Impostor Phenomenon, Social Comparison Orientation, and *Cyberloafing* During Classes Among Undergraduate Accounting Students

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Abstract

Objective: The impostor phenomenon (IP) is a psychological mechanism involving many factors and consequences. Due to its multiple consequences and interactions, it has gained prominence in the Brazilian and international literature. This study presents evidence of a potential relationship between social comparison and the use of social media. It analyzes the relationship between IP and *cyberloafing* on social media during classes, mediated by undergraduate accounting students' social comparison orientation (SCO).
Method: This study surveyed 502 Accounting Sciences students, and ANOVA tests and structural equation modeling were performed.
Results and contributions: Significant differences were found between the level of IP and *cyberloafing* and ability-based and opinion-based SCO. Nonetheless, the relational model did not confirm whether SCO moderates this relationship. Such a result indicates that SCO drives the effects of IP on *cyberloafing* practiced on social media during classes. One of this study's contributions concerns the importance of observing these variables within the scope of teaching policies and teaching methodologies.
Keywords: Impostor Phenomenon; Social Comparison Orientation; *Cyberloafing*; Accounting Students.

1. Introduction

The Impostor Phenomenon typifies people who consider themselves intellectual fraud and attribute their success to luck, chance, hard work, or knowing influential people, avoiding linking their success to talent and intelligence (Clance, 1985).

Cyberloafing in the university context is characterized by using the Internet and electronic devices for distraction (Baturay & Toker, 2015; Blanchard & Henle, 2008; Kim & Byrne, 2011; Yaşar & Yurdugül, 2013). Cyberloafing is conjectured to be maximized by behavioral patterns characteristic of the impostor cycle. The reasoning is that the Model of Compensatory Internet Use (CIUM) advocates that cyberloafing is a strategy to cope with and compensate for negative emotions generated by stressful situations (Kardefelt-Winther, 2014). Fassl *et al.* (2020) state that hard work and extreme dedication embodied in the impostor cycle lead to higher levels of stress, relating this behavior to the adoption of cyberloafing, which also embodies self-sabotage and postponement of commitments listed in the behavioral cycle of those who suffer from the Impostor Phenomenon (Fassl *et al.*, 2020; Ramm, 2019).

Studies suggest that the most common form of cyberloafing in the university context is accessing social networks such as Facebook, Instagram, Twitter, TikTok, and WhatsApp (Meurer & Costa, 2021; Müller *et al.*, 2020; Yaşar & Yurdugül, 2013). Furthermore, Ramm (2019) and Fassl *et al.* (2020) note that social networks are ideal for those with higher levels of IP to make social comparisons.

Social comparison is empirically based on Social Comparison Orientation (SCO), which concerns an innate need to compare oneself with the skills and opinions of others and obtain feedback on how to improve such characteristics (Fassl *et al.*, 2020; Gibbons & Buunk, 1999). Social comparison tends to be more intense among those with low self-esteem experiencing high-stress levels (Gibbons & Buunk, 1999). There is a concern that SCO is affected by more intense levels of IP and maximizes cyberloafing, considering that IP is suggested to precede low self-esteem and stress (Fassl *et al.*, 2020) and may lead to social comparison (Clance, 1985).

The Royal Society for Public Health (2017) warns that social comparison on social media might increase anxiety and feelings of social inadequacy. This is particularly relevant for accounting students, who are often characterized as introverted, less communicative, or apprehensive about communicating (Lima *et al.*, 2021; Roberts *et al.*, 2022). These characteristics encourage them to use social media to seek support and relationships in the offline world (Cramer, Song, & Drent, 2016; Meier, Esmatyar, & Sarpong, 2019).

In the professional context, Kuselias *et al.* (2021) show that obtaining and assessing auditing evidence is impaired when auditors view posts about other people's rewarding experiences. On the other hand, when such content refers to professional aspects, the quality of their work increases. These findings reinforce the topic's relevance beyond the university educational process, encompassing professional activity.

Still, in the organizational context, it is essential to consider that IP affects the behavior of organizational leaders, being more prevalent among those in managerial positions. Although one can address the work environment's contextual factors to minimize the effects of IP, such feelings are deeply rooted during the educational phase. Hence, considering that the current generation of Accounting students will become leaders or assist the leaders of organizations in the coming years, observing this process during their training might substantially contribute to minimizing IP (KH & Menon, 2022).

Despite evidence in the literature, there remains a latent gap in studies addressing impostor feelings through SCO. The information flow available on social networks is attractive for making social comparisons, and SCO is believed to mediate the relationship between IP and cyberloafing on social networks; evidence suggests this possibility (Lee, 2014; Vogel *et al.*, 2015; Vogel *et al.*, 2014). Therefore, this study aims to analyze the relationship between the Impostor Phenomenon and cyberloafing practiced on social networks during classes mediated by the Social Comparison Orientation of undergraduate students in the Accounting Science program.

This study aims to support a process of sensitizing students to use social media responsibly, as cyberloafing is linked to poor academic performance, student demotivation, and teacher frustration (Baturay & Toker, 2015). Scientific research contributes to mapping the variables linked to cyberloafing, as the literature indicates that unattractive classes with traditional methodologies are among the elements encouraging such behavior during classes (Alt, 2017; Meurer & Costa, 2021).

