Cyberloafing Behavior in Educational Settings

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Abstract

The current research endeavours to examine the phenomenon of cyberloafing within educational environments and to classify its various forms. The study additionally investigates how the demographic attributes of individuals can serve as indicators of cyberloafing tendencies within academic environments. A correlational study method was utilized for this study. A total of 431 employees (48%) and 475 students (52%) participated from Saudi Arabia. A questionnaire developed by the researchers was used with a demographic information section and cyberloafing behavior items. The findings indicated that the attitude of participants toward cyberloafing was not highly favorable. Users were more likely to cyberloaf to increase their skill set and to learn new things. The participants' reasons against cyberloafing were mainly the negative impact of cyberloafing in decreasing productivity and poor academic and work performance. Reasons for cyberloafing were related to taking a break from lessons and long working hours and feeling fresh. Lastly, participants' use of the internet was related to reading news online. Furthermore, a regression analysis was conducted using the demographic variables: position, educational level, age, and hours spent using the internet, as independent variables, and general cyberloafing behavior, as the dependent variable, to measure the degree of impact each demographic variable had on cyberloafing behavior. The results demonstrated that age and hours spent using social media were predictive of the attitude variable, where the attitude toward cyberloafing decreased with the increase in age. Meanwhile, the attitude toward cyberloafing increased with the increase in hours of using social media. The results are discussed, and recommendations for future studies are presented.

Keywords

Cyberloafing behaviors, internet use, educational setting, attitude and social media

الملخص

تبحث الدراسة الحالية في السلوك السيبراني وتحدد أنواعها في البيئات التعليمية. كما يدرس الخصائص الديموغرافية للمشاركين كمنبئين بالسلوك السيبراني في البيئات التعليمية. تم استخدام طريقة الدراسة الارتباطية لهذه الدراسة. شارك ما مجموعه ٤٣١ موظفا (٤٨٪) و ٤٧٥ طالبا (٥٢٪) من المملكة العربية السعودية. تم استخدام استبيان طوره الباحثون مع قسم المعلومات الديموغرافية وعناصر السلوك السيبراني

أشارت النتائج إلى أن موقف المشاركين تجاه السلوك السيبراني لم يكن مواتيا للغاية. كان المستخدمون أكثر عرضة لاستخدام المواقع الإلكترونية لزيادة مجموعة مهاراتهم وتعلم أشياء جديدة. كانت أسباب المشاركين ضد السلوك السيبرني هي التأثير السلبي للسلوك السيراني في انخفاض الإنتاجية وضعف الأداء الأكاديمي والعملي. كانت أسباب السلوك السيبراني مرتبطة بأخذ استراحة من الدروس وساعات العمل الطويلة والشعور بالانتعاش. وأخيرا، كان استخدام المشاركين للإنترنت مرتبطا بقراءة الأخبار على الإنترنت. علاوة على ذلك ، تم إجراء تحليل الانحدار باستخدام المتغيرات الديموغرافية: الموقف ، والمستوى التعليمي ، والعمر ، والساعات التي يقضيها في استخدام الإنترنت ، كمتغيرات مستقلة ، وسلوك السيبراني العام ، كمتغير تابع ، لقياس درجة تأثير كل متغير ديموغرافي على سلوك السيبراني الإلكتروني. أظهرت النتائج أن العمر والساعات التي يقضيها في استخدام وسائل التواصل الاجتماعي كانت تتنبئ بمتغير الموقف ، حيث انخفض الموقف تجاه السلوك السيبراني مع زيادة العمر. وفي الوقت نفسه ، زاد الموقف تجاه السلوك السيبراني مع زيادة ساعات استخدام وسائل التواصل الاجتماعي

الكلمات المفتاحية

السلوك السيبراني ، واستخدام الإنترنت ، والإعداد التعليمي. الموقف ووسائل التواصل الاجتماعي

