

# Cyberloafing in Higher Education: Reasons and Suggestions from Students' Perspectives

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**Abstract** The main goals of the current study are (1) college students' cyberloafing behaviors during a lab session, (2) reasons that students cyberloaf, and (3) possible solutions to prevent this behavior from the students' perspectives. A total of 184 students registered for lab hours at a public university in Turkey were recruited to participate in this qualitative study. They reported what type of cyberloafing behaviors they showed during lab hours. Data analysis were completed based on four main themes contributing to learners' cyberloafing: instructor, student, course content, and learning environment. In addition, participants were asked to provide suggestions. Once researchers understand the causes and preventative measures for cyberloafing at the college level, educators can provide better learning opportunities. Thus, the findings of this study can be applied to future research to diminish cyberloafing behaviors during lab sessions.

**Keywords** Cyberloafing · Higher education · Qualitative · Motivation

## 1 Introduction

Before the wide spread of technology in workplaces, employees often chatted about non-work related topics near the water cooler or coffee machine for short periods of time, described by Whitty and Carr (2006) as loafing. Over time, a different version of loafing behavior has occurred which is called as "cyberloafing," due to the addition of computers and Internet use. Employees soon began sending and reading private e-mails, browsing social media, and scanning online newspapers during working hours. Similar behaviors occur in classrooms, especially in computer labs. However, the number of studies focusing

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on cyberloafing in educational settings are very limited. The main purpose of this paper is to examine cyberloafing behaviors that learners show in classroom; the reasons leading them show such behaviors and possible solutions to minimize them from learners' perspective. We designed the study based on factors that Williams and Williams (2011) structured related to students' motivation. The reason is that motivation is accepted as a key factor affecting students' learning. A motivated student as a happy and eager student who pay attention, focus on task immediately they are given, and ask/answer questions (Palmer 2007). Williams and Williams (2011) provided main factors that affect students' motivation which are the baseline of the current study: students themselves, instructor, content, and environment.

## 2 Literature Review

### 2.1 Cyberloafing and Workplaces

Cyberloafing has been defined as the use of the Internet in workplaces for non-work related activities (Blanchard and Henle 2008; Whitty and Carr 2006). Bock and Ho (2009) have stated that cyberloafing is "an employee's usage of organizational IS [information system] resources for personal purposes, not directly related to organizational goals" (p. 125). Reading personal emails, chatting, shopping, banking, visiting adult-oriented sites, and gambling online during work hours are all considered cyberloafing (Blanchard and Henle 2008; Ugrin et al. 2008; Vitak et al. 2011). Such behaviors can be observed in learning environments that have been changed with use of emerging technologies in those environments.

Today's critical concern regarding cyberloafing is due to its power to diminish the productivity of a worker, resulting in economic loss (Andreassen et al. 2014; Naughton et al. 1999; Stewart 2000). On the other hand, it has effects on diminishing the level of stress or productivity gain, increased skills and knowledge, and balancing work and life (Anandarajan and Simmers 2005; Oravec 2004; Stanton 2002). Since the scope of this paper is to examine the reasons of cyberloafing behaviors in educational settings while ignoring its positive and negative effects on students, the following section focuses on cyberloafing in learning environments.

### 2.2 Cyberloafing and Learning Environments

Students have responsibilities, including being active and engaged, listening to instruction, completing homework, taking exams, and so on. Each may be called as learning tasks. With the changes in technology, students find new ways to accomplish those tasks. Especially being in a century in which teachers teach to "a virtual generation of students," (Proserpio and Gioia 2007) instructors may use web search assignments during a lesson or students may use their smartphones, tablets or laptops to conduct search about a certain topic, submit homework, or communicate with the instructor (Ragan et al. 2014). Although some studies found positive and significant correlation between students' laptop/smartphone usage in classroom and their motivation level (e.g., Brown et al. 1998; Brown and Pettito 2003; Fitch 2004; Samson 2010; Stephens 2005), several studies found negative effects of those digital technologies on students' motivation (Kladko 2005; Meierdiercks 2005; Schwartz 2003). Actually not directly related to use of technology in classrooms,

when students lose motivation, they start showing various behaviors that are not related to courses. More specifically they start going back and forth between learning and non-learning tasks (Fried 2008). Examples of those behaviors are drawing pictures on notebooks, chatting with a classmate, checking out e-mails, browsing the Internet, and so on. Kalaycı (2010) considered those behaviors as cyberloafing behaviors and defines it as the use of the Internet and computers for non-school activities during a lesson.

