



Cyberloafing, nomophobia, and addiction among college students

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³Public Relation, Telkom University, Bandung Indonesia

ARTICLE INFO

Article history:

Received Jan 4, 2025

Revised Jan 15, 2025

Accepted Jan 30, 2025

Keywords:

Cyberloafing
Nomophobia
Smartphone Addiction
Students
University

ABSTRACT

The development of communication technology has social, psychological and other social impacts. The presence of smartphones has a serious impact on cyberloafing behavior, nomophobia and addiction among students. This study aims to determine a model that describes the relationship between nomophobia, cyberloafing and addiction among college students. This research is designed as a quantitative research with a survey approach. The survey was conducted on 123 students in West Java by convenience sampling. Data analysis using Structural equation modeling test with lisrel 8.50. The results showed that the higher the anxiety of students if without a smartphone will increase cyberloafing behavior among students. In addition, this study shows that the higher the anxiety without a smartphone will strengthen the level of addiction among students. Cyberloafing behavior has no significant effect on increasing addiction to smartphones among students. Suggestions from these findings, the importance of self-control of nomophobia students to be able to reduce addiction to smartphones and also cyberloafing behavior that causes low effectiveness of student achievement.

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INTRODUCTION

Explaining the background, problems, importance of research, brief literature review that relates directly to research or previous findings that need to be developed, gap analysis and ended with a paragraph of research purposes. A balance must be kept between the pure and applied aspects of the subject. The introduction is presented in the form of paragraphs of approximately 1000 words. Nowadays, smartphones are increasingly difficult to separate from everyday life. The use of smartphones is a very common thing these days. However, without realizing it, excessive intensity in using a mobile phone or smartphone can cause nomophobia or no mobile phone phobia. Nomophobia is excessive anxiety experienced by mobile phone users when they are not near their mobile phone. Based on studies that have been conducted, it is known that around 58% of men and

48% of women experience nomophobia (Pahlawan & Nasution, 2020). This can certainly interfere with various other activities, one of which is in the academic field.

Referring to previous research, there is a prevalence of students with severe nomophobia with decreased academic performance and achievement. This study also shows that 15% of students experience nomophobia at the mild stage, 65% experience nomophobia at the moderate stage and 20% experience nomophobia at the severe stage (Qutishat et al., 2020). In another study conducted by (Frein et al., 2013; Kirschner & Karpinski, 2010), it was found that students who frequently use smartphones and social media have a lower Grade Point Average compared to students who rarely go online on social media. The study also found that 74% of students stated that they experienced procrastination, decreased concentration and poor time management (Kumar et al., 2024)

The development of information technology in learning today has led to the diversification of learning media used by students. Various learning media are innovations in improving learning effectiveness. However, there are many problems in online learning activities, especially student readiness in utilizing learning technology facilities. One of them creates a cyberloafing environment (Fried, 2008; Lauricella & Kay, 2010). The concept of cyberloafing mainly appears in the literature as an activity of doing other work at work (Aljomaa et al., 2016; Greenfield & Davis, 2002; POLAT, 2018); although in the field of education (King et al., 2013; McBride et al., 2006; Ngowella et al., 2022; Ozdemir et al., 2018; Yaşar & Yurdugül, 2013) it has begun to be defined as activities other than learning that students do in a virtual environment during the learning process. In a study conducted by (Aljomaa et al., 2016), it was determined that staff and students alike engage in cyberloafing using technological tools outside the classroom. In (POLAT, 2018) study, it was established that students used computers to spend time on different online activities without their teachers' knowledge. Examining the relationship between cyberloafing and the learning process, (POLAT, 2018) stated the possibility of students cyberloafing in class if there is unplanned or excessive use. Several other studies have shown that cyberloading affects interactions, work performance and mental health. (Manuel et al., 2019; Wu et al., 2020)

Several other studies have shown that nomophobia has a positive correlation to addiction and cyberloafing behavior (Gökçeşlan et al., 2018; Talan & Kalinkara, 2022). From the related literature, it can be understood that cyberloafing by students in class is related to variables such as nomophobia and addiction (Berry & Westfall, 2015; Tindell & Bohlander, 2012) As a result of the literature review, it was determined that although a relationship between the two variables of m-learning, cyberloafing, nomophobia, and smartphone addiction has been studied, no study has tested all variables simultaneously. In addition, most of the studies tested on secondary school students either middle or high school. In this context, this study aims to determine the modeling that can jointly explain cyberloafing, nomophobia and smartphone addiction among university students. The hypotheses of this study are (a). is there an influence of nomophobia on cyberloafing among college students?; (b). is there an influence of nomophobia on addiction among college students?; (c). is there an influence of cyberloafing on addiction among college students?.

