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

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Abstract

University students use internet for learning, socializing and recreational purposes on a daily basis. Cyberslackingrefers 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 concludesthatstudents conductcyberslacking as a media-multitaskingbehaviour for non-academic purpose during lectures. Some studies discuss the antecendents 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 andlecturers' competency in teaching. Other studies also mentioned about gender differences and students' faculty as factors thatcontribute to cyberslacking. Further studies on cyberslacking should be consideredindeveloping the theoretical model and measurement tool of academic cyberslacking behaviour.

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 usagecontinues 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 internetwhile 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 interner users, university students is among the top usersof 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 increasingpersonal well being (Lindroth & Berquist, 2010; Timmis, 2012; Barry, Murphy & Drew, 2015; Xu, Wang & David, 2016). However, other studiesconfirmed that other problems could arised due to lack ofinternet usage control, such as addiction, maladaptive behaviors, lower academic performance and poor quality of sleep (Tsai et al., 2009; Junco & Cotten, 2012; Kuss etal., 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 phenomenarelated to the internet is still largely debated. University student 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 onnon-academic media-multitasking relates tostudies 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 theinternet for personal purpose during work hours. Several examples of internet access for personal purpose includesharing in social media, online shopping, accessing non task-related website and playing online games (Akbulut et al., 2016). The term cyberslacking or cyberloafing was initiallyused 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 cyberslackingin 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) developped 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 databse on ERIC and*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 implicitely 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 samplesand findings regarding studieson 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 shapingcyberslacking 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
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, fatique), 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 oroff-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 tomultitask. 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 SRLBsuch 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) consideredmedia-multitasking behaviour as the result of lack of self control. Judd (2014) stated that frequent Facebook usersshows less focus on their learning task. In the model of media-multitasking, 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 loseconcentration 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 concerningnon-academic media-multitasking discuss about the effect it hason 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 studyby 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 multitaskingcan 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 tolearning 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 studiesmentioned 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 includebrowsing 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 eliviating 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 accesssocial 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 keypoints 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 uses 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 activitiessimultaneously. The concept of multitasking in the classroom ismostly regarded as cyberslacking activities that do not relate with academic tasks.

The second highlight in the reviews describe 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 multitaskertend 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 difficuties 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 tomultitask 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 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-multitaskingplatforms 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 hous. 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 shouldcompare 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 towardsacademic 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 ofcyberslacking and non-academic media-multitasking behavior. More studies needs to be included to provide a more holistic model of cyberslacking and non-academic media-multitasking.None of the studies presented in this reviewhave 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 moderatingvariable (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 multitaskingshould be considered, primarily to add to the development of a model and measurement tool for cyberslacking behavior in academic context.

References

Arabaci, I.B. (2017). Investigation faculty of education students' cyberloafing behaviors in terms of various variables. *The Turkish Online Journal of Educational Technology. 16 (1),* 72 – 82.

Akbulut, Y., Dursun, O.O., Donmez, O., & Sahin Y.L. (2016). In search of a measure to investigate cyberloafing in educational settings. *Computers in Human Behavior, 55*, 616 – 625. http://dx.doi.org/10.1016/j.chb.2015.11.022.

Blanchard, A. L., & Henle, C. A. (2008). Correlates of different forms of cyberloafing : The role of norms and external locus of control. *Computers in Human Behavior*, *24*(3), 1067 – 1084. http://dx.doi.org/10.1016/j.chb.2007.03.008.

Bowman, L.L, Levine, L.E.,Waite, B.M.&Gendron, M. (2010). Can students really multitask? An experimental study of instant messagingwhile reading. *Computers & Education*, *54*, 927–931. doi:10.1016/j.compedu.2009.09.024.

Barry, S., Murphy, K., & Drew, S. (2015). From deconstructive misalignment to constructive alignment : Exploring student uses of mobile technologies in university classrooms.*Computers & Education*, *81*, 202-210. http://dx.doi.org/10.1016/j.compedu.2014.10.014.

Baturay, M.H., & Toker, S. (2015). An investigation of the impact of demographics on cyberloafing from an educational setting angle. *Computers in Human Behavior,50*, 358 – 366. http://dx.doi.org/10.1016/j.chb.2015.03.081.

Brooks, S. (2015). Does personal social media usage affect efficiency and well-being?. *Computers in Human Behavior,46*, 26–37. http://dx.doi.org/10.1016/j.chb.2014.12.053.

Calderwood, C., Ackerman, P.L., & Conklin, E.M. (2014). What else do college students "do" while studying? : an investigation of multitasking. *Computers & Education*. *75*, 19–29. http://dx.doi.org/10.1016/j.compedu.2014.02.004.