In the literature, there are many studies that are related to technology related student distractions (e.g., Kladko 2005; McWilliams 2005; Schwartz 2003; Szaniszlo 2006; Young 2006) and few studies were directly related to cyberloafing in higher education. Sana et al. (2013) summarized studies focusing on laptop use in classrooms and stated that while students use laptops to take notes, view course materials, conduct research, they also use laptops to play games, send instant messages, watch movies and so on. There exist other studies that are directly related to cyberloafing behaviors in classrooms. In a study, McBride et al. (2006) examined assignment submission times in a graduate course. The results showed that almost half of the monitored students submitted their homework during another professor's course hours, which is considered cyberloafing since those students were misdirecting their attention in class via the Internet. Also, Galluch and Thatcher (2007) worked with 353 university students to investigate students' use of Internet technologies in a classroom. Their results showed that peers influence one's intention to cyberloaf. Similar result was found by Sana et al. (2013). One study specifically focused on the causes that lead students to show cyberloafing behaviors (Ergün and Altun 2012). Based on the interviews with ten students, five themes were emerged: motivational, goal settings, teacher, environment, and time related reasons. In another study, Johnson (2009) worked with graduate students to investigate their beliefs about the use of computers with Internet access during a course and found the computers to be strongly correlated with distraction levels. Similar results were found in other studies (Fried 2008; Hembrooke and Gay 2003; Wurst et al. 2008).

However, from those studies it is difficult to identify neither the main reasons that lead students to do non-learning activities in a class nor advantages or disadvantages of such behaviors on students. Also, those have relied on a relatively low number of participants. Thus, there is a need to understand more fully the cyberloafing behaviors including the reasons that lead students to show cyberloafing behaviors and whether it is advantage or disadvantage for learners to show such behaviors. The main scope of this paper is to find answer to the former one. To this end, we worked with a certain group of students who were majoring in computer science. The main reason for this purposeful sample selection was to obtain rich data since those students generally meet at computer labs for their course, opening the door to cyberloafing. We asked three research questions:

1. What cyberloafing (non-class) activities do learners in higher education carry out during a lab hour?
2. From their own perspectives, what are the reasons that learners cyberloaf during a lab hour?
3. From their own perspectives, what possible solutions may prevent learners from cyberloafing during a lab hour?

### 3 Method

Qualitative case study methodology that provides great opportunities for researchers to find answers for how- and why-questions (Yin 2003) was employed in this study. There exist different types of case studies. Descriptive type was preferred since it describes phenomenon and the context in which it occurred (Yin 2003).

#### 3.1 Procedures and Participants

Cyberloafing behaviors can be observed in any environment as long as students have access to a mobile device, a computer or a similar device with internet access. For this particular study, through convenience sampling technique, we specifically selected 185 participants who enrolled in Department of Computer Education and Instructional Technologies (CEIT) in the eastern side of Turkey. Students in the Department of CEIT were purposefully selected since those students have many courses in computer labs. We informed potential participants, a total of 287 students, about the study via online. Also, for credibility of the study, participants' various genders, ages, and their earned semester hours would allow us as researchers to obtain richer data. Out of 287 students, only 185 students completed the questionnaire (95 female and 90 male). Although all of the participants completed the first two section of the instrument, some of them did write non-sense words or letters or they did write "I do not know" or "I have no idea" to as answers to some open ended questions. Those students were not included in the percentage calculations.

#### 3.2 Instruments

We used a three-part instrument to evaluate participants' views regarding cyberloafing. The first part was designed to obtain personal information about the participants. The second was a scale originally developed by Blanchard and Henle (2008) to specify the frequency with which participants engaged in different cyberloafing activities. The scale consisted of 22 items and it was translated to Turkish by Kalaycı (2010), who verified its reliability and validity (Cronbach's  $\alpha = 0.88$ ).

The last section of the instrument identified reasons for cyberloafing in class and sought solutions from the participants' perspectives. As stated previously, five areas affect students' motivation: student, instructor, course content, teaching method, and learning environment (Williams and Williams 2011). We developed the third section of our instrument with open-ended questions based on those five points. We worked with two experts whose major was in computer education and instructional technology and one expert whose major was Turkish language. After seeking expert opinions, we dropped teaching methods, which were determined to fall under pedagogical knowledge in the instructor category. Thus, the open-ended questions examined reasons for cyberloafing activities that occur due to the instructor, course content, student, and learning environment. The open ended questions were as following:

During lessons, there might be some reasons of student doing different activities with their mobile devices that are irrelevant to the contents of the lesson.

