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## Cyberslacking: A Literature Review of Non-Academic Media-Multitasking of University Students

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### Abstract

1 University students use internet for learning, socializing and recreational purposes on a daily basis. Cyberslacking refers to students' non-academic internet access during lectures. This paper will review studies on cyberslacking and non-academic media multitasking in the context of university students. The literature review concludes that students conduct cyberslacking as a media-multitasking behaviour for non-academic purpose during lectures. Some studies discuss the antecedents of cyberslacking behaviour both from internal and external factors. Internal factors could be attitudes towards cyberslacking, cognitive absorption in technologies, perceived behavioural control, self efficacy and lack of motivation. External factors could be social norms of peers regarding cyberslacking behaviour and lecturers' competency in teaching. Other studies also mentioned about gender differences and students' faculty as factors that contribute to cyberslacking. Further studies on cyberslacking should be considered in developing the theoretical model and measurement tool of academic cyberslacking behaviour.

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**Keywords:** cyberslacking, non-academic media multitasking, university students

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### Introduction

Recently, internet has transformed many aspects of human life. It is not only used for individual source of information and entertainment, but also integrated into educational

settings (Lee & Tsai, 2011). The number of internet usage continues to increase with the number of smart phones and laptops that connect to the internet (Internet World Stat, 2017). Smart phones continues to play a large role in connecting people with the internet while the number of desktop usage at home decreases (Ofcom, 2017). Internet World Stat (2017) mentioned that approximately 3,835 billion people connect to the internet in June 2017. According to the statistic, the highest percentage of internet users is in Asia (49.8%), followed by Europe, Latin America, Africa, North America, Middle East and Australia (Internet World Stat, 2017).

Regarding the internet users, survey conducted by ITU (2017) mentioned that, across 104 countries, 80% of the youth population who access the internet ranged between 15 – 24 years old. Based on the demographic characteristic of internet users, university students is among the top users of internet (Moreno et al., 2012; Orzech et al., 2016), particularly with regards to social media (Judd, 2014). Students access the internet for roughly 5 hours a day by texting friends as well as accessing social media and emails (Junco & Cotten, 2012). Thus, internet has the potential to influence students' behaviors and values (Kolikant, 2010).

Various studies regarding students as internet users have been conducted to explore students' behaviour related to internet access. Some studies highlight several positive aspects of internet use for students, such as exchanging ideas, interacting with peers and tutor in academic setting, receiving peer support, and increasing personal well being (Lindroth & Berquist, 2010; Timmis, 2012; Barry, Murphy & Drew, 2015; Xu, Wang & David, 2016). However, other studies confirmed that other problems could arise due to lack of internet usage control, such as addiction, maladaptive behaviors, lower academic performance and poor quality of sleep (Tsai et al., 2009; Junco & Cotten, 2012; Kuss et al., 2013; Walsh, Fielder, Carey & Carey, 2013; Orzech et al., 2016; Oberst et al., 2017).

Despite the positive and negative consequences of internet usage, media-multitasking phenomenon related to the internet is still largely debated. University students are regarded as digital natives who use internet for both learning and socializing (Margaryan, Littlejohn & Vojt, 2011). They access the internet through various media simultaneously. They may engage

both in learning and socializing at the same time (Levine, Waite & Bowman, 2007). Watching TV and texting with friends while studying are also common forms of media-multitasking among students (Bowman et al, 2010; Xu, Wang & David, 2016). Students are now bringing laptops to access social media, web browsers, emails, twitters and clarify information at the same time during lectures (Ragan, Jennings, Massey & Doolittle, 2014). Students also do multitasking outside the classroom such as listening to music while studying or online chatting while browsing information for their homeworks (Xu, Wang & David, 2016). The actions to on-task and off-task are also mentioned in the study conducted by Ragan, et al. (2014) during lectures in large classes. Students tend to do both on-task activities that relates to learning materials as well as off-task activities.

