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The Influence of Technostress on Cyberslacking Among Emerging Adults University Students: An Indonesian Context

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Abstract:

The rapid development of technology implementation in the educational processes has brought benefits and challenges, especially for university students. These challenges would then cause students to experience technostress, which might lead to cyberslacking behavior in the classroom. Meanwhile, study on technostress and cyberslacking still needs to be expanded, especially among emerging adults. The emerging adult developmental stage requires tasks that could also lead to stress. Therefore, this research aimed to investigate the influence of technostress on cyberslacking among emerging adult university students. The current study surveyed 121 emerging adult university students using an online questionnaire. Participants completed the demographic scale, the Technostress scale, and the Cyberslacking scale. Data were analyzed using the Structural Equation Modelling (SEM) technique. Results showed a slight trend toward the significance of technostress in predicting cyberslacking behavior among emerging adult university students. Nevertheless, this study contributes to the currently limited studies on technostress and cyberslacking. Further suggestions include operationalizing the technostress definition and involving additional possible mediator variables.

Keywords: cyberslacking, emerging adult, technostress



INTRODUCTION

The rapid development of technology has made its existence used in all fields, including education (Kulikowski et al., 2022). Currently, implementation in the learning processes, especially in higher education, involves information and communication technology (ICT) such as blended learning, Massive Open Online Courses (MOOC), and the use of social networking sources such as YouTube for asynchronous learning (Li & Liu, 2022). The use of technology in the learning processes certainly provides numerous benefits, such as flexibility and ease of access to education, meaning that lecturers can learn from anywhere, and students can learn anytime and anywhere (Grashinta et al., 2022). On the other hand, the presence of technology amid the lecture process also has its negative impacts, of which one of the most common is the distraction of students who use technology for purposes other than lectures while in class, known as cyberslacking (Li & Liu, 2022; Simanjuntak et al., 2022).

Cyberslacking or also referred to as cyberloafing is a behavior where individuals access and use the internet for purposes other than the task at hand, which can be in the context of classroom lectures or at work (Wang et al., 2020b). The current study will focus on the context of the university context. Therefore, cyberslacking refers to the behavior of students who use the internet for other activities unrelated to the lecture material while in class. Several behaviors of cyberslacking include accessing social media, playing online games, reading news, or online shopping (Akbulut et al., 2016; Mihelić et al., 2023). This cyberslacking behavior itself hurts students, including distraction (Taneja et al., 2015), the tendency of the internet or online game addiction (Gökçeşlan et al., 2016), the movement of problematic internet use (Simanjuntak et al., 2022), and poor academic performance (Margaretha et al., 2021). Cyberslacking has become an emerging issue due to its negative consequences, especially in the context of education. Hence it is essential to explore the factors that lead to cyberslacking, one of which is technostress (Chen et al., 2021; Koay & Poon, 2022; Luqman & Dhir, 2021).

Technostress refers to individuals' inability to adapt to new technology-enhanced learning processes (Brod, 1984; Ragu-Nathan et al., 2008). Individuals with a poor ability to adapt and use ICT tend to have a lower level of attention to the learning processes, leading to cyberslacking behavior (Li & Liu, 2022). The massive development of various technologies used in class could cause university students to experience an overwhelming situation, which then causes technostress and subsequently engage in cyberslacking behavior. Several studies also found that technostress significantly predicted the occurrence of cyberslacking behavior (Kulikowski et al., 2022; Li & Liu, 2022; Vega-Muñoz et al., 2022).

Technostress can be examined from various theories, one of which is the multidimensional person-environment fit framework, known as P-E fit (Al-Fudail & Mellar, 2008; Ayyagari et al., 2011; Wang et al., 2020b). P-E appropriate theory has been considered an essential concept in understanding the formation and dynamics of stress (Ayyagari et al., 2011). This theory argues that a person-environment fit occurs when there is a match between individual factors (such as skills) and environmental factors such as institutions, tasks, and other people (Edwards et al., 1998; Edwards & Shipp, 2007). Thus, according to P-E fit theory, stress occurs neither from the person nor the environment but from misfits (Edwards et al., 1998). These misfits then would lead to imbalances in personal and environmental factors and cause stress on individuals (Cooper et al., 2001).