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1.Introduction

The different technological innovations have revolutionized our society, where the internet, smartphones, and social media platforms are now part and parcel of our daily lives. Educational institutions, including schools, colleges, and places of higher education (e.g., universities), have massively invested in technological infrastructure and related advancements through the introduction of smart classes, learning management systems, use of e-learning, and mobile learning platforms. Scholars argue that integration of technology in the learning and teaching process has brought many positive changes such as improvement in the learning outcomes and strengthening of the learning experiences and abilities (Arabaci, 2017; Sampat & Basu, 2017; Taneja et al., 2015). However, there is also a darker side associated with the massive integration of technologies in our education system. Cyberloafing is a prominent example of negative fallout of integration of technology in the educational sector. The act of engaging in the use of the internet, smartphones, and related technologies for purposes other than academic or educational ones (e.g., personal tasks and entertainment) is referred to as cyberloafing (Karaoğlan Yılmaz et al., 2015; Slade et al., 2019; Yılmaz & Yurdugül, 2018). This is a growing concern among educators, policymakers, and scholars.

Cyberloafing has been viewed as a problematic behavior due to its linkage with various problems such as reduced productivity and commitment in the workplace (Akbulut et al., 2016; O'Neill et al., 2014; Zoghbi-Manrique-de-Lara, 2012). The seriousness of this growing problem can be gauged from the fact that recent literature

has suggested that 64% of employees were engaged in some form of cyberloafing (Abaker et al., 2018; Sawitri & Mayasari, 2017; Yılmaz & Yurdugül, 2018). Moreover, Doucouliagos & Stanley, (2018) reported that employees spend on average three working hours daily on cyberloafing activities. Engaging in cyberloafing has been thought to be of the hindrances for achieving the desired economic growth as expected through technology integration. The situation in educational settings is like the organizational sector. The limited research conducted on understanding cyberloafing in the educational sector focused on examining the predictors (Gökçearslan et al., 2018; Yildiz Durak & Saritepeci, 2019), consequences (Gökçearslan et al., 2018; Yildiz Durak & Saritepeci, 2019), role of user characteristics (e.g., demographics, technology usage and skills, and educational attributes) (Arabaci, 2017; Baturay & Toker, 2015; Gökçearslan et al., 2018), and its conceptualization taking into consideration the changes in the technological trends (Akbulut et al., 2016, 2017; Zoghbi-Manrique-de-Lara, 2012). They reported that engagement in cyberloafing results in lower student satisfaction (Zoghbi-Manrique-de-Lara, 2012) and lower academic performance (Karaoğlan Yılmaz et al., 2015; Lee et al., 2017; Wu et al., 2018). Additionally, the extant research focused on possible ways to reduce the likelihood of cyberloafing (Soh et al., 2018). The majority of the research focused on understanding the factors that motivate individuals to engage in cyberloafing. However, there have been limited attempts at investigating resistors toward cyberloafing engagement. Moreover, we have not come across any research that considers motivators and resistors with engaging in cyberloafing in one frame. The present study addresses this gap through the utilization of behavioral reasoning theory (BRT), uncovering the reasons why students and teachers engage in cyberloafing. In particular, the study development of survey items was based on (Westaby, 2005) model of BRT, as shown in Figure 1. Reasons serve as essential linkages between people's beliefs, global motives (e.g., attitudes, subjective norms, and perceived control), intentions, and behavior. Furthermore, the theory assumes that

reasons affect global motives and intentions because they help individuals justify and defend their actions, hence promoting and protecting their self-worth. Additionally, the majority of the research has been carried out in the United States, Turkey, Malaysia, and Europe (Soh et al., 2018). However, so far there has been no attempt at understanding the cyberloafing behavior among Saudi Arabians. The present study addresses the gaps in the extant literature by shedding light on the cyberloafing phenomenon of students as well as staff. This paper has the following objectives: (a) to investigate the motivators and resistors behind engagement in cyberloafing among university students and staff and (b) to compare cyberloafing behaviors among students and staff.

