaborated by the authors.*

The discriminant validity (Table 3) aims to identify the independence and individuality between each construct (Hair et al., 2014). The first way of verifying such independence is through the crossed factor loadings, in which the minimum value of each item of the associated construct should be higher than the maximum value of the loading shared with the other constructs. The second is through the Fornell-Larcker criterion, in which the square roots of the AVE of each construct should be higher than the coefficients of correlation with the other latent variables. Despite both criteria being used by different researchers and having been met (Hair et al., 2014; Sanchez, 2013), it is observed that there is a line of recent studies that indicates that crossed factor loadings and the Fornell-Larcker may be inefficient in measuring discriminant validity (Henseler et al., 2015). Alternatively, the heterotrait-monotrait ratio (HTMT) correlation has been suggested, which indicated the need to exclude item PP2 "influence of peers who are using technological devices" so that the parameter was fulfilled, enabling us to proceed to the structural model analysis.

In the structural model, the relationships between the latent variables are evaluated (Sanchez, 2013). Table 4 features the information on what is called the general structural model here, as it does not individualize the relationships according to the particular characteristics of the sample, which are treated below. The original effects and the mean.boot are presented together with the standard error, the t-statistics, and the p-value of each relationship. In addition to this presentation are the indicators of the variance explained by the relationships (R^2), the effect size (f^2), the communalities (block_communality), and the redundancy (mean_redundancy – Q^2). Possible relationship differences based on the sample characteristics were not considered at this initial point.

Table 4
General structural model and indicators of validity/explanation of the latent variables

Paths	General Model Effects		se	t-statistics	p-value	R^2	f^2
	Original	Mean.Boot					
Academic precedents → Cyberloafing	0.24	0.24	0.05	4.15	<0.01	0.39	0.05
Personal precedents → Cyberloafing	0.45	0.45	0.06	8.70	<0.01		0.19
Cyberloafing → Consequences	0.30	0.30	0.05	5.81	<0.01	0.09	0.10

Note: *se = standard error; Mean Redundancy – Q^2(Block Communality): Academic Precedents = 0.00(0.47); Personal Precedents = 0.00(0.56); Cyberloafing = 0.16(0.41); Consequences = 0.04(0.50). Mean Redundancy (Q^2): indicates the quantity of variance in an endogenous construct explained by its independent latent variables (Sanchez, 2013). Parameters (Cohen, 1988; Hair et al., 2014): f^2 up to 0.02 indicates a small effect; above 0.02 up to 0.13 indicates a medium effect; above 0.13 up to 0.26 indicates a large effect. Q^2: the values of 0.02, 0.15, and 0.35 indicate that the exogenous construct has small, medium, or large predictive relevance for a certain endogenous construct.*
Source: *Elaborated by the authors.*

The relationships of the structural model inspired the construction of Figure 2, which represents the path model analyzed and supports the discussions of the results based on the elucidation of the direct effects found in the relationships between the latent variables (β), as well as presenting the effect size (f^2), variance explained (R^2), and predictive relevance (Q^2) of the dependent variables based on the effects exerted by the independent ones.