What are the instructor/environment/content/students related reasons for you that lead you to do cyberloafing activity?

What solutions to the problems would you suggest?

Although the open ended questions were related to four themes, another theme, time, emerged during data analysis and is discussed in the results section.

### 3.3 Data Analysis

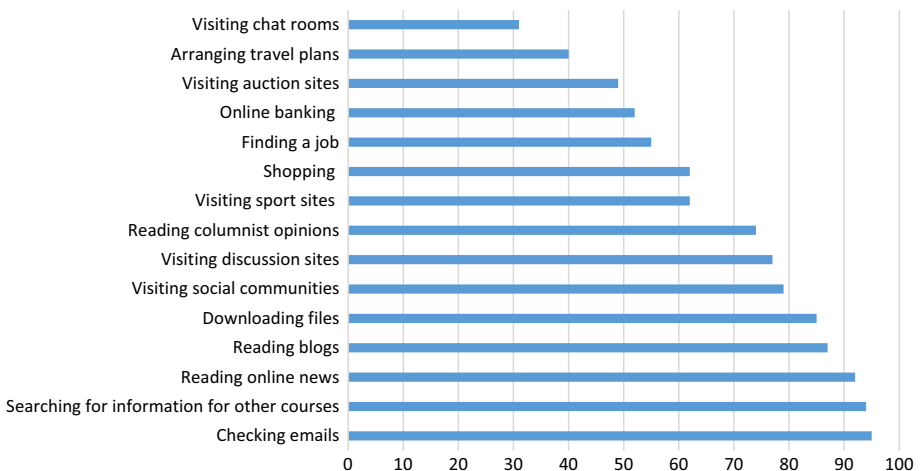
In order to identify participants' behavior, we calculated the frequencies for each cyberloafing activity. First, in order for credibility and dependability, both researchers reviewed and coded the data individually and discussed their codes and sub-codes for consensus. We used a computer-assisted qualitative data analysis program, which prevented biases such as subjective coding and ignoring negative responses (Gibbs et al. 2002). After ensuring the associations among codes, sub-categories were created, and both researchers analyzed the data separately two times. The agreement between researchers was 92%. We discussed the items on which we disagreed and made consensus about coding. The results were given based on the percentage of participants who mentioned each theme and sub-theme based on their grade level.

## 4 Results

The results are presented in two categories. First, participants' cyberloafing activities during lab hours are discussed. The second section focuses on the reasons for and solutions to those cyberloafing activities. Specifically, factors related to instructor, course content, student, and learning environment are presented with representative quotations.

### 4.1 Cyberloafing Activities During Lab Hours

In the questionnaire, respondents reported how often they engaged in the different activities (see Fig. 1) during a lab hour. While the vertical lines represent cyberloafing behaviors, the horizontal lines represent the frequencies. Results showed that participants often checked email (95%), searched for information for other courses (94%), and read the



**Fig. 1** Descriptive statistics of cyberloafing activities during a lesson

news (92%). More specifically, among students who reported checking emails, searching information for another course and reading news during a lab hour, more than 45% of them reported that they showed this behavior very often.

## 4.2 Cyberloafing: Reasons and Solutions

This study applied a qualitative research method to investigate (a) the reasons that learners cyberloaf during a lab hour and (b) those learners' suggested solutions to prevent cyberloafing.

### 4.2.1 Theme 1: Instructor-Related Reasons for Cyberloafing and Possible Solutions

Among all participants, only two did not answer this question. Thus, the frequencies were calculated based on 183 participants. Participants mentioned five reasons for cyberloafing under the instructor theme (see Table 1): issues related to instructors' pedagogical knowledge, classroom management, personality traits, content knowledge, and communication skills.

Among the themes, instructors' pedagogical knowledge was most stressed (76%), particularly with regard to not using varied instructional methods (52%). One sophomore (S\_SP\_15) stated, "If an instructor teaches with direct instruction, after a while students get bored and start searching for something else for entertainment." In addition, 7% of participants mentioned that an instructor with limited content knowledge would lead them to cyberloaf. While one freshman said (S\_FM\_12), "[The instructor] can be more active, can sometimes make jokes and then get back to the lesson quickly with effective classroom management skills," a senior (S\_SN\_2) stated, "Instructors need to make the lessons more interactive, and they have to give up on direct teaching."