1. Background Literature
1. 1. Cyberloafing in Educational Setting

Cyberloafing in the educational domain has received scant attention from researchers. We have come across around 28 articles providing information on students' and teachers' cyberloafing activities. The research conducted so far has provided information on various aspects related to individuals' cyberloafing behavior in the teaching and learning process, such as antecedents, consequences, influence of user characteristics, and conceptualization. The majority of research focused on teachers while very few research papers were conducted on teachers' cyberloafing in educational institutions. Furthermore, there have been attempts at understanding various forms of exhibited cyberloafing behaviors, such as socialization, personal business, news follow-up, and search (Baturay & Toker, 2015; Keser et al., 2016). Socialization refers to engagement in social activities, such as social networking and instant messaging. Personal business refers to individual activities, such as online banking, planning vacations, and job-seeking. News follow-up refers to engagement with the user's constant urge to be updated with the latest happenings around the world. Finally, search refers to engagement in searching for information that is not relevant to educational purposes. The

following text presents details about the investigated themes. First and foremost, the extant literature provides information on the factors leading to engagement in cyberloafing and the consequences of such an engagement. The following factors were found to predict likelihood for individuals engaging in cyberloafing in educational context: self-regulation (Gökçearslan et al., 2018; Keser et al., 2016; Yaşar & Yurdugül, 2013) addiction, distractions from peers engaged in cyberloafing (Taneja et al., 2015), trait procrastination, social support (Gökçearslan et al., 2018), academic variables (Baturay & Toker, 2015; Yildiz Durak & Saritepeci, 2019), demographic variables (Baturay & Toker, 2015; Yildiz Durak & Saritepeci, 2019), technology usage status (Baturay & Toker, 2015; Yildiz Durak & Saritepeci, 2019), stress (Gökçearslan et al., 2018), nature of online learning activities (Yildiz Durak & Saritepeci, 2019), cyberloafing anxiety (Taneja et al., 2015), attitude toward cyberloafing (Rana et al., 2019; Soh et al., 2018), perceived behavioral control (Rana et al., 2019; Soh et al., 2018; Taneja et al., 2015), subjective norms (Gerow et al., 2010; Rana et al., 2019; Taneja et al., 2015), perceived threat (Rana et al., 2019), escapism (Rana et al., 2019), descriptive norms (Taneja et al., 2015), prescriptive norms (Soh et al., 2018), and multitasking (Gerow et al., 2010). Finally, cyberloafing behavior was found to be driven by habits and user intentions to engage in cyberloafing (Soh et al., 2018). For teachers, researchers found that feelings of boredom, job stress, unconscious act, perceived workplace norms, perceived injustice, and depression result in cyberloafing behaviors (Koay & Soh, 2019).

Cyberloafing results in academic procrastination (Yildiz Durak & Saritepeci, 2019), academic success (Wu et al., 2018; Yildiz Durak & Saritepeci, 2019; Yılmaz & Yurdugül, 2018), smartphone addiction (Gökçearslan et al., 2016, 2018), and low student satisfaction (Zoghbi-Manrique-de-Lara, 2012). In general, engagement incyberloafing negatively affects individuals' performance. However, in limited work, it has been reported to have a positive influence on teachers since it helps them manage their

stress and balance their personal and professional lives. Furthermore, it also helps educational institutions by enabling successful integration of technology with their teaching and learning regimes The extant literature also reported that males were usually found to cyberloaf more than females (Arabaci, 2017; Baturay & Toker, 2015; Karaoğlan Yılmaz et al., 2015; Keser et al., 2016). On the contrary, Yildiz Durak & Saritepeci, (2019) indicated that female teachers cyberloaf more than their male counterparts. However, some research attempts reported that gender does not influence cyberloafing (Yildiz Durak & Saritepeci, 2019). Females were reported to cyberloaf for social reasons (Baturay & Toker, 2015), while males were found to cyberloaf more for news follow-up and personal reasons (Keser et al., 2016). Age was found to be negatively correlated with cyberloafing engagement (Yildiz Durak & Saritepeci, 2019). Moreover, students used the internet and technology more often for cyberloafing than less frequent users (Baturay & Toker, 2015; Karaoğlan Yılmaz et al., 2015). Similarly, skilled internet and technology users had a higher tendency to engage in cyberloafing than novice or intermediate-level users (Arabaci, 2017; Baturay & Toker, 2015; Keser et al., 2016). Furthermore, educational grade and the need to spend more time in labs positively predicted students' tendency to engage in cyberloafing (Arabaci, 2017; Karaoğlan Yılmaz et al., 2015).