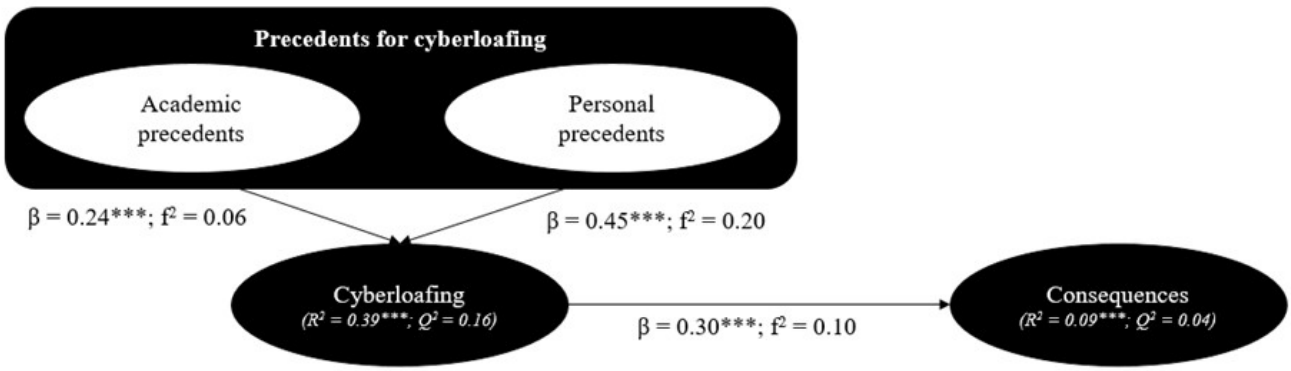

Figure 2 *Representation of the structural relationships*
Source: *Elaborated by the authors.*

The academic precedents exert positive effects over the cyberloafing (β = 0.24; p-value < 0.01; f^2 = 0.05) manifested in the classroom. A previous analysis of these precedents is pertinent to investigate the characteristics of this construct in order to understand that relationship in a palpable way, applied to everyday life, enabling discussions of that relationship in relation to the previous studies and to the theoretical aspects of TCIU.

The academic precedents were embodied by the classroom environment in terms of quality of the materials used in the disciplines, the capacity of the subjects discussed in the classroom to arouse the students' interest, difficulties understanding the material studied, and demotivation with the course and easiness to cheat in the assessments and pass, consisting of points that can be observed to minimize cyberloafing.

TCIU is anchored in the assumption that cyberloafing is adopted when the context in which the individual is embedded generates negative feelings and emotions (Elhai et al., 2019; Kardefelt-Winther, 2014). The link between the theoretical approach and the results of the research lies in the fact that these precedents can be explained by the feelings generated by the unengaging experiences that are provided in the classroom, making cyberloafing a compensatory instrument in order to promote the individual's wellbeing.

The previous literature has indicated this path, given that Taneja et al. (2015) also signaled that apathy in relation to the material used by the teachers during the classes, as well as a lack of engagement, affect the student's attitude, which ultimately leads to cyberloafing. Yaşar and Yurdugül (2013) also highlighted that the search for relaxation affects the propensity for cyberloafing, thus, designing classes that provide moments of relaxation and that mix denser contents could be a suitable path for overcoming that propensity.

In turn, the personal precedents also exerted positive effects ($\beta = 0.45$; p-value < 0.01; $f^2 = 0.19$), however with greater intensity over cyberloafing. They incorporate aspects related to the need for contact with friends, laziness, and non-pathological technology addiction or habit.

Yaşar and Yurdugül (2013) identified that the search for rest as an attempt to recover from other extenuating commitments, such as work, may explain that relationship. Thus, there is a concern that students see the university trajectory as less relevant than other trajectories, such as the professional one, which incentivizes this trade-off of choosing cyberloafing to compensate for negative feelings to the detriment of learning.

Along these lines, escapist behaviors that foster cyberloafing can be minimized or maximized depending on how they are managed by the HEIs and by the teachers in the classroom. For example, Rana et al. (2019) and Taneja et al. (2015) highlight the role of subjective social norms, descriptive social norms, and of perceived threat in relation to cyberloafing. One path indicated by the authors to overcome these behaviors is based on the reinforcement of norms that consolidate in the students the belief that these behaviors are prejudicial to the teaching and learning process, that they are not well-seen by teachers and peers, and that they cause losses to the students' learning. By reinforcing that image, the trade-off derived from compensatory internet use tends to be minimized by the sensation of loss created by the balance between engaging in cyberloafing and actively taking part in class.

Another path to be taken to raise the students' awareness would be to shed light on the consequences of cyberloafing in the different aspects of their life. Thus, the results indicated that cyberloafing exerts positive and significant effects ($\beta = 0.30$; p-value < 0.01; $f^2 = 0.10$) over different behaviors perceived and manifested by the students. Arriving late to class and to academic meetings, procrastinating in the execution of academic activities, and isolating oneself from friends and family were the items that composed the consequences of cyberloafing. These consequences may be directly related with the students' performance, as they hinder the learning process (Baturay & Toker, 2015; Yilmaz et al., 2015).