Studies on non-academic media-multitasking relates to studies on cyberslacking or cyberloafing behaviour in educational settings. Cyberslacking or cyberloafing in the academic context can be defined as internet access during lectures for non-academic purposes (Gerow, Galluch & Thatcher, 2010; Yasar & Yurdugul, 2013; Taneja, Fiore & Fischer, 2015; Akbulut, Dursun, Donmez & Sahin, 2016; Arabaci, 2017; Varol & Yildirim, 2018). Blanchard & Henle (2008), Baturay & Toker (2015) and Akbulut et al. (2016) mentioned that cyberslacking and cyberloafing shares the same definition because they highlight the counterproductive behaviour of people who access the internet for personal purpose during work hours. Several examples of internet access for personal purpose include sharing in social media, online shopping, accessing non task-related website and playing online games (Akbulut et al., 2016). The term cyberslacking or cyberloafing was initially used to describe employees who access the internet for non-working materials during working hours (Lim, 2002; Whitty & Carr, 2006). However, several researchers found that students also perform cyberslacking behavior during class hours. The conceptual definition difference between cyberslacking in work and educational settings is on the subjects. Cyberslacking in academic settings is mostly defined as the behavioral tendencies of students in using internet for non-academic purposes. Table 1 and table 2 shows the summary of conceptual definition and operational definition of cyberslacking.

Table 1  
Conceptual Definition of Cyberslacking from Literature Review in University Settings

Study	Conceptual definition of cyberslacking in educational settings
Gerow et al. (2010)	Using the internet during lectures for non course-related activities
Taneja, et al. (2015)	Using the internet during lectures for non-class related purposes
Yilmaz et al. (2015)	Individual's behavior in using internet for the purposes other than course content in the classrooms
Gokcearslan et al. (2016)	The tendency for students to do internet activities which are not relevant to their schoolwork
Akbulut et al. (2016)	The use of technology for non-academic purpose that can be categorized in sharing, shopping, real-time updating, accessing online content and gaming/gambling.
Arabaci (2017)	The students' behavior to use internet that is irrelevant to the course during course hours
Varol & Yildirim (2018)	Students' tendency to use internet for non-academic purposes during classes

Table 2  
Operational Definitions of Cyberslacking Behaviour in University Settings

Study	Definitions of cyberslacking in university settings	Data instruments
Gerow et al. (2010)	Intention to do cyberslacking in the classrooms	Cyberslacking intention scale by Gerow et al. (2010) developed through factor analysis.
Taneja, et al. (2015)	Intention to cyberslack in classrooms (instruments adapted from Gerow et al., 2010)	Cyberslacking intention scale by Gerow et al. (2010)
Yilmaz et al. (2015)	Activities for non academic purpose during lectures	Cyberloafing activities scale by Yasar (2013), a revised version from Kalayci cyberloafing scale
Gokcearslan et al. (2016)	Activities for non academic purpose during lectures	Cyberloafing activities scale by Yasar (2013)
Akbulut et al. (2016)	Non-academic activities during lectures include sharing, shopping, real time updating, accessing online content and gaming/gambling	Five-factor cyberloafing scale by Akbulut et al. (2016)
Arabaci (2017)	Student's tendency to use internet for non-academic purpose during course hours	Kalayci cyberloafing scale
Varol & Yildirim (2018)	Activities for non-academic purpose during the course	Open-ended questions regarding reasons and opinions towards cyberslacking behaviour in the classroom

This paper aims to review some studies on cyberslacking and non-academic media multitasking of college and university students. A literature review on cyberslacking researches will be discussed in this studies regarding cyberslacking as the form of non-academic media multitasking among college and university students.

## Method

We searched the journal database on ERIC and [www.sciencedirect.com](http://www.sciencedirect.com) with these keywords: “cyberslacking” and “cyberloafing”. Based on the initial search using the earlier keywords, we gathered 40 studies with a publication year that ranged from 2000 – 2018. Next, the second filter was applied by adding “college student” and “university students” into the keywords. The discussion section of each study was examined to determine whether it included topics on cyberslacking and cyberloafing. As an implication, studies that does not implicitly state cyberslacking or cyberloafing in their titles but does discuss those aspects in their discussion will still be included in this review.

## Results

The selected studies were summarised based on the type of research, number of samples and findings regarding studies on cyberslacking in university settings. Table 3 summarizes the review findings.

Table 3  
*Findings on Cyberslacking Studies in University Settings*

Study	N	Subjects	Male	Female	Findings
Gerow et al. (2010)	451	University students	NR*	NR	Intention to do cyberslacking is influenced by internal and external factors. Internal factors that support cyberslacking behaviour are multitasking activities and cognitive absorptions towards technology activities. Meanwhile, external factors such as social norms (e.g., subjects think that their friends accept cyberslacking behaviour in the classrooms) plays an important role in shaping cyberslacking behavior.
Taneja, et al. (2015)	265	Undergraduate students	156	109	This study uses theory of planned Behaviour (TPB) as the grand theory to explain cyberslacking behaviour. Cyberslacking behaviour in the classrooms is influenced by attitude, subjective norm, descriptive norm and perceived behavioral control.
Yilmaz et al. (2015)	288	Undergraduate students	138	150	Subjects conduct cyberslacking in a medium level. Additionally, there is a significant difference in cyberslacking behaviour based on sex. Male students tend to cyberslack more than female students. Cyberslacking behaviour is also different based on Faculties (e.g., Management History Systems, History Information Systems and Turkish Language and Literature Departments).