By investigating Accounting Science students, we seek to support the training process of professionals, considering that IP, SCO, and cyberloafing affect the performance of these professionals (Kuselias *et al.*, 2021; KH & Menon, 2022).

2. Development of Hypotheses and Research Model

In 1978, Dr. Pauline Rose Clance and Dr. Suzanne Ament Imes introduced the Impostor Phenomenon into the scientific literature. Clance and Imes dedicated half a decade to studying and observing a group of approximately 150 successful women with a high educational level in various fields who were academically recognized and professionally respected but held strong beliefs of intellectual incapacity. They did not personally experience a sense of success, manifesting feelings of impostorism and intellectual fraud.

Recently, studies have begun to observe different social groups in different environments and regions, contributing to popularizing the topic (e.g., Chassangre & Callahan, 2017; Houseknecht, Roman, Stolfi, & Borges, 2019; Meurer & Costa, 2020; Pulliam & Gonzalez, 2018). Although IP was coined in the 1970s, there has been an exponential growth in the number of academic investigations and popular literature since 2010 (Bravata *et al.*, 2020).

This growing body of research has contributed to discussing behavioral characteristics caused by impostor feelings. IP was introduced by Clance and Imes (1978) and Clance (1985) and summarized by Clance and O'Toole (1987). The behavioral and psychological patterns of impostors include overestimating the abilities of others and underestimating their own (Clance & O'Toole, 1987). Chayer and Bouffard (2010) indicate that this behavioral pattern is operationalized by mapping others' abilities and opinions, which leads individuals with impostor feelings to base self-assessment disconnected from reality but is also a means of reproducing and reinforcing impostor beliefs. Therefore, the overestimation of the abilities of others and the underestimation of one's own abilities are the main behavioral patterns of the IP that can be linked to SCO.

Festinger (1954) introduced social comparison by postulating that people have an innate drive to self-evaluate, comparing themselves to others. Next, when verifying that social comparison processes may differ in direction and frequency, Gibbons and Buunk (1999) proposed the concept of Social Comparison Orientation, which advocates that social comparison is when one compares himself/herself with others' skills or opinions. Skill-based SCO is concerned with comparing performance from a perspective of relative classification, in which the individual identifies whether he or she has superior, inferior, or equal skills to those of others. In opinion-based SCO, beliefs, thoughts, and values are compared, i.e., the individual analyzes, with a lens of consensual precision, whether he or she agrees or disagrees with what s/he observes (Liu, Elliot, & Li, 2020).

In the educational context, social comparison enables students to obtain feedback that helps them structure and define their aspirations and goals and evaluate their performance (Chayer & Bouffard, 2010). There is evidence that social comparison is adopted more frequently by those with higher stress levels and insecurity regarding their abilities and opinions (Chayer & Bouffard, 2010; Festinger, 1954). As IP implies an increase in the level of stress and insecurity, it is pertinent to propose that a greater tendency of individuals to experience impostor feelings at more intense levels induces the adoption of SCO-based behaviors (Fassl *et al*., 2020)which can cause distress and might result in poor mental health. A phenomenon that was shown to be linked to low self-esteem, higher stress levels, anxiety, and depression in university students is the impostor phenomenon. Impostorism is defined as a conviction to be unintelligent despite one's academic success and was found to be closely associated with psychological femininity in previous studies. Research has also shown that people who experience higher stress levels, self-doubts, and a low self-esteem tend to engage in social comparison processes more often. Therefore, the present study aimed to explore the relationship between gender typing and impostor feelings and to investigate a possible influence of social comparison orientation on the aforementioned association. For this purpose, 278 university students (73.7% women.

Furthermore, since Clance and Imes (1978) formulated the IP, social comparison has figured as a behavioral pattern adopted to compare oneself to peers, promoting one's feelings of inadequacy. Another piece of evidence indicating this relationship is that perfectionism, sometimes a behavior of people with impostor feelings (Clance, 1985), is consolidated from upward social comparisons (Ramm, 2019).

Chayer and Bouffard (2010), Ramm (2019), and Fassl *et al*. (2020) addressed the potential relationship between SCO and IP. Chayer and Bouffard (2010) examined the relationship between social comparison and impostor feelings among high school students. The results showed a positive relationship between impostor feelings and social comparison among boys. Ramm (2019) addressed Psychology undergraduate students and found that social comparisons through social media positively affect IP, considering that social media is a channel that facilitates upward social comparison, both of skills and opinions. Fassl *et al*. (2020) also found evidence among college students that SCO is related to IP.

An inverse relationship is hypothesized in this study, i.e., IP is an antecedent of SCO. Hence, social comparison is adopted as an empirical way to enable underestimating one's skills and overestimating others' skills to perpetuate impostor feelings. Considering that Buunk et al. (1990) state that the effects of social comparison may be associated with an individual's personality characteristics, the Theoretical Hypothesis 1 (HT1) is proposed: **Higher levels of Impostor Phenomenon positively affect the Social Comparison Orientation of Accounting Science students.**

Considering a world where technological devices and Internet access are widespread, there is evidence that social networks may be used for social representation and comparisons (Chou & Edge, 2012). Cyberloafing has been considered as an attitudinal approach that enables maximizing the frequency of social media use, as, in conceptual terms, cyberloafing is considered counterproductive (Akbulut, Dönmez, & Dursun, 2017), as it characterizes internet access for purposes unrelated to formally proposed activities, such as work or educational activities (Baturay & Toker, 2015).