The relationships discussed up to here considered general analyses, that is, they did not differentiate the effects based on the particularities of the subgroups of the sample. With the aim of contributing to the advancement of the nomological network that covers cyberloafing, we conducted the group comparison approaches analysis (Table 5), which indicates the effects by groupings discussed in the literature as possible differentiators of these relationships, and mentions age (Blanchard & Henle, 2008), gender (Baturay & Toker, 2015; Blanchard & Henle, 2008; Yilmaz et al., 2015), time of internet access (Baturay & Toker, 2015; Yilmaz et al., 2015), and type of HEI attended by the respondent (Taneja et al., 2015). The categories of the groupings were bigroup, in order to meet the prerequisite of the statistical technique that consists of large sample sizes and groupings with two categories (Sanchez, 2013).

Table 5
Group Comparison Approaches – Age, gender, daily internet connection time, and type of higher education institution

Paths	Effects by age				Effects by gender			
	<= 22 (n = 212)	**> 22 (n = 192)**	**Dif.**	**p-value**	**Female (n = 262)**	**Male (n = 142)**	**Dif.**	**p-value**
AP → *Cy*	0.18	0.32	0.14	0.11	0.23	0.25	0.02	0.45
PP → *Cy*	0.45	0.43	0.02	0.40	0.46	0.43	0.03	0.43
Cy → Cq	0.28	0.33	0.05	0.31	0.27	0.36	0.09	0.12

Table 5
Cont.

Paths	Effects by internet connection time				Effect by type of HEI			
	<= 6 h (n = 228)	**> 6 h** (n = 176)	**Dif.**	**p-value**	**Public** (n = 260)	**Private** (n = 144)	**Dif.**	**p-value**
AP → *Cy*	0.22	0.27	0.05	0.26	0.23	0.28	0.04	0.36
PP → *Cy*	0.50	0.37	0.13	0.06	0.43	0.43	0.00	0.49
Cy → Cq	0.23	0.34	0.11	0.08	0.27	0.42	0.15	**0.03**

Note: *HEI: higher education institution; AP: academic precedents; PP: personal precedents; Cy = cyberloafing; Cq = consequences; Dif.: differences between the effects (β) of both groups; p-value: significance of the differences between the groups; n: sample size of the group.*
Source: *Elaborated by the authors.*

As the objective of the group comparison approaches is to present the effects of the paths (β) tested for each grouping, the analysis concentrates on the differences between both groups (Dif.) and on the significance of those differences (p-value). Only in the path that exists between cyberloafing and the consequences of cyberloafing for the HEI type grouping were significant differences identified (Dif = 0.15; p-value = 0.03) between the relationships of the public HEI students (β = 0.27) compared to the private HEI ones (β = 0.42).

Taneja et al. (2015) warns that consumerism, that is, the win-win perception of students, is positively related with cyberloafing, given that those who perceive university as a service provider tend to engage more intensely in those behaviors. That win-win perception will unlikely be perceived by public HEI students, given that there is no financial cost or profit-making motive in those institutions. So, there are concerns about the possibility of students of private institutions engaging more intensely in cyberloafing perceiving more intense consequences in their lives as they see the HEI through a supplier-customer relationship.

This supplier-customer relationship has already been mapped in the Brazilian literature and reverberated in debates about the commitment, not only of the students, but of the HEI in relation to teaching quality. This scenario raises concerns about the paths, especially in the private sector, of the student-teacher-teaching institution relationship and its adherence to the teaching-learning process (Bechi, 2021).

Respecting the methodological differences between the studies, the relationships obtained through the groupings by gender, age, and internet access time contrast with the delineation provided by the findings of Baturay and Toker (2015), Blanchard and Henle (2008), and Yilmaz et al. (2015). The type of HEI embodies the environment in which the student is embedded, that is, an external variable. On the other hand, gender, age, and internet access time are objective and behavioral variables of the respondents. Therefore, it is conjectured that the theoretical approach based on TCIU is more suitable for explaining these relationships, given that demographic variables are not the main actors in that relational process.