Study	N	Subjects	Male	Female	Findings
<sup>5</sup> Gokcearslan et al. (2016)	598	Undergraduate students	423	175	Cyberslacking behaviour in the classrooms correlates with general self efficacy and smartphone usage. However, self regulation does not correlate with cyberslacking behaviour despite most studies saying otherwise.
Akbulut et al. (2016)	471	Undergraduate students	193	278	Part of the study for validation of cyberslacking scale of university students. This part is the third phase for exploratory factors analysis (EFA). There are five factors in cyberslacking scale, namely sharing, shopping, real time updating, accessing online content and gaming/gambling.
Arabaci (2017)	232	University students	130	102	Most of the subjects state that cyberslacking is unacceptable behaviour in the classrooms. However, students from department of Computer Studies and Social Studies regard cyberslacking is acceptable during lectures. There is a significant difference of cyberslacking behaviour regarding sex in news reading dimension.
Varol & Yildirim (2018)	228	State university students	72	156	Students tend to cyberslack during lectures because of uninteresting teaching method, lack of communication skills and classroom management skills, limited field of knowledge and lack of breaks during class. From students perspectives, cyberslacking antecedents will be personal problems (e.g. lack of sleeps, illness, fatigue), disregard of the course, disliking of course, distractibility, unprepared for learning materials in classrooms, lack of motivation, dislike instructors and not getting use to learning settings.

\*NR = not reported

#### *Cyberslacking as unrelated learning activities in media multitasking*

Studies on cyberslacking and media multitasking studies is concern over the unrelated learning behaviour or off-task behaviour during class (Roca, Williams & Dowd, 2012; Ragan et al., 2014; Taneja, Fiore & Fischer, 2015; Barry, Murphy & Drew, 2015). Taneja, Fiore & Fischer (2015) mentioned that unrelated learning behaviour during class session is also defined as cyberslacking. Label of “Digital Natives” for youths describes one of the learner characteristic as media multitasker (Thompson, 2013). Based on the characteristics of a multitasker, it is confirmed by studies that university students tend to multitask. Activities such as accessing social media, texting, chatting and browsing for unrelated content of

learning are mostly done by students during class hours (Roca, Williams & Dowd, 2012; Ragan et al., 2014; Taneja, Fiore & Fischer, 2015; Barry, Murphy & Drew, 2015). Zhang (2015) mentioned that the tendency for students to perform unrelated learning behaviour with their laptops is based on the location. Multitasking behavior differs between those accessing in lecture halls, library and at home.

Previous studies have shown that students also perform appropriate learning activities while they show media-multitasking behavior (Gaudreau, Miranda & Gareau, 2014). This behaviour is defined as school related laptop behaviour (SRLB). Browsing information related to lecture content to improve understanding and note taking for the learning materials in the classroom can be categorized as SRLB. Junco & Cotten (2012) mentioned that participants sometimes do SRLB such as browsing information based on information they read in their text books. SRLB is also confirmed by other studies as mentioned in Roca, Williams & Dowd (2012) as an on-task behaviour in the class, such as reading through power point lecture slides and note taking for lectures. Taking notes using laptop in the class during lectures is also considered as students' learning strategy (Zhang, 2015). Students might focus more during note-taking using laptops in the lecture hall and doing less media multitasking compared to at other learning places such as library and tutorial rooms (Zhang, 2015). Akbulut et al. (2016) mentioned that cyberslacking are very common among university students during lectures in which they access unrelated learning websites such as entertainment, gaming and social media sites.

*Non-academic media multitasking, self regulation, self control and self efficacy*

Barry, Murphy & Drew (2015) considered media-multitasking behaviour as the result of lack of self control. Judd (2014) stated that frequent Facebook users shows less focus on their learning task. In the model of media-multitasking, <sup>3</sup> self regulation is a predictor for multitasking behaviour in the lecture hall (Zhang, 2015). Gokcearslan et al. (2016) stated that self-regulation and self-efficacy relates to cyberslacking behaviour in the classrooms. Non-academic media-multitasking can also cause students to lose concentration in completing homeworks (Calderwood, Ackerman & Conklin, 2014). It is also reflected in experimental



study done by Calderwood, et al (2016) who found that students' self-control will decrease when they predict media availability in the laboratory session.