Social networks comprise a continuous flow of information updated daily by different users and function as a feedback mechanism enabling the operationalization of social comparisons (Müller *et al.*, 2020). Appel *et al.* (2016) report that social comparison is ubiquitous on social networks, as there is a high availability of information, such as the number of friends, places people attend, photographs, and mini-resumes, among others. There is cross-sectional evidence that the frequency of social network use is positively affected by social comparison (Lee, 2014; Vogel *et al.*, 2015; Vogel, Rose, Roberts, & Eckles, 2014)an individual difference variable called social comparison orientation (SCO.

Lee (2014) found that the frequency of social comparison on Facebook is positively affected by SCO and that the frequency of negative feelings arising from social comparisons on Facebook is negatively associated with an individual's self-esteem. Similarly, Vogel *et al.* (2014) found that the frequency of Facebook use is positively related to upward and downward social comparisons, which, in turn, negatively affect self-esteem. Vogel *et al.* (2015) confirmed a positive influence of Social Comparison Orientation on Facebook usage patterns. These findings lead to a potential relationship between SCO and cyberloafing.

This study addresses the innate drive of SCO, which leads to more intense social media use, specifically during classes, as a form of cyberloafing. The Compensatory Internet Use Model supports this relationship since cyberloafing is affected by an individual's emotional and psychological state (Kardefelt-Winther, 2014), and this state is shaped by SCO (Smith, 2000). Based on the previous discussion, the second Theoretical Hypothesis 2 (HT2) is proposed: **Social Comparison Orientation positively affects cyberloafing practiced on social media by Accounting Science students during classes.**

IP occurs through cyclical behavior (impostor cycle), reinforcing these feelings with each new experience in which an individual's skills are tested. In the impostor cycle, people with impostor beliefs tend to adopt two strategies when faced with professional, academic, or personal challenges. The first strategy involves hard work, workaholic behaviors, and fierce dedication to completing tasks.

The second concerns procrastination and delaying the performance of tasks. Both strategies result in different ways of assimilating success when it is achieved. In the first case, the good results are attributed to hard work, while luck or chance explains success in the second case. However, both maximize the individuals' internal pressures when facing future challenges, as success is not considered innate but exogenous to an individual's skills (Chassangre & Callahan, 2017).

By procrastinating tasks and commitments, people with higher levels of IP end up engaging in self-sabotage in an attempt to protect their image from potential failures, considering that if the desired result is not achieved, they can attribute it to procrastination rather than functional or intellectual limitations (Clance, 1985; Ramm, 2019). One of the behaviors that may be adopted to procrastinate is cyberloafing on social networks due to their easy access and wide range of possibilities for distraction. On the other hand, those who dedicate themselves arduously to activities may also adopt cyberloafing to alleviate pressure and stress.

Another argument that reinforces this potential relationship is based on the fact that people with higher levels of impostor feelings have an intense need for social acceptance (Ferrari & Thompson, 2006). Thus, social networks are a field where social interactions can be maximized. Since one's image digitally shared on social networks can be altered and interpreted in different ways, as it is based on situational impression management (Nartgün *et al.*, 2017), individuals with more intense levels of impostorism may use these platforms more intensely, both to procrastinate and to perform impression management. Therefore, the third Theoretical Hypothesis 3 (HT3) states that: **The level of Impostor Phenomenon positively affects cyberloafing practiced on social networks by Accounting Science students during classes.**

Individuals with more intense levels of impostor feelings seek to balance feedback with their self-perception, often making dissonant comparisons of reality, which leads them to believe that they are not good enough. When these comparisons occur on social media, they may increase the use of this toolkit, as impostors may dedicate more time to editing the content posted on their social media profiles to fit into perceived social norms and perform impression management of their potential weaknesses (Ramm, 2019). Due to this relationship, social comparison is believed to mediate the relationship between the Impostor Phenomenon and cyberloafing; SCO may condition the attitudes and content shared on online platforms based on the innate impulse to contrast with how others act and think. Therefore, Theoretical Hypothesis 4 (HT4) proposes that: **The level of the Impostor Phenomenon of Accounting Science students is positively related to cyberloafing practiced on social networks during classes, mediated by Social Comparison Orientation.**

Based on the previous hypotheses, the relational theoretical model was tested in this study and is presented in Figure 1.
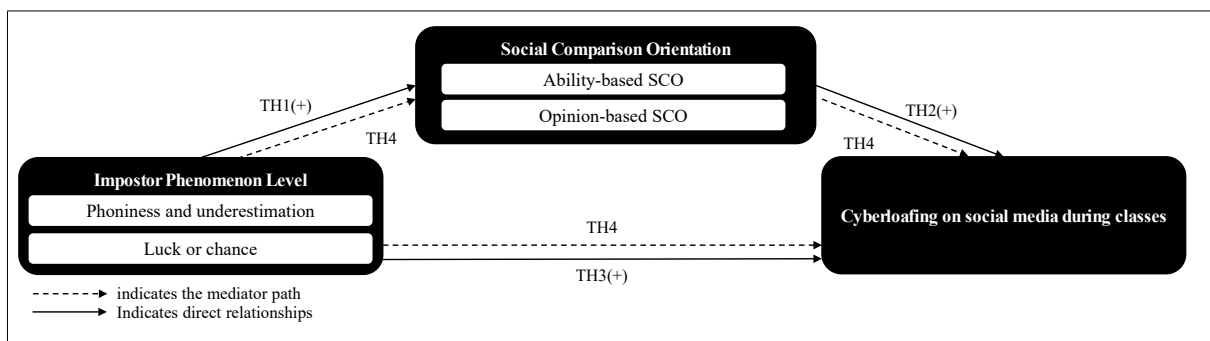
Source: developed by the authors (2022).