5. IMPLICATIONS, LIIMITATIONS, AND FUTURE PATHS

Consistently with the proposed theoretical approach, this study extends the application of the scope of TCIU by linking cyberloafing behavior with an escapist strategy for minimizing the motivators derived from the academic and personal precedents. The perceived consequences of cyberloafing are pertinent contributions of the research, as they explain the effects of those behaviors over the life of the individuals.

TCIU is based on the precept that negative emotional states reverberate under cyberloafing. Although they are not directly linked to technology addiction, it is believed that these emotional states can lead to intense needs to use the internet. This conceptual pathway ruminates in an emotional need that is sometimes satisfied online since the offline environment does not create positive emotions. So, the quality of the materials, a lack of interest in the subjects discussed, difficulties understanding the material, and demotivation with the course, which compose the academic precedents, are elements to be observed by the educational actors in order to overcome this relationship identified here.

In theoretical terms, TCIU represents a suitable theoretical lens for explaining the relationships of the monological network of cyberloafing analyzed in the path model. Thus, the approach that guides UGT can be explicitly and/or implicitly used to complement TCIU, but we do not recommend giving protagonism to demographic characteristics in that discussion. This conclusion is

based on the fact that, by focusing on the environment in which the individual is embedded and the environmental exchanges that lead to engagement in cyberloafing, and not on demographic variables, there is the possibility of promoting advancements in the theoretical and practical discussions regarding the understanding of cyberloafing. Unlike demographic characteristics, the environment is an open field that can be manipulated with the aim of being modified, with this expansion of TCIU being the main theoretical implication of the research. Below, some practical implications are presented with the aim of indicating interventions in the university environment.

One of the main recommendations of the study is to implement policies that promote the conscious use of mobile devices and of the internet in the classroom. Participation in courses and workshops can also be incentivized in the process of adapting teachers in relation to the use of these tools in the classroom. Activities that involve gamifacation elements are indicated in the literature as pertinent for promoting the state of flow and wellbeing of the students and, consequently, minimizing negative feelings that drive the students' compensatory behavior of engaging in cyberloafing. Examples of strategies and tools that can be used include the use of a virtual quiz (e.g., Kahoot! and Mentimeter) and the application of online games and competitions between the students. The quality of the material is also a factor to be observed by the teachers. In their presentations, the use of vibrant colors and figures instead of excessive texts is one example of a proposed alteration. The integration of the discipline with social media is pertinent, for example posting works on social networks such as Facebook and Instagram.

Finally, it is worth highlighting that, from a wider perspective, by impairing the students' learning, the excessive and personal use of the internet and technological devices in the classroom can ultimately be linked to organizational effectiveness, since various performance indicators of HEIs (e.g., the score in the National Student Performance Exam – Enade and the pass rate in the Sufficiency Exam of the Federal Accounting Council – CFC) are linked to the students' level of knowledge, and these indicators represent important marketing and publicity tools for the organization.

Based on the findings presented and on the discussions held, we intend to contribute socially by drawing attention to the formation of students engaged throughout the classes, making the teacher-student and student-student relationship more effective within the learning environment. We expect these efforts to reflect in the training of professionals prepared for the organizational demands and that serve as an example for the conscious use of the internet and of technological devices throughout their professional practice.

The temporal cut of the research, the non-probabilistic sample, and the interruption of the data collection due to the COVID-19 pandemic are items that hinder the generalization of the results beyond the sample studied. The data were collected based on self-reporting, but future studies could employ other techniques for collecting evidence, such as interviews. Moreover, studying cyberloafing together with behavioral variables, such as subjective wellbeing and life satisfaction, represents a research opportunity that could be explored. The research findings also shed light on the possibility of analyzing the relationship between students' cyberloafing behavior and HEI performance in different assessment models (e.g. Enade score or *Guia do Estudante* score).

6. CONCLUSION

The technological advances and the characteristics of the new generation of students, considered as digital natives, shed light on the relevance of the discussion of the topic both at the individual and at the organizational level. Personal and academic precedents were significantly related to cyberloafing, which, in turn, lead to different consequences in the life of the individuals. The research symbolizes an important step in the study of the topic in the national accounting literature and contributes in the international arena with a joint analysis of the precedents and consequences of cyberloafing.

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