RESEARCH METHODOLOGY

The method used to determine the modeling that can jointly explain cyberloafing, nomophobia and smartphone addiction among university students is the survey method. The survey was conducted by distributing questionnaires to more than 300 respondents spread across various islands in Indonesia (see Table 1). However, only 123 respondents were observed. The sampling technique method used in this study was convenience sampling which was distributed through social media such as LINE, WhatsApp, and Instagram. Before answering the questions, participants were given informed consent to the research in accordance with the recommendations of the Ethics Commission of Padjadjaran University. An incentive of Rp50,000 was given to three randomly selected participants.

This study uses three variables to determine the modeling that can jointly explain cyberloafing, nomophobia and smartphone addiction, namely Nomophobia, Cyberloafing and smartphone addiction.

The study measured nomophobia with 11 instruments (Fuady et al., 2022), cyberloafing with 7 instruments, and addiction with 10 items. The participants were asked to state their agreement with the instruments from “strongly disagree” to “strongly agree”. Before evaluating the appropriate model in describing the influence of nomophobia, cyberloafing and smartphone addiction, confirmatory factor analysis was operated to ensure the validity of the instruments (Hurley et al., 1997). This study adjusted the loading factor validity of each instrument. For reliability test, Cronbach's alpha value was taken into consideration. Descriptive analysis was used to present the distribution of participants based on elements such as gender and age. Finally, modeling with structural equation modeling to describe the exact model of the relationship between research variables. Structural equation modeling is a combined analysis between path analysis and factor analysis.

RESULTS AND DISCUSSIONS

Research Results

Respondents in this study were 123 students in West Java. The results of the analysis of the characteristics of the respondents of this study are described in table 1 below;

Table 1. The results of the analysis of the characteristics of the respondents of study

No.	Variable		Frequency	Percentase
1	<i>Gender</i>	Male	36	29,30
		Female	87	70,70
		Sum	123	100,00
2	<i>Age</i>	17	1	0,80
		18	27	22,00
		19	69	56,10
		20	22	17,90
		21	4	3,30
		Sum	123	100,00
3	<i>Smartphone use</i>	≤ 5 jam	25	20,32
		6-10	76	61,78
		11-15	16	13,00
		16-20	4	3,25
		Missing data	2	1,62
		Sum	123	100,00

As shown in Table 1, the gender distribution of respondents is mostly female, with the largest proportion of 70.70 percent and men as much as 29.30 percent, while for age the distribution difference is between 17 years and 21 years with $X = 19.00$; $SD = 0.752$, this value indicates that the average age of respondents is relatively homogeneous with a relatively small standard deviation value. In the behavior of smartphone use in one day, the mean value of smartphone use among students is $X = 8.19$; $SD = 3.279$, meaning that the average respondent uses a smartphone for up to 8 hours a day. This finding shows that the behavior of using smartphones among students is quite high. The results of this survey show that there are about 3.25 percent of students who use smartphones up to 16-20 hours a day.

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a smartphone for up to 8 hours per day. This is in line with many studies that show that university students in Indonesia have severe nomophobia symptoms (Prastiwi & Apriliyani, 2023).