Figure 2. Relational Theoretical Model

The mediation hypothesis test is analyzed considering the conditions proposed by Baron and Kenny (1986). The first condition requires that variations in the independent variable levels are responsible for variations in the presumed mediating variable (HT1). The second condition states that variations in the presumed mediating variable are responsible for variations in the dependent variable (HT2). When testing the mediating path, a previously existing relationship between the independent variable and the dependent variable (HT3) ceases to be significant or is reduced to zero. Meanwhile, the relationships of the first two conditions remain significant. If this occurs, one might state the existence of total mediation, if it is not reduced to zero, there will be partial mediation (HT4).

3. Methodological Path

3.1 Data Collection and Participants

The study population comprises Brazilian students enrolled in Accounting programs in the brick-and-mortar modality registered with the Ministry of Education (MEC) in 2021. The 1,639 programs have 227,302 authorized vacancies. This figure approximates the population, as the authorized vacancies do not represent the number of students actually enrolled in institutions. Data were collected using the Survey Monkey® platform in October and November 2021. Invitations were sent to the programs' coordinators, and 850 responses were obtained; incomplete responses or responses from individuals not attending the program of interest were discarded (n excluded = 348). Therefore, the final sample comprised 502 valid responses.

3.2 Instruments

The instruments used to collect data include a) the Iowa-Netherlands Comparison Orientation Measure (INCOM) scale (Gibbons & Buunk, 1999), which measured Social Comparison Orientation. INCOM was adapted and culturally validated for the Brazilian context following the protocol by Borsa *et al.* (2012): 1) the instrument was translated from the source language to the target language, and a reconciled version was obtained. Five translators participated in this stage, two of whom were native English speakers, fluent in Portuguese; 2) nine judges expert in the field of Psychology, affiliated with graduate programs in different regions of Brazil, experienced with the development, validation, and evaluation of research instruments assessed the reconciled version; 3) the Brazilian version was also assessed by its target audience through individual interviews together with six Accounting students; 4) back translation; 5) the adapted scale was then sent to the original author (Professor Rick Gibbons); 6) a pilot study was applied to nine students; and finally, 7) its factor structure (psychometric validation) was assessed.

Eleven statements comprise the INCOM and compare the skill-oriented (items 1 to 6) and opinion-oriented comparisons (items 7 to 11); items 5 and 11 are reversed. An example of statements: "If I want to learn more about something, I try to find out what other people think about it." The Structural Equation Modeling technique showed that item 11, "I never consider my situation in life relative to that of other people," needed to be excluded due to its low external loading (<0.40). A CFA individually performed without this item enabled the application of the SEM and presented improvements in the factor indicators: 0.505 to 0.832 and satisfactory adjustment indices ($\chi2$ (df) = 53.24 (34) - p-value = 0.019; $\chi2$/df = 1.57; CFI = 0.995; TLI = 0.993; NFI = 0.986; IFI = 0.995; GFI = 0.994; SRMR = 0.041; RMSEA (90%CI) = 0.034 [0.014 – 0.050]; Factor covariance = 0.45 - p-value < 0.001) (Hair Jr, Black, Babin, Anderson, & Tatham, 2009; Kline, 2005; Marôco, 2014).

Cyberloafing on social networks was measured considering the sharing dimension of the scale proposed by Akbulut *et al.* (2016), composed of 9 items. This scale was also culturally adapted and validated following the protocol by Borsa *et al.* (2012), following the same steps previously described and applied to INCOM. Considering only the cyberloafing statements, the CFA indicated factor loadings ranging from 0.552 to 0.890. The adjustment indices were satisfactory and indicated χ^2 (df) = 90.566 (27) - p-value < 0.001; χ^2/df = 3.35; CFI = 0.981; TLI = 0.974; NFI = 0.973; IFI = 0.981; GFI = 0.989; SRMR = 0.076; RMSEA (90%CI) = 0.069 [0.053 – 0.084] (Hair Jr. *et al.*, 2009; Kline, 2005; Marôco, 2014). One example of statement would be: "I look at my friends' posts on social media."