The multidimensional person-environment fit framework consists of four misfits, namely abilities-demands on the organizational level (ADO), needs-supplies on the corporate level (NSO), abilities-demands on the technological level (ADT), and needs-supplies on the technical



level (NST). Similar to the study conducted by Wang (2020), this research only used ADO and NSO misfits. The A-D misfit on the organizational level referred to incongruence between students' abilities and task demands from the university due to technology implementation and thus requires students to complete a more difficult task and higher ambiguity in performance expectations. Meanwhile, N-S misfits at the organizational level were considered as misfits, which arises due to insufficient support from university students in terms of technology implementation in class (Wang & Li, 2019). Support itself could be referred to as technical support or professional training.

The concept of technostress is relatively new and remains an understudied topic, especially regarding the association with cyberslacking in the emerging adulthood context (Luqman & Dhir, 2021; Tarafdar et al., 2014; Wang et al., 2020b). Emerging adulthood is a developmental stage for individuals between 18 and 25 years old and is also considered a transition stage from adolescence to adulthood (Arnett, 2014). Emerging adults have various developmental tasks, including self-exploration to find out what they want in life, the stage of instability where they feel not fully established but are required to take responsibility for themselves and their role in their social environment (Arnett, 2000). Moreover, students in the emerging adult stage are also expected to have good academic performance but still be able to balance their existence in the social environment (Condinata et al., 2021). These developmental tasks, including technostress, make emerging adult students more prone to stress and social pressure (Ardelia & Dewi, 2018).

Therefore, it is essential to examine further the association between technostress and cyberslacking in the educational context. This study aims to investigate the effect of technostress on cyberslacking in emerging adult students. This study hypothesized that technostress would affect the emergence of cyberslacking behavior among emerging adult students.

METHOD

Research Design

This study used a quantitative method with a survey method for data collection. Data was collected from January to February 2023 using an online questionnaire software (Google Forms). Participants were asked to provide informed consent before filling out the research questionnaire.

Participants

Research participants are all people or human beings who participate or take part in a research activity, so participants are part of the subjects who are involved in physical, mental, and emotional activities as informants to provide responses to the activities carried out and support the achievement of activity goals, and are responsible for his involvement. This research used a purposive sampling technique to determine research participants based on specific criteria. Participants were collected through posters, which were distributed online. Participant inclusion criteria included 1) Age between 18-25 years old; 2) An active student; and 3) Owning a device that can access the internet. Participants willing to participate in the study were asked to fill out informed consent. Before data collection, the researcher calculated the sample size needed in this study using G*Power software (Faul et al., 2007). Based on the G*Power calculation formula, to get a power of 0.8 and a moderate effect size, at least 75 participants were needed.



Instruments

Demographic Scale

This research used a demographic scale that included participants’ personal information, namely name (in initials), sex, age, and domicile.

Technostress Scale

The technostress scale was used in this study to measure the participants’ technostress levels. It was developed by Wang, Tan, and Li (2020) and adapted into Bahasa language by the author. This scale comprises two sets of items, each of which consists of four items. The first set aims to assess the abilities-demands determinants, and the second set measures needs-supplies determinants. Sample items for the first set are “I feel stressed to adapt to technology-enhanced learning.” and “I feel stressed as the various forms of technology-enhanced learning complicate my study.” for the second set. Participants were asked to choose from 1 “Strongly disagree” to 5 “Strongly agree” for each item. The maximum and minimum score for this scale is 40 and 8, respectively. A higher score indicates a higher inclination to experience difficulties adapting to technology. This scale provides good reliability in this study ($\alpha = 0.825$).

Cyberslacking Scale

This research used the Cyberslacking scale to measure participants’ tendency to conduct cyberslacking behavior during lectures. This scale was developed by Akbulut et al. (2016) and adapted to the Indonesian version by Simanjuntak (2019). The cyberslacking scale consisted of five sets of items, namely sharing (nine items with a sample of the article “I check my friends' posts”), shopping (three things with item sample “I shop online”), real-time updating (five items with item sample “I retweet a tweet I like”), access online content (consists of five things such as “I download music”), and gaming/gambling (two things with sample of item “I play online games”). This scale used Likert for the response ranging from 1 (Strongly disagree) to 5 (Strongly agree). The maximum and minimum score of this scale is 120 and 24, respectively, with higher scores indicating higher cyberslacking behavior tendency in the classroom. This study's cyberslacking scale provided a satisfactory reliability index ($\alpha = 0.939$).