Table 2 shows possible solutions to prevent such cyberloafing activities from the respondents' perspectives. For this question, 182 participants gave answer. Participants put strong emphasis on the development of instructors' pedagogical knowledge as a hindrance

**Table 1** Instructor-related reasons for cyberloafing

Themes	%
Issues related to pedagogical knowledge	76
Not using varied instructional methods	52
Using materials ineffectively	9
Not letting students being active	3
Being unprepared for the lesson	4
Using excessive repetition	3
Classroom management	16
Focusing on the same group of students	1
Not moving around in the classroom	5
Limiting classroom management	11
Personality traits	5
Being excessively tolerant or serious	4
Limited content knowledge	7
Issues related to communication skills	19
Using a particular tone of voice	9

**Table 2** Solutions to instructor-related reasons for cyberloafing

Themes	%
Pedagogical knowledge	86
Using materials effectively	18
Using various teaching methods	47
Being prepared for lessons	7
Being an active instructor	18
Making students active learners	28
Content knowledge	4
Classroom management	18
Communication	15

to cyberloafing. For instance, one student (S\_SN\_23) stated, “They [Instructors] have to attend professional development programs to learn more about different teaching methods, effective use of materials, and things like that.” In addition, although only mentioned by a limited number of participants (5%), an instructor’s personal traits may affect teaching effectiveness, resulting in cyberloafing. However, as one participant (S\_SP\_13) observed, it’s “just personality, nothing can be done about this [personal traits].”

#### 4.2.2 Theme 2: Content-Related Reasons for Cyberloafing and Possible Solutions

Table 3 shows sub-themes and the corresponding percentages of participants who mentioned those themes. In terms of course content, participants pointed out five sub-themes, though primarily complained about content itself (47%). For instance, one student (S\_JN\_1) directly pointed to “boring or sometimes unnecessary course content” as a trigger for cyberloafing.

In order to hinder cyberloafing behaviors, participants, especially the seniors, emphasized the selection of appropriate content (26%), asking instructors to clearly explain course objectives (12%) and provide more time for practice rather than listening to a lecture (9%). One student (S\_JN\_21) explained, “Avoid unnecessary course content...they [instructors] get to know us [students] better and our needs and design the course based on those needs.”

**Table 3** Course content-related reasons for cyberloafing

Themes	%
Issues related to course content	38
Irrelevant content	5
Boring/non-interesting content	34
Unnecessary content	4
Unclear course objectives	2
Excessive weight on theoretical information	6
Insufficient practice time	6
Concern over completing projects	47

#### 4.2.3 Theme 3: Student-Related Reasons for Cyberloafing and Possible Solutions

Table 4 shows the student-related main and sub-themes. One respondent (S\_SN\_12) described a “lack of interest toward some courses... or sometimes prejudice toward a course.” Another student (S\_JN\_15) said, “It is just inattentiveness towards a course that leads us to show cyberloafing.” Another one (S\_JN\_17) stated that “if I do not care enough about the course or content, I will take my attention over to another thing that is important for me at that moment.” Moreover, one of the participants (S\_SP\_18) expressed his feelings as following: “If a student declare that he/she does not like the course or believe that he/she cannot be successful in that course, then he/she would not listen to the instructor or concentrate on the course.”

Participants provided only two specific solutions to solve these issues. One is student preparation, and the other involves being aware of their own responsibilities. Specifically, some students believe that it is their choice to take advantage of the opportunity provided by instructor in order to learn. One senior (S\_SN\_12) observed, “Everybody needs to be aware of their own responsibilities, at least they get to try.” Another student (S\_SP\_19) took attention to the preparedness and stated that “students should come to class prepared to the class.”

#### 4.2.4 Theme 4: Environment-Related Reasons for Cyberloafing and Possible Solutions

In the current study, 19% of participants mentioned that knowing that they had access to the Internet during a lesson led to cyberloafing (see Table 5). One student (S\_JN\_4) clearly explained, “If there is Internet, my motivation to listen to the instruction decreases.” Their suggestion was to eliminate the Internet connection (S\_SN\_35) on, turning computers off when not needed for a lesson. Classroom size was another complaint. One student (S\_JN\_9) said, “Crowded classrooms negatively affect the instructor’s classroom management, which allows me to cyberloaf.”

Cutting off the Internet or turning the computers off was raised as a solution by 20% of participants. In addition, 15% of participants mentioned classroom seating style. Several students said that monitors need to be seen by instructors easily to diminish the willingness and capabilities to cyberloaf. Also, decreasing the number of students in classroom may prevent cyberloafing behaviors.