Impostor Phenomenon: The Clance Impostor Phenomenon Scale (CIPS) developed by Clance (1985) and validated by French *et al.* (2008) and Meurer and Costa (2020b) was used. Initially, the scale comprised 20 statements. French *et al.* (2008) and Meurer and Costa (2020) found the need to exclude items 1, 2, 19, and 20 because they presented low factor loadings. Hence, the final version remained with 16 items rated on a 5-point numerical scale. The IP is divided into two factors: "Fake and Discount." The model fit indices were satisfactory: (χ^2(df) = 124.185 (103) - p-value < 0.001; χ^2/df = 1.20; CFI = 0.998; TLI = 0.998; NFI = 0.989; IFI = 0.998; GFI = 0.993; SRMR = 0.043; RMSEA (90% CI) = 0.020 [0.000 – 0.033]) (Hair Jr *et al.*, 2009; Kline, 2005; Marôco, 2014). The following exemplifies the statements: "I avoid evaluations if possible and have a dread of others evaluating me."

Ethical concerns: This study is part of a doctoral completion project registered with the Institutional Review Board CEP/SD at the institution where the authors are affiliated under No. 42700921.8.0000. A free and informed consent form was available to the participants ensuring the confidentially of their identifies and information provided, and the freedom to withdraw at any time.

Methodological concerns: The guidelines proposed by Chang et al. (2010) were adopted to minimize the common method bias derived from the collection of self-reported data, with dependent and independent variables being simultaneously collected in a cross-sectional design. Hence, the questionnaire blocks were not presented in the order of the relationships tested to prevent the relationships of the structural model became evident. The Harman test was also performed to estimate an exploratory factor analysis (EFA), which indicated the absence of multicollinearity between the items (Hair *et al.*, 2014).

The analysis of a potential non-response bias by those respondents who completed the questionnaire at the end of data collection was performed by dividing the sample between the first 251 (group 1) and the last 251 (group 2) responses, and a t-test of differences was applied between the groups. Af Wåhlberg and Poom (2015) state that the respondents who completed the study last tend to resemble non-respondents, supporting the importance of mapping potential differences in these groups' response patterns.

These treatments indicate that potential methodological biases are minimized, as no significant differences were found between the two groups (p-value > 0.05).

3.2 Data analysis techniques

The Robust Diagonally Weighted Least Squares (RDWLS) method was used to adapt the CFA to categorical data derived from measurement using a Likert scale.

Structural Equation Modeling included Partial Least Squares Path Modeling (PLS-PM). SEM enables the modeling of latent variable relationships and the estimation of complex models for non-normal data (Henseler, Ringle, & Sarstedt, 2015). The minimum sample estimate was calculated with the aid of G*Power 3.1.9.2® with the parameters Effect size $f^2 = 0.15$, a significance level of 5% (α error probability = 0.05), Power (1-β error probability) = 0.95, and Numbers of predictors = 4 indicating a minimum number of 129 respondents to enable the use of SEM.

ANOVA-One Way was performed to verify potential differences in the SCO facets and cyberloafing at the different IP levels. IP levels were determined according to the scores obtained in the CIPS: a score of 16 to 32 points refers to "Few IP experiences," from 33 to 48, "Moderate IP experiences," a score of 49 to 64 points is classified as "Frequent IP experiences," and from 65 to 80 "Intense IP experiences."

To overcome the non-normality of data identified in the Kolmogorov-Smirnov test and a lack of homogeneity of variances verified in the Levene test, the simple bootstrapping method with 1,000 resamplings, with a 95% bias-corrected and accelerated confidence interval (BCa) was used. Welch's correction and post-hoc evaluation using the Games-Howell technique were needed to overcome the heterogeneity of variance. Group Comparison Approaches based on the bootstrap t-test were applied (Sanchez, 2013) to consider the Impostor Phenomenon levels in the sample in a broad analysis of potential differences at the level of the causal network, at the structural level, at the measurement level, and the level of latent variables.

4. Results

4.1 Descriptive Analysis

In this study, 325 (64.74%) participants reported being women, and 177 (35.26%) reported being men. The respondents were 24.84 on average (Median = 22; Standard deviation = 7.46), with a minimum of 17 and a maximum of 62 years; 187 (37.25%) students were attending the program's first year; 101 (20.12%) were attending the second year; 90 (17.93%) the third year; 84 (16.73%) in the fourth year; and 40 (7.97%) students were attending the fifth year; five years is the program's total duration in some institutions. Regarding the location of the respondents' educational institutions, 237 (47.21%) students were enrolled at a Higher Education Institution (HEI) located in the South, 94 (18.73%) in the Northeast, 73 (14.54%) in the Midwest, 59 (11.75%) in the Southeast, and 39 (7.73%) were in the North. Regarding the type of HEI, 378 (75.30%) were enrolled in public educational institutions, followed by 123 (24.50%) from private educational institutions and one (0.20%) from a community institution.

WhatsApp is the social network most frequently used (n = 257; 51.20%), followed by Instagram (n = 179; 35.66%), Twitter (n = 22; 4.38%), Facebook (n = 15; 2.99%), Tik Tok (n = 9; 1.79%), Telegram (n = 6; 1.19%), LinkedIn (n = 5; 1%), and others (n = 9; 1.79%), such as YouTube, Discord, Twitch, and WeVerse. Only WhatsApp (98.80%), Instagram (87.85%), and Facebook (63.94%) are accessed by more than 50% of survey participants.

Additionally, the largest number (191; 38.05%) of respondents manifested moderate impostor feelings; followed by 153 respondents (30.48%), classified under frequent IP experiences. Individuals reporting few impostor feelings comprised 113 participants (22.51%). Finally, 45 respondents (8.96%) reported intense IP experiences. Such scores were higher than those found by Matos (2014).