Calderwood, C., Green, J.D., Gaba, J.A.Y., & Moloney, J.M. (2016). Forecasting errors in student media multitasking duringhomework completion. *Computers & Education*, *94*, 37-48. http://dx.doi.org/10.1016/j.compedu.2015.10.021.

Gerow, J.E., Galluch, P.S., & Thatcher J.B. (2010). To slack or not to slack: Internet usage in the classroom. *Journal of Information Technology, Theory and Application, 11 (3),* 5 – 24.

Gaudreau, P., Miranda, D. & Gareau, P. (2014). Canadian university students in wireless classrooms: What do they do on their laptops and does it really matter?. *Computers & Education,70*, 245–255. http://dx.doi.org/10.1016/j.compedu.2013.08.019.

Gokcearslan, S., Mumcu, F.K., Haslaman, T., & Cevik, Y.D. (2016). Modelling smartphone addiction : the role of smartphone usage, self regulation, general self efficacy and cyberloafing in university students. *Computers in Human Behavior,63*, 639 – 649. http://dx.doi.org/10.1016/j.chb.2016.05.091.

Internet World Statistic. (2017). *Internet user in the world by region.* Retrieved from http://www.internetworldstats.com/stats.htm.

ITU (2017). *ICT Facts and Figures 2017.* Retrieved from http://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx.

Junco, R. & Cotten, S.R. (2012). No A 4 U: The relationship between multitasking and academic performance. *Computers & Education,59*, 505–514. doi:10.1016/j.compedu.2011.12.023.

Judd, T. (2013). Making sense of multitasking: Key behaviours. *Computers & Education*, *63*, 358–367. http://dx.doi.org/10.1016/j.compedu.2012.12.017.

Judd, T. (2014). Making sense of multitasking : The role of Facebook. Computers & Education, *70*, 194–202. http://dx.doi.org/10.1016/j.compedu.2013.08.013.

Kolikant, Y.B.D. (2010). Digital natives, better learners? Students' beliefs about how the Internet influenced their ability to learn. *Computers in Human Behavior, 26*, 1384–1391. doi:10.1016/j.chb.2010.04.012.

Kuss, D.J., Rooij, A.J.v., Shorter, G.W., Griffiths, M.D., Mheen, D.vd., (2013). Internet addiction in adolescents : Prevalence and risk factors. *Computers in Human Behavior, 29*, 1987–1996. doi:10.1016/j.chb.2013.04.002.

Kononova, A., & Chiang, Y.H. (2015). Why do we multitask with media? Predictors of media multitasking among Internet users in the United States and Taiwan. *Computers in Human Behavior*, *50*, 31–41. http://dx.doi.org/10.1016/j.chb.2015.03.052.

Lim, V.K.G. (2002). The IT way of loafing on the job: cyberloafing, neutralizing and organizational justice. *Journal of Organizational Behavior, 23*(5), 675-694. DOI : 10.1002/job.161.

Levine, L. E., Waite, B. M., & Bowman, L. L. (2007). Electronic media use and distractibility for academic reading in college youth. *CyberPsychology & Behavior*, *10*(4), 560–566.

Lindroth, T., & Berquist, M. (2010). Laptopers in an educational practice: Promoting the personal learning situation. *Computers & Education*, *54*, 311–320. doi:10.1016/j.compedu.2009.07.014.

Lee, S. W. Y. and Tsai, C. C. (2011) 'Students' perceptions of collaboration, self-regulated learning, and information seeking in the context of Internet-based learning and traditional learning', *Computers in Human Behavior*, *27*(2), pp. 905–914. doi: 10.1016/j.chb.2010.11.016.

Margaryan, A., Littlejohn, A., & Vojt, G., (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education, 56*, 429–440. doi:10.1016/j.compedu.2010.09.004.

Moreno, M.A., Jelenchick, L., Koff, R., Eikoff, J., Diermyer, C., Cristakis, D.A., (2012). Internet use and multitasking among older adolescents: An experiencesampling approach. *Computers in Human Behavior*, *28*, 1097–1102. doi:10.1016/j.chb.2012.01.016.

Magen, H. (2017). The relations between executive functions, media multitasking and polychronicity. *Computers in Human Behavior*, *67*, 1-9. http://dx.doi.org/10.1016/j.chb.2016.10.011.

Orzech, K.M, Grandner, M.A., Roane, B.M.& Carskadon, M.A. (2016). Digital media use in the 2 h before bedtime is associated with sleep variables in university students. *Computers in Human Behavior*, *55*, 43-50. http://dx.doi.org/10.1016/j.chb.2015.08.049.

Oberst, U., Wegmann, E., Stodt, B., Brand, M. (2017). Negative consequences from heavy social networking in adolescents : The mediating role of fear of missing out. *Journal of Adolescence,55*, 51-60. http://dx.doi.org/10.1016/j.adolescence.2016.12.008.