Finally, the extant research also highlighted the need to bring changes in the conceptualization of cyberloafing (Akbulut et al., 2017). This is much needed to capture the latest trends in technology. In this regard, Akbulut et al., (2016) introduced and validated a new scale for cyberloafing focusing on five factors: shopping, sharing, accessing online content, gaming/gambling, and real-time updating. This scale went beyond previous factors, namely, browsing and e-mailing. Furthermore, the prior research suggested some ways of addressing the issue of cyberloafing. For instance, there were suggestions that teaching should be made interesting and engaging and should explicitly provide information

on the importance of course contents and classroom management (Coşkun & Gökçearslan, 2019; Dursun et al., 2018).

1. 2. Participants

The study sample was composed of a total number of 431 employees (48%) and 475 students (52%) from Saudi Arabia. All participants were females since the study was conducted at a female-only university.

1. 3. Measures (Study Variables)

The questionnaire consisted of 58 items covering several areas: (1) demographic information including age, educational level, and social media usage per day; (2) cyberloafing behavior items measuring the following constructs: attitude, intentions, reasons for cyberloafing, reasons against cyberloafing, minor cyberloafing, serious cyberloafing, procrastination, justice perceptions, boredom, moral norms, and fear of missing out.

1. 4. Methods

Cronbach's alpha test was conducted to test the reliability of the questionnaire items in table 1. According to Nunnally (1978) benchmark of scores reliability, a score reliability of $\alpha = .70$ or better is acceptable in social science research. The results of Cronbach's alpha indicated a score reliability higher than 0.7 for all subscales: attitude, intentions, reasons for cyberloafing, reasons against cyberloafing, minor cyberloafing, serious cyberloafing, procrastination, justice perception, boredom, moral norms, and fear of missing out (FoMO) constructs.

1. 5. Demographic Characteristics

As presented in Table 2, the study sample comprised 431 employees (48%) and 475 students (52%), with different educational levels. Participants were mainly bachelor's degree ($n = 459$, 96.6%) students and ($n = 279$, 64.7%) employees. Furthermore, Table 1 and Figure 1 illustrate that 9.1% ($n = 43$) of students spend less than 2 hours using social media compared to 21.8% ($n = 94$) of employees, and about 22.9% ($n = 109$) of students spend about 3 to 4 hours compared to 35.5% ($n = 153$) of employees. The use of social media was higher among students by

32.8% ($n = 156$) who spend around 5 to 6 hours compared to 20.9% ($n = 90$) of employees, and about 35.2% ($n = 167$) of students use social media over 6 hours per day compared to 21.8% ($n = 94$) of employees.

1. 6. The Instruments

Two instruments were utilized for collecting the data: one for employees and the other for students. The questionnaire had two sections: a demographic information section and a cyberloafing section. In the demographic section, the information collected was about age, educational level, and the time spent using social media. In the second section, a total of 58 items related to cyberloafing construct were included: attitude, intentions, reasons for cyberloafing, reasons against cyberloafing, minor cyberloafing, serious cyberloafing, procrastination, justice perceptions, boredom, moral norms, and fear of missing out (FoMO)

1. 7. Data Collection

Data was collected from a female university in Saudi Arabia. Participants were recruited online upon their agreement to voluntarily patriciate in the study. All collected data was anonymous and entered into electronic spreadsheet. SPSS® software was utilized for analysis.

1. 8. Data Analysis

The first research question was examined through the use of descriptive data analysis. To answer the second research question examining the degree of impact of the demographic variable on cyberloafing behavior, a multiple linear regression analysis was conducted using demographic variables as independent variables and cyberloafing behavior as a dependent variable.