4.2 Multivariate analysis and hypothesis testing

The SEM assessment consists of analyzing the measurement and structural models. The measurement model's analysis indicators, shown in Table 1, assess the internal consistency and independence of the latent variables through convergent validity and discriminant validity.

Table 1

Measurement model – Convergent validity and discriminant validity indicators

Variables and indicators	1	2	3	4	5
Convergent validity					
Composite Reliability	0,928	0,899	0,844	0,820	0,900
Average var. extracted (AVE)	0,503	0,748	0,474	0,536	0,502
Discriminant validity - Fornell-Larcker Criterion and Heterotrait-Monotrait Ratio (HTMT)					
1. IP – Fake and Discount	*0,709*	0,601	0,573	0,174	0,130
2. IP – Luck or chance	0,524	*0,865*	0,334	0,131	0,194
3. Skill-based SCO	0,508	0,278	*0,689*	0,446	0,222
4. Opinion-based SCO	0,133	0,074	0,335	*0,732*	0,288
5. CL – Cyberloafing	0,118	0,175	0,207	0,234	*0,708*
Standardized root mean square residuals (SRMR)					0,062

Note: n = 502; 1the matrix's lower portion presents a correlation between the constructs.

Source: developed by the authors (2021).

Convergent validity verifies whether the statements can cluster and measure the latent variable (Sanchez, 2013). AVE indicates how much of the items' variation was considered in the formation of the latent variable, with values above 0.50 being recommended and above 0.40 being accepted (Hair Jr. *et al.*, 2014). Except for the skills dimension (AVE = 0.474), all other variables scored above 0.50. Composite reliability assessed the items' internal consistency and met the desired parameter above 0.70 for all latent variables (Sanchez, 2013).

The discriminant analysis enables mapping the distinction between the variables, indicating how much each variable differs empirically from the others (Hair Jr. *et al.*, 2014). The Fornell-Larcker criterion was analyzed; the square root of the construct's AVE must be greater than the correlations with the other latent variables, which was met. Finally, it was verified that the Heterotrait-Monotrait Ratio (HTMT) was adequate since all values found were below 0.85. (Henseler *et al.*, 2015).

The structural model inherent to the relationship between the latent variables was examined based on this study's theoretical construction. Table 2 presents the effects obtained by bootstrapping with 5,000 resamplings and the original effects, standard error, t-statistics, and p-value of the verified relationships added to the variance explained by the relationships (R^2), the effect size (f^2) and the redundancy (Mean_ Redundancy – Q). In this initial model, called the general model, the potential specificities of the relationships from the level of the Impostor Phenomenon were not verified. The direct model and the mediating model are presented in order to analyze the conditions of Baron and Kenny (1986).

Table 2
Structural Model

H	Paths	Mean.Boot (Original)	p-value	R^2	f^2	Hypothesis decision
	Mediating model (set)					
HT1	IP – Luck or chance → SCO - Opinions	0,005 (0,006)	0,922	1,80%	0,000	Suporte parcial
	IP – Fake and Discount → SCO - Opinions	**0,135 (0,129)**	**0,028**		**0,012**	
	IP – Luck or chance → SCO - Skills	0,017 (0,017)	0,701	25,80%	0,000	
	IP – Fake and Discount → SCO – Skills.	**0,505 (0,499)**	**0,000**		**0,243**	
HT2	*SCO – Skills → Cyberloafing*	**0,130 (0,128)**	**0,024**	9,10%	**0,012**	Suportada
	SCO – Opinions → Cyberloafing	**0,195 (0,186)**	**0,000**		**0,034**	
HT3	*IP – Fake and Discount → Cyberloafing*	-0,053 (-0,052)	0,409		0,002	Suporte parcial
	IP – Luck or chance → Cyberloafing	**0,154 (0,153)**	**0,004**		0,019	
	Direct model (isolated)					
HT4	*IP – Fake and Discount → Cyberloafing*	0,092 (0,071)	0,294	3,90%	0,004	Suporte parcial
	IP – Luck or chance → Cyberloafing	**0,153 (0,151)**	**0,005**		**0,017**	

Source: developed by the authors (2021).

Figure 2 presents the relationships identified and tested.
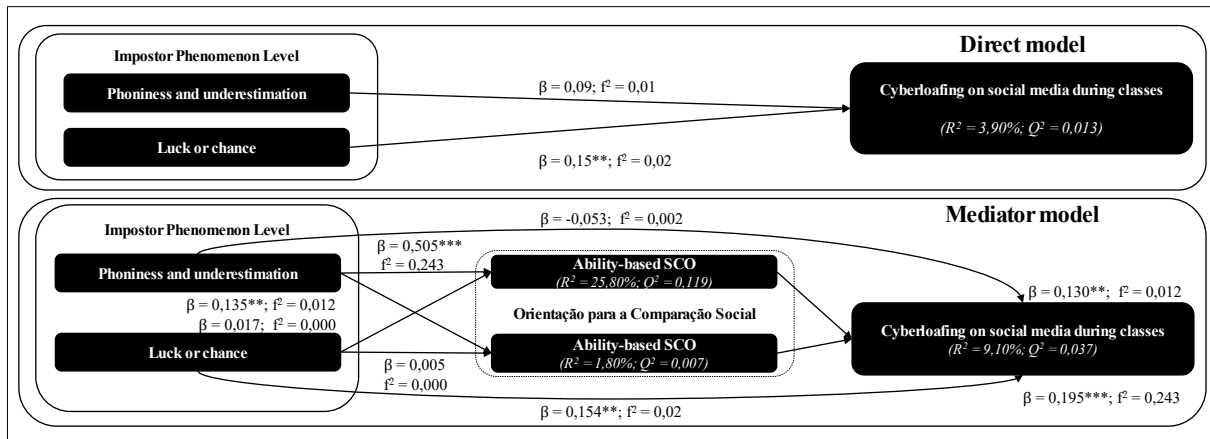
Note: H = Hypothesis; *** significance at 1%; ** significance at 5%.