Wu (2017) also confirmed that self-regulation strategy as a predictor for multimedia self efficacy (MMSE). Self efficacy plays a role in completing homeworks. Students who spend a lot of time in Facebook tend to have low homework self efficacy (Calderwood, Ackerman & Conklin, 2014). Thus, Taneja, Fiore & Fischer (2015) explore the intention of cyberslacking in the class using the theory of planned behaviours. Result of the study explained that perceived behaviour control as a predictor for cyberslacking intention of the students. Duration of lecture also affect participants' ability to control their attention to the lecture (Ragan et al., 2014). Long lecture duration proves to contribute to more difficulties for students in maintaining attention. As an implication, students becomes more tempted to cyberslack during lectures. However, student will increase their engagement on on-task behavior when they know that the duration of lecture is short.

#### *Impact of cyberslacking as non-academic media multitasking on learning outcomes*

Most studies concerning non-academic media-multitasking discuss about the effect it has on the learning outcomes of university students. Learning performance is measured in an experimental study of Wood et al. (2012) who grouped treatment based on seven condition of multitasking behaviours such as Facebook, texting, MSN, email, word processing and paper pencil condition. Students who multitask, especially in Facebook and MSN, tend to show lower learning performance. Another experimental study by Calderwood, Ackerman & Conklin (2014) showed that homework performance of the participants tend to decrease when they engage in media-multitasking. Moreover, academic performance of students with paper note taking is higher than students with laptop note taking (Roca, Williams & Dowd, 2012). Beside experimental studies, some surveys on media-multitasking also prove that media multitasking can affect learning outcomes (Junco & Cotten, 2012; Gaudreau, Miranda & Gareau, 2014; Wentworth & Middleton, 2014). It can be concluded that cyberslacking behaviour as non-academic media multitasking can influence academic performance of university students.

Some results studies show that learning outcome does not correlate directly without any mediating or moderating variables. Study conducted by Wu (2017) showed that media-multitasking does not correlate directly to learning outcomes without moderating variables such as self regulation strategy (SRS) and perceived attention problem (PAP). Moreover, self regulation behaviour (SRB) affect learning outcome of the students with SRB as a mediator (Zhang, 2015). Recent studies on media multitasking are starting to explore more mediating and moderating variables as important variables than can influence learning outcome of the participants. Regarding cyberslacking behaviour as media multitasking behaviour in the classrooms, self regulation should be included as mediator or moderator variables to explain more accurately about cyberslacking behaviour during lectures.

*Cyberslacking as non-academic media multitasking and social networking sites*

Some of the studies mentioned that participants spend most of their multitasking time accessing social media networks (e.g. Facebook, Twitter). Judd (2013) stated that Facebook users prefer to media-multitask and possibly engage longer in Facebook while studying. Facebook can switch participants' attention, making them focus more on the social media than completing self-directed learning materials (Junco & Cotten, 2012; Judd, 2013). Barry, Murphy & Drew (2015) also confirmed that participants' school unrelated behavior include browsing Facebook during tutorial session. In one study, laptop usage during class also shows that students browse social networking sites as one of the multitasking activity (Zhang, 2015). This is also supported by other studies that have found social networking as one of the main multitasking behavior in class (Taneja, Fiore, & Fischer, 2015; Simanjuntak, 2017). Activities such as liking, sharing, commenting, uploading in the social media platform are very entertaining and effective in alleviating students' bored state during lectures (Simanjuntak, 2017).

Result of experimental study on laptop free zone proved that 40% participants engage in social networking site during lectures (Roca, Williams & Dowd, 2012). Engaging in social networking sites such as Facebook during lectures can affect participants' learning performance (Wood et al., 2012). Most participants also put 20% of their off-task behavior to access social media during lectures (Ragan et al., 2014). Gaudreau, Miranda & Gareau

(2014) also proved that unrelated laptop behaviors (social media) at school can influence academic performance. This finding proves that social networking sites attract students to multitask in the classroom.