Data Analysis

This research used Structural Equation Model (SEM) data analysis with the Jamovi program for macOS version 2.3.21 (Navarro & Foxcroft, 2018). This analysis was used to measure the effect of technostress variables on cyberslacking variables.

RESULTS

Demographic Characteristics

As shown in Table 1, 121 participants contributed to the study, primarily female (74.68%), and the rest were male (25.62%). The participants' ages varied from 18 to 25, with an overall mean age of 19.7.

Table 1. Demographic Characteristics

No.	Demographics	N	Percentage
1	Age: 18-25 Years Old, Overall Mean: 19.7	121	100
2	Male	31	25.65
3	Female	90	74.68

SEM Analysis

Data was analyzed using structural equation model analysis to explore the contributions of technostress (as measured by the Technostress scale) on cyberslacking behavior (as measured by the Cyberslacking scale) among emerging adults. Figure 1 and Table 2 indicated the model fit analysis, which showed the value of SRMR = 0.030; NFI = 0.956; CFI = 0.993; RMSEA = 0.037; and GFI = 0.996. These results indicated that the model fit since all values met the criteria for the above minimum level (Hair et al., 2011). Table 3 shows a negative quasi-significant contribution regarding the association between technostress and cyberslacking ($\beta = -0.140, p = 0.095$). Albeit negative associations were found, it also can be concluded that there was a particular trend toward significance in how technostress might affect cyberslacking among emerging adults.

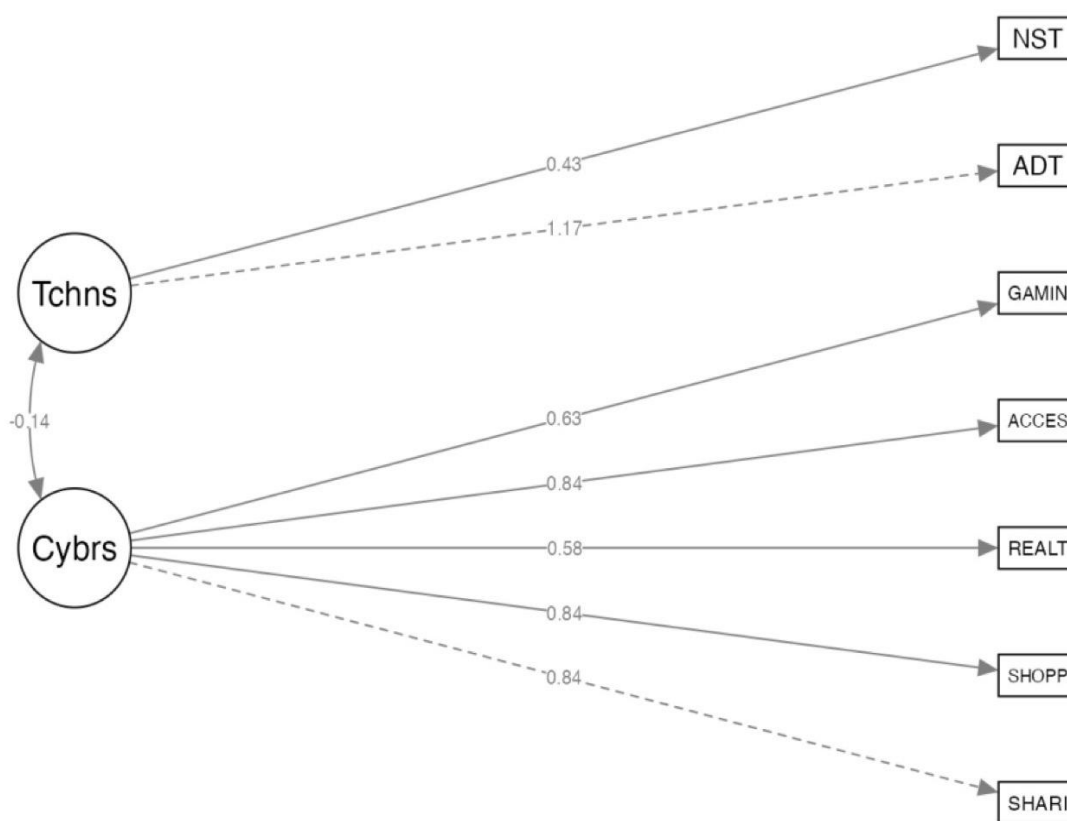


Figure 1. SEM Analysis of the Structural Model of Technostress on Cyberslacking Among Emerging Adults