2. Results

2. 1. Types of Cyberloafing Behaviors Performed in Educational Settings

Descriptive data analysis was conducted to identify the behaviors performed in the university. Frequency, percent, and

central tendency measures (e.g., mean, standard deviation) were calculated. Table 2 presents the attitude and intention perception of cyberloafing among educational settings, where the overall mean score for cyberloafing attitude was 2.45 ± 1.045 out of 5, indicating that the participants' attitudes toward cyberloafing was not highly favorable to use in non-related purposes. Even so, it is sometimes enjoyable and fun as mean scores were 2.81 and 2.61 out of 5, respectively. On the other hand, the mean score for the overall intention to use for social media was 2.45 ± 1.045 out of 5, indicating that participants rarely tend to use social media for non-related purposes in the future and will not try or expect to use social media for non-related purposes.

The reasons for and against cyberloafing are illustrated from the perception of participants, where the overall mean for reasons to use cyberloafing was 3.06 compared to 2.64 for reasons against use. Participants stated the highest positive reasons for using cyberloafing as follows: increasing skill set and learning many new things with means of 3.4 and 3.37 out of 5, respectively. Meanwhile, the highest reasons against cyberloafing were related to decreasing productivity and resulting in poor academic or work performance with means of 2.85 and 2.76 out of 5, respectively.

The results of minor and serious cyberloafing are demonstrated, where means for minor and serious cyberloafing construct were 3.15 and 2.48, respectively. For minor cyberloafing, the highest perception was related to using social media to take a break from lessons or long working hours with a mean score of 3.37 out of 5 and using social media for a period to feel fresh with a mean score of 3.09 out of 5. For serious cyberloafing construct, the highest perception was related to reading news with a mean score of 2.94 out of 5, while the lowest perception was related to playing games with a score of 2.17 out of 5.

The perception related to procrastination due to cyberloafing is stated, where participants stated that they were not having extreme feelings toward such habit (mean score = 2.07 out of 5) as they mostly never or rarely felt that using social media is going to

push study or work, or lead to missing deadlines, or make them not feel good about study or work. They did not highly agree that they miss or forget important things or lectures or instructions due to using social media. Regarding the participants' perception of justice of use, they mostly tended to answer with never to rarely (mean score = 2.18 out of 5) due to the reflection of bad behavior from others or lack of monitoring or the nature of class or work environment.

The boredom status is illustrated as it was not highly perceived (mean score = 2.34 out of 5). The highest mean score was related to being bored in classroom/workplace that they cannot stay awake with a mean of 2.44 out of 5, while the lowest perception was related to thinking of college homework or office work that make them feel bored to death with a mean = 2.21 out of 5.

The perception of moral norms was recorded with an overall mean score of 2.72 out of 5. The participants' perception was low in relation to cyberloafing effect, making them feel guilty, giving a bad conscience, making them feel that it is against morals, and making them feel it is not ethical.

Finally, participants' FoMO was low with regard to feeling that they will be rewarded more or will not highly worry if friends are having fun without them with mean scores of 2.22 and 1.99, respectively. Participants barely felt anxious when they do not know what friends are up to. Meanwhile, participants sometimes wondered if they spend long time keeping up with what is going on and when having a good time it is important for them to share the details online (e.g., updating status).

2. 2. Demographic Characteristics of Participants That Are Predictive of Cyberloafing in Educational Settings

To answer the second research question, multiple linear regression analysis was conducted through the use of the demographic variables (gender, age, hours spent using the internet, etc.) as independent variables and general cyberloafing behavior as the dependent variable to measure the degree of impact each demographic variable had on cyberloafing behavior. To find out the

predictors of demographic characteristics toward cyberloafing in educational settings, regression analysis was performed, where the correlation was considered statistically significant when the P-value was less than 0.05. Results indicated that position and educational level were not statistically significant predictors of the attitude variable (P-value > 0.05). Meanwhile, age and hours spent using social media were predictive of the attitude variable. Attitude for cyberloafing decreased with the increase in age, whereas it increased with the increase in hours of using social media.

Position and educational level were non-significant predictors for the attitude variable (P-value > 0.05). Meanwhile, age and hours using social media were predictive of the attitude variable. Attitude for cyberloafing decreases with the increase in age, whereas it increases with the increase in hours of using social media. There was a correlation between age, position, or educational level and intention for cyberloafing. However, it was predicted that a correlation exists between intention for cyberloafing and hours of using social media, since the increase in hours leads to a rise in intention (P-value = 0.005).