### **Discussion**

This paper aims to review studies related to cyberslacking behaviour among university students. Several key points can be summarized from this study. First, cyberslacking can be regarded as a non-academic media-multitasking behavior. As mentioned by Thompson (2013), most youths are known as Digital Natives who use technology for their activities on a daily basis. Xu, Wang & David (2016) also mentioned that university students use media for social interaction, entertainment and cognitive activities. It is also possible that students conduct all three activities simultaneously. The concept of multitasking in the classroom is mostly regarded as cyberslacking activities that do not relate with academic tasks.

The second highlight in the reviews describes the aspect of self control, self regulation and self efficacy related to cyberslacking behaviors. Students are expected to focus on academic tasks during study hours. However, students who multitask tend to lose their concentration on their academic tasks (Calderwood, Ackerman & Conklin, 2014). Heavy media multitaskers tend to switch their attention more often when doing some tasks (Ophir, Nass & Wagner, 2009) compared to light multitaskers. It is possible that some students are heavy media multitaskers who have difficulties maintaining their concentration. Calderwood et al. (2016) mentioned that media availability in the lab relates to self control. Magen (2017) stated that people with lack of concentration and emotional control tend to multitask. Individuals who prefer to multitask tend to show difficulties in doing self monitoring behavior (Magen, 2017). It is also confirmed by Barry, Murphy and Drew (2015) that multitasking behavior is the indication of low self control. Similarly, Gaudreau, Miranda & Gareau (2014) found that school unrelated laptop behavior (SULB) is an indication of self regulation problems. Schunk (2012) stated that students with good self control can regulate their behaviour to achieve learning goals.

Our findings show that students mostly engage in non-academic media-multitasking platforms such as social networking sites (Junco & Cotten, 2012; Judd, 2013; Barry, Murphy & Drew, 2015; Taneja Fiore & Fischer, 2015; Zhang, 2015). Junco & Cotten (2012) mentioned that social networking such as Facebook attracts the students more rather than focusing on school works because it has aspect of entertainment and fun. Students tend to look for more enjoyable activities (e.g., social networking) when they face difficulties in understanding their learning materials (Taneja Fiore & Fischer, 2015) in order to gain positive feelings. This is particularly true when students are overwhelmed by boredom during class hours. In this case, engaging in media-multitasking becomes their strategy to stay on-task in the class (Ragan et al., 2014). However, study conducted by Brooks (2015) mentioned that social networking can reduce happiness. Future research should compare positive and negative effect of social networking on students.

Cyberslacking studies have a great concern on the impact of media-multitasking on learning outcome. Some studies argue that media-multitasking can predict lower academic performance (Junco & Cotten, 2012; Wentworth & Middleton, 2014) However, not all multitasking behaviour predict academic achievement. As mentioned by Gaudreau, Miranda & Gareau (2014), multitasking behaviors (e.g., unrelated laptop behavior) is considered to have negative correlation with academic achievement. However, there is no correlation between school related laptop behavior to academic performance. Santrock (2006) mentioned that there are several factors related to academic achievement, namely external factors (e.g. teacher, evaluation method) and internal factors (e.g. motivation, IQ). Based on that concept, some variables that act as mediator and moderator should be considered in the studies. Zhang (2015) and Wu (2017) have implemented this approach to explore the relationship between media-multitasking towards academic outcomes. Self-regulation strategy (SRS), perceived attention problem (PAP) and self-regulation behavior (SRB) were considered as moderating and mediating variables to explain media-multitasking behavior. Kononova & Chiang (2015) proposed that media ownership, polychronicity and motivation (control, entertainment, connection and addiction) will mediate effect of media ownership to multitasking behavior. Research about media-multitasking modeling will provide a holistic understanding about media-multitasking behavior of university students.

## Conclusion

The limitation of this study is that it only describes the antecedents and impact of cyberslacking and non-academic media-multitasking behavior. More studies need to be included to provide a more holistic model of cyberslacking and non-academic media-multitasking. None of the studies presented in this review have included Indonesian subjects. Regarding this fact, it is important to conduct cyberslacking research in an Indonesian university to ensure the accuracy of cyberslacking behavior model in our context.

Based on this review, it can be concluded that most university students cyberslack in the classroom. Cyberslacking relates to unrelated learning activities. Non-academic media multitasking has a correlation with academic performance, but should be considered as a mediating or moderating variable (e.g. self regulation strategy, perceived attention problem, self regulation behavior) that could strengthen the effect of particular variables to media multitasking. Further research to identify moderating and mediating variables that could strengthen and weaken media multitasking should be considered, primarily to add to the development of a model and measurement tool for cyberslacking behavior in academic context.

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