Source: developed by the authors (2022).

Figure 2. Representation of the structural models

The structural relationships of the mediating model indicate that the IP fake and discount dimension can positively affect the skills comparison (β = 0.505; p-value = 0.000) and opinions comparison (β = 0.135; p-value = 0.028) facets. No significant effects were identified on the SCO factors regarding the luck or chance dimension. Thus, hypothesis HT1 was partially supported.

The theoretical arguments discussed by Clance (1985) and the theoretical and empirical evidence presented by Chayer and Bouffard (2010) echo the effects found here. Students with higher levels of IP, especially in the dimension of fake and discount, are more likely to compare skills and opinions, with the first relationship being more intense. Low self-esteem and comparison bias in terms of underestimating one's own skills are consistent with a scenario that encourages social comparisons. Festinger (1954) argues that low self-esteem, stress, and insecurity regarding one's own skills are notable in those who frequently make social comparisons. Such characteristics are also found among individuals who experience impostor feelings, explaining the relationships identified here (Chayer & Bouffard, 2010).

The fact that luck or chance does not significantly affect the SCO facets is possibly explained from a behavioral perspective, in which the insecurity arising from fake and discount feelings produces consequences in the way individuals evaluate themselves in comparison to others, in particular, defining as a parameter to compare with people they judge to be better than themselves (Festinger, 1954).

Hypothesis HT2 was supported by the positive effects of dimensions skill-based SCO (β = 0.130; p-value = 0.024) and opinion-based SCO (β = 0.195; p-value = 0.000) on cyberloafing practiced by students on social networks during classes.

Creating content, interacting with friends and followers, and reading updates in stories and feeds, among countless other actions, means that social networks offer a continuous flow of information that can be accessed at any time and used as objects of comparison by those with higher SCO levels. Thus, the relationships proposed by this study's second hypothesis were supported.

These results add evidence to the study by Lee (2014), Vogel *et al.* (2014), and Vogel *et al.* (2015), which indicated that SCO positively affects the use of social networks. In theoretical terms, the practice of cyberloafing on social networks during classes being encouraged by SCO confirms Festinger's (1954) propositions about the innate drive and a search for varied channels to seek information and practice SCO. The Theory of Compensatory Use of the Internet also supports this notion, considering that SCO may lead to negative feelings, causing escapist behavior in the search for well-being via social networks. Theoretical knowledge also advances by indicating the point of intersection between Kardefelt-Winther's Theory of Compensatory Use of the Internet (2014) and Festinger's Theory of the Social Comparison Process (1954) considering that 1) SCO leads to a search for interpersonal information and 2) social networks are spaces that can initially alleviate negative emotions. These theories propose these assumptions, corroborating this study.

This study's third hypothesis (HT3) was partially supported, as the luck or chance dimension positively and significantly affected cyberloafing practiced on social networks during classes ($\beta = 0.130$; p-value = 0.024). As detailed by Clance (1985) and expanded upon by Chassangre and Callahan (2017), people who experience IP are trapped in a behavioral cycle of extreme work and procrastination.

From this cycle's perspective, practicing cyberloafing on social networks during classes might be adopted as self-sabotage to perpetuate impostor feelings. At the macro level, people with higher IP levels have an inherent need for social acceptance (Ferrari & Thompson, 2006), and social networks appear as a strategy to meet such needs, including during classes.

The assessment of HT4 was guided by the conditions established by Baron and Kenny (1986). The first condition of a positive relationship between the independent variable and the presumed mediating variable was met for the paths IP – Fake and Discount → opinion-based SCO ($\beta = 0.135$; p-value = 0.028) and IP – Fake and discount → Skill-based SCO ($\beta = 0.505$; p-value = 0.000). The second condition is that the presumed mediating variable affects the dependent variable; in this case, the paths Skill-based SCO → Cyberloafing ($\beta = 0.130$; p-value = 0.024) and Opinion-based SCO → Cyberloafing ($\beta = 0.195$; p-value = 0.000) met this condition. The third condition states that in the model with a mediating path, the effect of the independent variable on the dependent variable will be reduced or zeroed, with the relationships of the first two conditions remaining significant. In this case, although there is a significant relationship in the path IP – Luck or chance → Cyberloafing ($\beta = 0.153$; p-value = 0.005), mediation is not supported since there is a slight increase in the effect of this relationship in the mediating model ($\beta = 0.154$; p-value = 0.004), and no significance in the relationship between IP – Luck or chance with the SCO facets.