All individual factors significantly predicted the reasons for cyberloafing. Employees were higher than students in their perception of the reasons for cyberloafing. With the increase in age and higher educational levels, the perception of the reasons for cyberloafing became lower. Finally, the increase in hours of using social media led to more positive reasoning for cyberloafing (P-value ≤ 0.05). Only the hours of using social media variable significantly predicted the reasons against using social media, as the increase in hours of using social media led to a slight increase in the reasons against cyberloafing behavior (P-value = 0.027).

Minor cyberloafing and serious cyberloafing were predicted significantly by age, educational level, and hours of using social media (p-value ≤ 0.05). Minor or serious cyberloafing decreased with the increase in age and educational level and increased with the increase in hours of using social media. Minor cyberloafing was significantly predicted by the position variable (employees were

more positively enforced than students), whereas serious cyberloafing was not significantly predicted by the same variable.

Only the educational level and hours of using social media variables were statistically significant predictors of procrastination (P-value less than 0.05). Higher educational level participants perceived lower procrastination, while those who spend more hours using social media perceived higher procrastination.

Position, educational level, and hours of using social media variables significantly predicted the justice dimension (P-value less than 0.05). Employees had a positively lower perception of justice. The increase in the educational level led to a positively lower perception of justice, and the increase in the hours of using social media led to an increase in justice perception. The position variable significantly predicted the boredom and moral norms dimensions, where employees had a positively lower perception of boredom or moral norms dimensions. The age variable significantly predicted the moral norm dimension, since the increase in age led to an increase in moral norms perception. Higher educational level significantly predicted the FoMO (P-value less than 0.05). Finally, the hours of using social media variable significantly predicted the boredom, moral norms, and FoMO dimensions, since the increase in the hours of usage led to an increase in the perception of these dimensions.

2. 3. Study Implications

The study findings have significant theoretical and practical implications, as discussed below.

2. 4. Theoretical Implications

The results of the research demonstrate that reasons, global motives, and intentions directly influence behavior. They also support the theory of behavioral reasoning and the various hypotheses. Consequently, the study provides theoretical and practical implications. Firstly, individuals may change their reasons over some time to support, distort, or rationalize their behavioral commitments (Westaby, 2005). People may also change their habits due to external determinants (Avis, 2016). Therefore, during

practice, it is essential to examine post-hoc effects. Secondly, since past behavior may affect future conduct, future research should be carried out to measure the theoretical components of behavioral reasoning over multiple periods. Lastly, the study suggests the examination of contextual antecedents of behavior to offer a deeper understanding of theoretical and scientific knowledge of habits.

The behavioral reasoning theory provides a range of suggestions explaining people's decisions to act. A person's behavior may be modeled by reason, global motives, and beliefs. However, since the determinants may change in the future, or people may distort their behavioral commitments, several precautions should be applied in future research and practice.

2. 5. *Practical Implications*

It will be useful for educators to consider these reasons while structuring the classroom environment and the courses. Furthermore, educators ought to urge those understudies to open up and share their considerations with them so that such conduct by different understudies, intruding on the correct working of the class, can be halted on the spot. Such correspondence from understudies turns out to be progressively significant when the class size is extremely enormous as it is hard for educators to keep an eye on every single understudy while instructing.

The instructive foundation's administration can likewise acquire clear systems of unfavorable ramifications for cyberloafing and ought to incorporate them in module handbooks so that they contribute to developing the attitudes and intentions of students toward the class for learning strategies. This will guarantee that understudies are very much aware of the negative results of cyberloafing from the purpose of first selecting to attempt to stem such conduct before it turns into a propensity. The study will assist psychologists and researchers to identify cyberloafing behaviors in educational settings to support learning environments.