Table 2. The Goodness of Fit Indices for The Model

No.	Model	X ²	df	SUMMER	NFI	TLI	CFI	RMSEA	GFI
1.	TS - CS	341.6	21	0.030	0.956	0.989	0.993	0.037	0.996

Table 3. The results of Technostress and Cyberslacking association

No.	Variables	β	S.E.	<i>p</i>
1	TS - CS	-0.140	1.618	0.095



DISCUSSION

This research posited that technostress significantly impacted cyberslacking among emerging adult university students. This study's findings found a slight negative trend toward significance, albeit hypotheses in this study were not supported. These findings contradict research findings by Li and Liu (2022), which found that technostress significantly and positively predicted cyberslacking behavior among Chinese students. Similarly, Luqman and Dhir (2021) also observed that cyberslacking among workers could be caused by an inability to adapt to the technology implemented in the workplace. We speculate that various interpretations of technostress caused differing findings among participants, which were affected by culture and socio-demographic background. Furthermore, culture has been shown to affect how individuals interpret pressure in adapting to technology implementation in lectures (Li & Liu, 2022). For example, students from Western countries characterized by individualism may have higher resilience in the face of stress than students from Eastern countries represented by collectivism (Muñoz et al., 2022).

Furthermore, a broader theory is needed to examine this concept since much discussion about technostress has yet to be discussed. The P-E fit theory used in this study focuses on the abilities-demands on technology (ADT) and needs-supplies on technology aspects (NST). It turns out that there are several other aspects to operationalizing P-E fit theory on technostress, namely abilities-demands on the organization (ADO) and needs-supplies on the organization (NSO). The former refers to the individual stress level due to the inability to cope with the vast amounts of information from multiple technology sources for study purposes. In contrast, the latter refers to insufficient technology sources provided by the university to support students' needs for academic purposes (Wang & Li, 2019). Lastly, interpersonal relationships with students also operationalize as technostress determinants (person-people factor, PPF). This matter could then cause the dynamics of technostress to be less discoverable, especially regarding its influence on cyberslacking in emerging adult students (Koay & Poon, 2022).

Technostress has also been considered a relatively new concept. Hence it requires psychometrically sound scale measurements (Wang et al., 2020a; Zhao et al., 2022). For instance, the scale used in this study to measure technostress needed to be implemented into a larger population of university students in Indonesia. The items in the existing technostress scale also need to be adapted to the language participants can fully comprehend.

Possible mediator variables could also explain these findings' lack of significant evidence. Prior studies have found that self-control and burnout played a mediating role between technostress and cyberslacking among college students (Whelan et al., 2019; G. Zhao et al., 2022; Yildiz Durak & Saritepeci, 2019; Zhao, 2021). Further, it is also possible to explore technostress from other concepts, such as students' intentions or personalities (Rana et al., 2019; Kian Yeik & Poon, 2022). Including these potential variables could give a more profound concept of technostress and cyberslacking dynamics.

This study contributed to the currently limited literature on technostress and its association with cyberslacking among emerging adult university students. However, several limitations need to be considered. First, technostress aspects in this study need to be defined more precisely. As in a study by Wang & Li (2019), in measuring technostress, it is essentially important to include how individuals perceive their organization (or, in this case, university), which could affect their perception of their adaptation to technology. Further study should include ADT, NST, and PPF factors in measuring technostress. Second, it is possible that participants needed to become more familiar with the term technostress; therefore, future



studies should ensure participants fully understand the concept of technostress. Lastly, the current study used online questionnaires to collect data solely based on self-reporting data. Future research may investigate using a qualitative data collection method.

CONCLUSION

The current study found that technostress is at the margin of statistical significance in predicting cyberslacking behavior among emerging adult university students. This study provides potential concepts specifically regarding technostress and its relation with cyberslacking. Future recommendations should focus on psychometrically sound technostress measurements, provide additional possible variables, and collect data for a broader population.

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