Measurement Model

To get the right model in describing the relationship between nomophobia, cyberloafing and addiction, the validity and reliability of the instrument is carried out with CFA analysis (confirmatory factor analysis and Cronbach alpha). The results of the validity and reliability test analysis are described in table 2 below:

Table 2. Validity and reliability instrument with confirmatory factor analysis

Variabel	Item	Loading Factor (CFA loading)	Cronbach alfa (α)
Nomophobia	Nm1	0,55	0,864
	Nm2	0,62	
	Nm3	0,45	
	Nm4	0,66	
	Nm5	0,73	
	Nm6	0,59	
	Nm7	0,39	
	Nm8	0,67	
	Nm9	0,36	
	Nm10	0,68	
	Nm11	0,62	
	Nm12	0,48	
	Nm13	0,33	
	Nm14	0,39	
	Nm15	0,64	
Cyberloafing	Lf1	0,72	0,821
	Lf2	0,79	
	Lf3	0,71	
	Lf4	0,47	
	Lf5	0,65	
	Lf6	0,49	
	Lf7	0,57	
Addict	Cd1	0,55	0,823
	Cd2	0,52	
	Cd3	0,57	
	Cd4	0,40	
	Cd5	0,68	
	Cd6	0,68	
	Cd7	0,70	
	Cd8	0,41	
	Cd9	0,68	

The test results show that most of the items have good validity standards with loading factor values exceeding 0.60, but some instruments have loading factor values smaller than 0.5. Therefore, the instrument was excluded due to the low loading value produced. Cronbach's alpha was used to evaluate the reliability value which was required to exceed 0.70. After the problematic instruments were removed, all the instruments were found to have adequate reliability values as the scores exceeded 0.80.

In creating an appropriate model in describing the relationship of cyberloading, nomophobia, and addiction, a modeling analysis was conducted by creating a good goodness of fit. From the results of this analysis, several adjustments/reductions of several manifests were made to form a good inner and outer model. For nomophobia, the manifests that can be used to describe nomophobia include instrument 1, instrument 2, instrument 8, instrument 10, and instrument 15. As for cyberloafing, the manifests that can be used to describe this variable include instrument 1, instrument 2, instrument 3, instrument 5, instrument 7, for manifests that can be used to describe addiction or addicts include instrument 1, instrument 2, instrument 3, instrument 5, instrument 6,

instrument 7, instrument 9. The cyberloafing, nomophobia and addict relationship model is described in the following structural model:

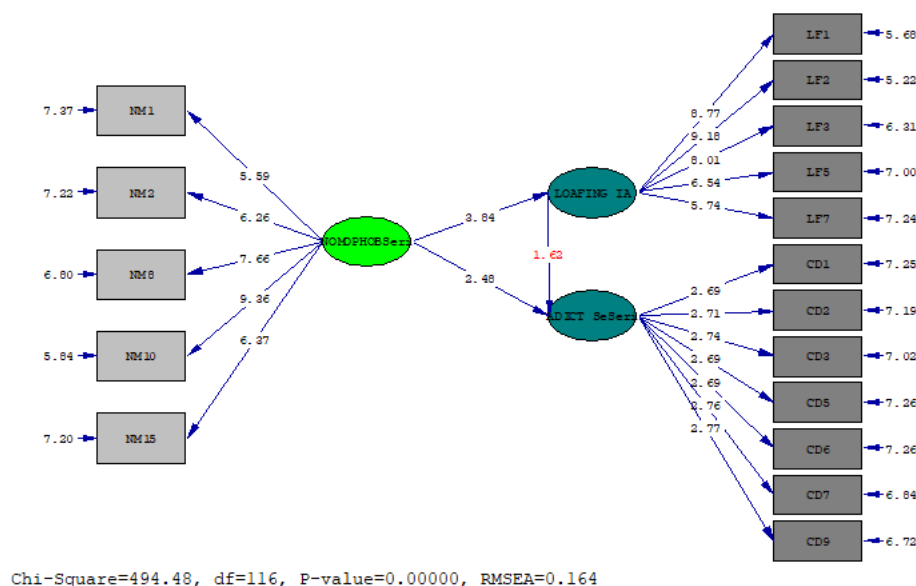


Figure 1. Structural equation modelling test

- The influence of nomophobia on cyberloafing among students. Based on the test results, it is known that nomophobia has a significant positive influence on cyberloafing behavior among students $t = 3.85$ $p < 0.05$; β 0.46. The greater the nomophobia and the increase in fear of not being able to access smartphones will have an impact on individuals who carry out cyberloafing increasingly high. Individuals with severe nomophobia tend to do high cyberloafing while individuals with low nomophobia tend to have low cyberloafing behavior as well the results show that the more fear of not accessing smartphones, the greater the behavior of students using smartphones at inappropriate times, such as during lectures, while eating, or other work.
- The influence of nomophobia on addiction among students. Based on the test results, it is known that nomophobia has a positive significant effect on addiction behavior among college students $t = 2.48$ $p < 0.05$; β 0.86. The higher the nomophobia behavior will encourage higher addiction. students who are affected by severe nomophobia tend to have a high addiction to smartphones. Increased anxiety will increase smartphone addiction among college students. This finding shows that the higher the anxiety among college students, the more student performance such as non-concentrated lecture activities, late campus assignments and others.
- The effect of cyberloafing on addiction among students. Based on the test results, it is known that cyberloafing has no significant effect on addiction behavior among students $t = 1.62$ $p > 0.05$; β 0.15. The higher or lower cyberloafing has no effect on smartphone addiction among students. Students with high cyberloafing are not related to the level of addiction to smartphones.

Discussion

Nomophobia and Cyberloafing Among University Students

Nomophobia is defined as the fear of not being able to use or not being able to reach a smartphone (Fuady et al., 2022; Roque Hernández & Guerra Moya, 2022; Yildirim & Uk, 2014). The dimensions of nomophobia have at least four concepts, namely the fear of losing connectedness,

losing comfort, losing information, and not being able to communicate. While cyberloafing is an activity of doing other work at work (Greenfield & Davis, 2002; Lin et al., 2021), the cyberloafing dimension in this study includes internet surfing activities during the learning period, such as downloading, opening emails, chatting, opening websites that are not related to learning.

From the analysis, it is known that nomophobia has a strong influence on cyberloafing. The higher the number of students affected by nomophobia, the higher the cyberloafing behavior. The fear of losing contact / connection, the higher the student to carry out activities to access the internet during learning. Concerns about losing information, and not being able to communicate with others, encourage students to carry out internet network utilization activities during lectures, such as downloading files, opening emails, chatting and so on. This finding is in line with research from (Yildiz Durak, 2019). low nomophobia tends to have low cyberloafing behavior as well.

Nomophobia and Smartphone Addiction Among University Students

Smartphone addiction is defined as the excessive use of smartphones that disrupts the user's daily life (Demirci et al., 2014; Onigbogi, 2019). The analysis results of the modeling test found that nomophobia has a strong influence on smartphone addiction among students. The higher the fear of losing connection, fear of not being able to communicate, fear of losing comfort and fear of losing information, tends to increase addiction among students.

This finding suggests that fears of being away from smartphones will lead to higher addiction among university students. One of the causes of this strong influence of nomophobia and addiction is the low self-control of students in the excessive use of smartphones, so that there will be a tendency to use high intensity smartphones to fulfill desires such as comfort, excessive communication, accessibility of information. This finding is in line with the findings that have been done.

The Effect of Cyberloafing on Addiction Among Students

Based on the results of modeling testing, it is known that cyberloafing does not have a significant effect on addiction behavior among students. The higher the activity of using the internet during learning is not related to the high addiction among students. Students who behave cyberloafing such as chatting, downloading, sending emails or website browsers do not increase the addiction to smartphones among students.

CONCLUSION

The presence of smartphones has a serious impact on cyberloafing behavior, nomophobia and addiction among college students. The results of this study indicate that the fear of being away from smartphones or nomophobia can increase cyberloafing behavior among students. Students become less productive because they do internet utilization activities not in the place/time. In addition, nomophobia also has an impact on smartphone addiction behavior among students. Meanwhile, cyberloafing behavior is not enough evidence to have an impact on smartphone addiction among students. This finding shows that the model of nomophobia, cyberloafing and addiction is a representation of reality among students who have severe nomophobia phenomena that have an impact on addiction and also cyberloafing behavior. In an effort to prevent nomophobia, cyberloafing and addiction, the importance of self-control in the use of smatrhone. To reduce smartphone addiction and cyberloafing, regulations are needed in lecture activities and also individual self-control to improve student academic performance.

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