**Table 4** Student-related reasons for cyberloafing

Themes	%
Unpreparedness	7
Inattentiveness	10
Personal issues	22
Private affairs	13
Tiredness	7
Lack of motivation	11



**Table 5** Learning environment-related reasons for cyberloafing

Themes	%
Access to computers with Internet	19
Organization of seating	15
Lighting and temperature of classroom	7
Crowded classroom	13
Noise	15

## 5 Discussion and Implications for Future Research

Cyberloafing in educational setting takes researchers attention in recent years. However, based on those conducted studies it is difficult to identify the reasons that lead students to show cyberloafing behaviors. To fill the gap in the literature, we conducted a qualitative study and examined the factors that lead teacher candidates whose major were in computer education to use university's sources (i.e., computer lab, computers, and internet connection) for non-school related works. The results show that four factors influence such behaviors: instructor, course content, students themselves, and learning environment. The findings of this study can be applied to future research about diminishing cyberloafing behaviors in labs if necessary, which may have the power to directly affect the teacher education programs in terms of content and practices.

The first goal of the current study was to examine participants' cyberloafing activities during a lab hour. The results confirmed what Kalaycı (2010) reported: students mainly check emails, read news, visit social media sites, and download files during lab hours. Similar cyberloafing behaviors have been observed in workplaces (Garrett and Danziger 2008; Lim 2002; Verton 2000). Additionally, this study reports why college students cyberloaf during lab hours and provides suggestions from their perspectives that would mitigate that behavior.

### 5.1 Instructors and Cyberloafing

The importance of teachers' pedagogical and content knowledge for effective teaching is not a new topic. Since Shulman (1986), it has been under detailed investigation by many researchers, and their results have described the effective teacher in all disciplines (Bransford et al. 1999; Jang 2008; Pintrich and Schunk 1996). Participants in this study portrayed a similar picture by mentioning instructional methods selection, material use, content knowledge, and communication skills of instructors as influential factors on their behavior in labs. Further studies may focus on these variables in greater detail to evaluate their power on students' motivation and, as a result, its relation to cyberloafing behaviors.

Participants also mentioned instructors' personal traits, such as having strong self-regard, high energy and enthusiasm, and a positive view of others, as well as being friendly and agreeable. These traits are positively correlated with students' motivation during courses, as reported in Hativa's (2000) study. Many studies have shown positive correlations between instructors' nonverbal immediacy and learners' motivation as well as their academic achievement (Freeman et al. 2007; McCroskey 2003; McCroskey et al. 2004; Mottet et al. 2006; Osterman 2000; Richmond 1990). Thus, it is strongly suggested that student motivation is a critical component of learning and instructors should take this factor into consideration while teaching. Little research has focused on ineffective teachers

in terms of personality, traits, and aptitude and the impact of those traits on instruction, as Hativa (2000) has observed. Thus, future research may compare unsuccessful teachers with their peers in terms of students' cyberloafing.

## 5.2 Course Content and Cyberloafing

Researchers have found that students become more motivated if they know why the content of a course is important (Kauffman and Husman 2004; Pintrich and Schunk 1996; Tabachnick et al. 2008). Participants in this study accordingly pointed out the association between the practicality of course content and motivation. Thus, instructors need to explicitly explain how course content is related to students' interests and career goals (Jang 2008), which may increase motivation to learn and, as a result, prevent cyberloafing. Moreover, Elliot and Dweck (2005) put strong emphasis on the importance of one's perception of self-competence on motivation. Indeed, students who believe they will succeed put more effort into a given task. However, a task that is too easy or too difficult will negatively affect their perception of competence (Bransford et al. 1999; Csikszentmihalyi 1990; Stipek 1988). Keller (1979) summarized studies related to learned helplessness and stated that if a learner believes that a task is impossible to complete, the helplessness condition is established, destroying motivation. Thus, selection of course content requires special attention. By their last year, students are more knowledgeable about the content related to their major. If content is not chosen carefully to prevent repetition, students will experience decreased motivation and increased likelihood of cyberloafing behaviors. Hence, instructors need to be critical while choosing course content, activities, and assessments, which is already students' suggestion for diminishing cyberloafing activities in class.