3. Conclusion

The aim of the current study was to better help researchers in understanding cyberloafing behavior and reasons in educational settings. The results suggest that the participants' attitude toward cyberloafing indicates that they do not favor using the internet for academic or work purposes. On the other hand, it was found that the use of the internet by participants was related to increasing their skill set and learning new things. It was also found that avoiding cyberloafing was due to their awareness of the negative impacts of cyberloafing such as the reduction in overall productivity and poor academic and work performance. Furthermore, the use of the internet was mainly related to taking a break from lessons and long working hours. The results suggest that users of the internet mainly looked for news-related updates. Finally, the user's cyberloafing behavior was related to their feeling of boredom during lectures in the classroom and during work. It was found that students spent over 6 hours per day on social media (35.20%) compared to employees (21.80%). This indicates that students at a younger age are more likely to engage in cyberloafing activity during their lectures compared to employees. This could be due to their feeling of confidence in using their phones to access different social media sites and their high technical skills compared to older employees. This result agrees with a previous study conducted by Garrett & Danziger, (2008), revealing that age is negatively correlated with cyberloafing.

4. Limitations and Future Work

First, the study findings lack generalizability to a large population due to its limited focus on a specific group of female educators and students in Saudi Arabia. Thus, future research should validate the findings of the present research with users of other age groups, males in Saudi Arabia, and those in other cultures. Second, the study has a limitation concerning the study design. The conducted research is quantitative in nature so it fails in touching cyberloafing to its deeper levels (e.g., newer contextual issues)

which could be offered through the usage of qualitative methods. Additionally, the research is cross-sectional which could result in social desirability bias. Furthermore, such a research design fails to offer understanding of the causality between different variables. Hence, future research should adopt mixed, log-based, longitudinal, and experimental methods to explore cyberloafing behavior in education.

Third, the study also lacks consideration of several important factors and their influence on cyberloafing. For instance,

We have not explored some other factors including both gender and other educational settings (school, college, and cultural groups). Future studies should also focus on the cognition and awareness of teachers and their impact on students' cyberloafing behavior. Future research can undertake a review of literature to include additional factors to understand students' cyberloafing intentions and behaviors. Investigating the reasons and motives of positive and negative cyberloafing behaviors should therefore be continued to be investigated in future research.

Author Contribution

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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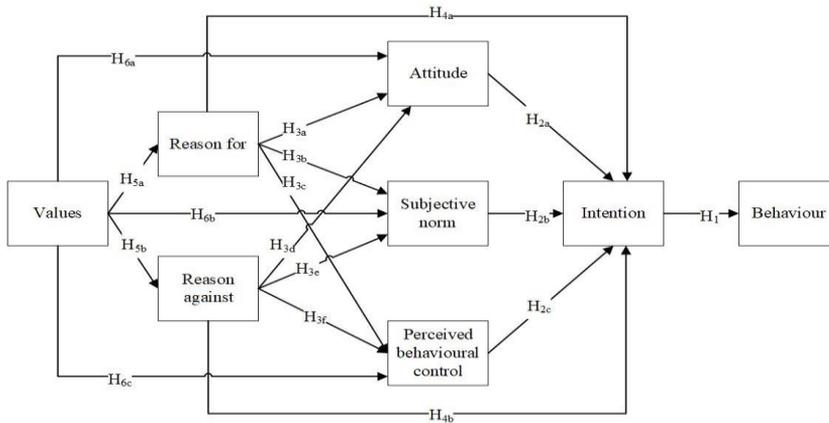
Figure 1. Behavioral reasoning theory model (adapted from Westaby, 2005).

Table 1: Reliability statistics.

	Reliability statistics	
Scale	Cronbach's Alpha	No. of items
Attitude	.806	5
Intentions	.871	5
Reasons for cyberloafing	.819	6
Reasons against cyberloafing	.856	4
Minor cyberloafing	.782	3
Serious cyberloafing	.786	6
Procrastination	.869	5
Justice perceptions	.871	8
Boredom	.905	5
Moral norms	.897	4
FoMO	.846	6

Table 2: Demographic characteristics of participants (N=906).