Roca, N.M., Williams, A.E., & Dowd, D.K. (2012). The impact of laptop-free zones on student performance and attitudes in large lectures. *Computers & Education, 59*, 1300–1308. doi:10.1016/j.compedu.2012.05.002.

Ragan, E.D., Jennings, S.R., Massey, J.D. & Doolittle, P.E. (2014). Unregulated use of laptops over time in large lecture classes. *Computers & Education*, *78*, 78-86. http://dx.doi.org/10.1016/j.compedu.2014.05.002.

Santrock, J.W. (2006). *Educational psychology*. USA: McGraw-Hill, Inc.

Schunk, D.H. (2012). *Learning theories. An educational perspective 6th edition.* Boston : Pearson.

Simanjuntak, E. (2017). Peran Social Media Engagement pada Perilaku *Cyberslacking* Mahasiswa. *Proceedings Temu Ilmiah Nasional Psikologi 11th Psychofest* (pp. 149 – 158). Surabaya: Fakultas Psikologi Universitas Airlangga.

Tsai, H.F., Cheng, S.H., Tzung, L.Y., Shih, C.C., Chne, K.C., Yang Y.C., Yang, Y.K. (2009). The risk factors of Internet Addiction – a survey of university freshmen. *Psychiatry Research*, *167*, 294 - 299. doi : 10.1016/j.psychres.2008.01.015.

Timmis, S. (2012). Constant companions: Instant messaging conversations as sustainable supportive study structures amongst undergraduate peers. *Computers & Education, 59*, 3–18. doi:10.1016/j.compedu.2011.09.026.

Thompson, P. (2013). The digital natives as learners: Technology use patterns andapproaches to learning. *Computers & Education*, *65*, 12–33. http://dx.doi.org/10.1016/j.compedu.2012.12.022.

Taneja, A., Fiore, V., & Fischer, B. (2015). Cyber-slacking in the classroom: Potential for digital distraction in the new age. *Computers & Education,82*, 141-151. http://dx.doi.org/10.1016/j.compedu.2014.11.009.

Varol, F., & Yildirim, E. (2018). An examination of cyberloafing behaviors in classrooms from students' perspectives. *Turkish Online Journal of Qualitative Inquiry, 9 (1)*, 26 – 46. DOI : 10.17569/tojqi.349800.

Whitty M. T. & Carr A. N. (2006). New rules in the workplace: Applying object-relations theory to explain problem Internet and email behaviour in the workplace.

Computers in Human Behavior, 22, 235 - 250. http://dx.doi.org/10.1016/j.chb.2004.06.005

Wood, E., Zivcakova, L., Gentile, P., Archer, K., Pasquela, D.D.&Nosko, A. (2012). Examining the impact of off-task multi-tasking with technology on real-time classroom learning. *Computers & Education,58*, 365–374. doi:10.1016/j.compedu.2011.08.029

Walsh, J.L., Fielder, R.L., Kate B. Carey, K.B., & Carey, M.P. (2013). Female college students' media use and academic outcomes: Results from a longitudinal cohort study. *Emerging Adulthood,1*(3), 219-232. doi : 10.1177/2167696813479780.

Wentworth, D.K, & Middleton, J.H. (2014). Technology use and academic performance. *Computers & Education*, *78*, 306-311.http://dx.doi.org/10.1016/j.compedu.2014.06.012

Wu, J.Y. (2017). The indirect relationship of media multitasking self-efficacyon learning performance within the personal learningenvironment : implications from the mechanism of perceivedattention problems and self-regulation strategies. *Computers & Education*, *106*, 56-72. http://dx.doi.org/10.1016/j.compedu.2016.10.010

Xu, S., Wang Z.J., & David, P. (2016). Media multitasking and well-being of university students. *Computers in Human Behavior*, *55*, 242-250. http://dx.doi.org/10.1016/j.chb.2015.08.040

Yasar, S., & Yurdugul, H. (2013). The investigation of relation between cyberloafing activities and cyberloafing behaviours in higher education. *Procedia Social and Behavioral Sciences, 83,* 600 – 604.

Yilmaz, F.G.K., Yilmaz, R., Ozturk, H.T., Sezer, B., & Karademir, T. (2015). Cyberloafing as a barrier to the successful integration of information and communication technologies into teaching and learning environments. *Computers in Human Behavior,45*, 290 – 298. http://dx.doi.org/10.1016/j.chb.2014.12.023

Zhang, W. (2015). Learning variables, in-class laptop multitasking and academic performance: A path analysis. *Computers & Education*, *81*, 82-88. http://dx.doi.org/10.1016/j.compedu.2014.09.012