In this sense, the direct relationship between IP and cyberloafing partially supports HT4 but does not confirm the mediating effect of SCO in this relationship. Note that the indirect path between Impostor Phenomenon → Social Comparison Orientation → Cyberloafing practiced on social networks during classes presents different significant relationships and increases the percentage of the variance of the dependent variable explained by the independent variables since there is an increase in R^2 from 3.90% to 9.10%.

Therefore, the results indicate that SCO is not a condition that can minimize the direct effects of the relationship between IP and cyberloafing practiced on social networks during classes but a condition that maximizes the explanatory power of the relationship between IP and cyberloafing. Considering that SCO is part of the same relational chain, its ability to relate to such variables cannot be ignored. IP and SCO act together and positively affect cyberloafing practiced during classes; hence, they should be observed together.

The normality of data was tested using the Kolmogorov-Smirnov and Shapiro-Wilk tests (p-value < 0.050) to verify differences between SCO and cyberloafing based on IP levels, and the absence of homogeneity of variances was confirmed for cyberloafing (Levene = 3.368; p-value < 0.050). The One-way ANOVA with Welch's Correction indicated the existence of differences in the mean of skill-based SCO (F = 38.080; p-value < 0.000), opinion-based SCO (F = 4.960; p-value < 0.003), and cyberloafing (F = 3.364; p-value < 0.020). Next, Group Comparison Approaches were used to verify potential differences between the relationships tested based on the groupings according to the level of the Impostor Phenomenon. When isolating these groupings, the R^2 determination coefficients did not differ.

Overall, although the relationships presented numerical differences, the interaction of IP → SCO → Cyberloafing is similar between groups, implying a more consistent general model for analysis purposes.

5. Implications, Limitations, and Future Directions

In advancing theoretical discussions, the results shed light on the specificities of the relationships tested here. Fake and Discount feelings concerning one's abilities lead to skill-based and opinion-based SCO. These findings are supported by the precepts outlined by Clance (1985), which can be combined with those advocated by Festinger (1954), in which people insecure about their abilities tend to compare themselves and, at times, overestimate the abilities of others and underestimate their abilities, competences and, in this case, opinions as well.

Accounting students with higher SCO levels tend to practice cyberloafing on social networks during classes. Although other social environments were not the focus of this study, these results show that cyberloafing might be performed to seek information and make social comparisons. Additionally, the insecurities caused by IP drive the orientation towards social comparison, which is one of the contributions of this study.

The IP luck or chance dimension positively affects cyberloafing on social networks during classes. Accounting students participating in the study who attribute their success to luck or chance are more likely to engage in task procrastination, which explains the practice of cyberloafing on social networks during classes as a way to operationalize their impostorism cycle.

These findings imply some practical implications. Managing cyberloafing during classes is difficult because of the easy access to technological devices and the Internet. The context in which this study was conducted intensified such a scenario because remote education was adopted during the COVID-19 pandemic to circumvent social isolation. Nonetheless, educational institutions and students must be warned about the potential adverse consequences of cyberloafing.

Cyberloafing harms the learning process and causes students to experience psychological overload and academic disengagement; hence, the importance of identifying variables that precede it. HEIs, teachers, and people close to students are suggested to promote psychological monitoring, share experiences, and sensitize students about the conscious use of social networks and the dangers of excessive social comparison. Including these guidelines in political-pedagogical plans is an opportunity to emphasize the relevance of this topic in the structural channels of Accounting Science programs and guide support groups to observe these elements among students.

Therefore, promoting discussion groups with professionals specialized in the subject, providing easy and accessible psychological support, such as online services, encouraging research on the subject, and using social media aligned with teaching methodologies are opportunities for implementing practical actions in the university context.

A non-probabilistic sample of students attending undergraduate Accounting Sciences programs was addressed here, which prevents the generalization of results. The study's cross-sectional nature also implies limitations, as it reflects the state of individuals at the time of data collection. Additionally, data were collected during the pandemic, hindering access to respondents and configuring an unmanageable limitation, as the sample does not represent the entire population. Future studies are suggested to investigate the effects of cyberloafing on student well-being and conduct surveys on policies regarding the use of technological devices during classes and channels where students can receive psychological support.

Collecting evidence via discussion groups and investigations about coping strategies to deal with cyberloafing during classes and analyzing the relationship between cyberloafing in the academic environment and other behavioral constructs can support advancement in the topic. Another possibility for future studies is to address the role of sociodemographic variables in this process.

6. Conclusion

The use of technological devices is ubiquitous and has become common during classes, including for distraction purposes. This study showed that this behavior is not isolated and is driven by psychological aspects, such as the Impostor Phenomenon, especially in its luck or chance dimension, and Social Comparison Orientation. By indicating that cyberloafing on social networks during classes configures escapism behavior and that SCO is associated with it, there is an opportunity to devise strategies to circumvent this behavior based on its antecedent variables and promote a more beneficial teaching-learning process. This study contributes at the national level by encouraging the still incipient study of cyberloafing in the university environment and at the international level by positioning the Impostor Phenomenon as a critical factor that affects SCO and cyberloafing practiced during classes.

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