		Students		Employees	
Age (Mean ± STD)		(22 ± 4)		(37 ± 9)	
		Count	%	Count	%
Sample study		475	52.4%	431	47.6
Educational level	Bachelor	459	96.6%	279	64.7%
	Master	12	2.5%	61	14.2%
	Doctorate studies	4	0.8%	91	21.1%
Hours using social media	Less than 2 hours	43	9.1%	94	21.8%
	3 to 4 hours	109	22.9%	153	35.5%
	5 to 6 hours	156	32.8%	90	20.9%
	Over 6 hours per day	167	35.2%	94	21.8%

Table 3: Attitude and intention perception ofcyberloafing (N=906)

		Never		Rarely		Sometimes		Often		Always		Mean	STD
		C	%	C	%	C	%	C	%	C	%		
Attitude **Mean ± STD** **(2.45 ± 1.045)**	1.Using social media for non-related purposes is valuable	341	37.6%	150	16.6%	254	28.0%	63	7.0%	98	10.8%	2.37	1.332
	2. Using social media for non-related purposes is enjoyable	250	27.6%	141	15.6%	215	23.7%	135	14.9%	165	18.2%	2.81	1.450
	3. Using social media for non-related purposes is fun	333	36.8%	130	14.3%	164	18.1%	116	12.8%	163	18.0%	2.61	1.520
	4. Using social media for non-related purposes is beneficial	386	42.6%	136	15.0%	202	22.3%	85	9.4%	97	10.7%	2.31	1.377
	5. Using social media for non-related purposes is good	391	43.2%	161	17.8%	211	23.3%	81	8.9%	62	6.8%	2.19	1.267
Intentions **Mean ± STD** **(2.32 ± 1.084)**	1. I plan to use it for non-related purposes in the future	423	46.7%	139	15.3%	172	19.0%	81	8.9%	91	10.0%	2.20	1.371
	2. I will likely use it for non-related purposes in the future	234	25.8%	205	22.6%	232	25.6%	122	13.5%	113	12.5%	2.64	1.329
	3. I intend to use it for non-related purposes in the future	381	42.1%	159	17.5%	188	20.8%	86	9.5%	92	10.2%	2.28	1.358
	4. I will always try to use it for non-related purposes	468	51.7%	168	18.5%	135	14.9%	67	7.4%	68	7.5%	2.01	1.280
	5. I expect to use it for non-related purposes in the future	290	32.0%	192	21.2%	211	23.3%	120	13.2%	93	10.3%	2.49	1.331

Table 4: Reasons for and against cyberloafing perception (N=906)

		Never		Rarely		Sometimes		Often		Always		Mean	STD
		C	%	C	%	C	%	C	%	C	%		
Reasons for cyberloafing **Mean ± STD** **(3.06 ± 1.015)**	1. It is like the place of study/work	200	22.1%	161	17.8%	214	23.6%	143	15.8%	188	20.8%	2.95	1.431
	2. It reduces discomfort	169	18.7%	147	16.2%	323	35.7%	111	12.3%	156	17.2%	2.93	1.310
	3. It reduces stress	224	24.7%	124	13.7%	317	35.0%	104	11.5%	137	15.1%	2.79	1.342
	4. It became a habit for me	230	25.4%	129	14.2%	204	22.5%	139	15.3%	204	22.5%	2.95	1.487
	5. I learn many new things	141	15.6%	118	13.0%	197	21.7%	165	18.2%	285	31.5%	3.37	1.435
	6. It increases skill set	127	14.0%	110	12.1%	228	25.2%	158	17.4%	283	31.2%	3.40	1.397
Reason against cyberloafing **Mean ± STD** **(2.64 ± 1.219)**	1. It decreases productivity	226	24.9%	154	17.0%	234	25.8%	115	12.7%	177	19.5%	2.85	1.434
	2. It results in poor academic/work performance	258	28.5%	149	16.4%	205	22.6%	136	15.0%	158	17.4%	2.76	1.449
	3. I miss important lessons/deadlines	396	43.7%	127	14.0%	162	17.9%	84	9.3%	137	15.1%	2.38	1.485
	4. I cannot focus on studies/work	320	35.3%	138	15.2%	196	21.6%	106	11.7%	146	16.1%	2.58	1.467