## 5.3 Students and Cyberloafing

According to Schraw and Lehman, interest is "liking and willful engagement in a cognitive activity" (2001, p. 23) and plays a critical role in learning (Garner 1992; Hidi and Renninger 2006; Schunk et al. 2008). In the current study, respondents stressed the importance of personal interest through inattentiveness and lack of motivation toward those courses in which they showed more cyberloafing behaviors. While many studies have shown a positive correlation between personal interest and academic achievement (Bates and Khasawneh 2007; Boyle et al. 2003; Dembo et al. 2006; Heikkilä and Lonka 2006; Schiefele et al. 1992), further studies may focus on more factors that affect students' interest and, as a result, cyberloafing behaviors.

## 5.4 Learning Environment and Cyberloafing

Hidi and Renninger (2006) stated, "The potential for interest is in the person but the content and the environment define the direction of interest and contribute to its development" (p. 112). In studies focusing on workplaces, the environment is a strong predictor of cyberloafing (Blanchard and Henle 2008; Ozler and Polat 2012). Similarly, a growing body of studies have found that learner outcomes are associated with perceived learning environments (Fraser 1994; McRobbie and Fraser 1993; Padrón 1992; Pierce 1994; Wang et al. 1993), including layouts of school buildings, arrangement of furniture, and accessibility to materials that maintain students' interest. In the current study, the learning

environment, including the organization of seats, lighting, and temperature, contributed to cyberloafing. Askew et al. (2014) have suggested setting up monitors in a way that they do not face walls, which may lead to a reduction of cyberloafing. An Internet blocker would further control students' access. However, as Galluch and Thatcher (2007) have pointed out, such a tool should not limit dynamic content modification during a lecture or diminish students' willingness to learn. Moreover, some students may not have access to computers outside of school; thus, instructors may consider allowing students to take some time during a lab hour to access the Internet for non-course related tasks.

Many researchers have reported positive effects of smaller classes on teaching and learning (Blatchford and Lai 2010). Specifically, instructors in small classes face fewer discipline issues and have more enthusiasm, and their students learn better (Molnar et al. 1999; Thomas 2001; Zahorik 1999). In this study, students particularly complained about crowded classrooms (19%) and noise (15%). In reality, the class ratio for the department is almost 1:60. However, Brühwiler and Blatchford (2011) reported that studies focusing on class size effects have not systematically examined the association between class size and classroom processes, as variables such as teacher characteristics, curriculum area, time frame, and teaching practices were not considered. In the current study, students criticized instructors' method selection, use of materials, and personal traits, as well as the instructor-student ratio. Thus, it would be beneficial to extend the literature on class size effects and students' cyberloafing behaviors while taking into account other variables.

In short, the current study was one of the first qualitative studies that aimed to investigate (a) college level students' cyberloafing behaviors in labs, (b) reasons that students cyberloaf, and (c) possible solutions to prevent this behavior from those students' perspectives. We focused on four main themes that affect cyberloafing: instructor, student, course content, and learning environment. The findings of this study can be applied to future research about diminishing cyberloafing behaviors in labs. Future research could be extended to gain insight from faculty members, gaining their knowledge about students' cyberloafing behaviors and comparing their perspectives to those of their students. In short, once the causes of cyberloafing at the college level are understood and the means of preventing it are established, educators can provide better, more effective opportunities for learners.

## 6 Implications for Practice

The current study makes an important contribution to educational institutions' practices in terms of cyberloafing. Naumann and Bennett (2000) describes institutions climate as shared perceptions of policies, practices, procedures, and expectations developed within the group—administrators, instructors, students, and other staff for educational institutions—through interaction. If cyberloafing is an issue in the organization in terms of teaching and learning, then necessary actions need to be taken: organizing the classroom environment, making changes in teaching styles—using different teaching methods and techniques—to keep students' motivation high, providing guidance for students who have personal problems, making necessary changes in course contents to keep them up-to-date, and so on.

## 7 Limitations

The current study has two limitations. First, the data were collected from students whose major was computer science at a state university. In order to understand better undergraduate students' attitudes towards cyberloafing, this study needs to be replicated using a variety of populations. Second, we developed open-ended questions based on four key points associated with students' motivation. Thus, those specific questions may have limited participants' responses. Future research should investigate cyberloafing from a broader perspective.

## References

- Anandarajan, M., & Simmers, C. A. (2005). Developing human capital through personal web use in the workplace: Mapping employee perceptions. *Communications of the Association for Information Systems, 15*(1), 41.
- Andreassen, C. S., Torsheim, T., & Pallesen, S. (2014). Predictors of use of social network sites at work: A specific type of cyberloafing. *Journal of Computer-Mediated Communication, 19*(4), 906–921.
- Askew, K., Buckner, J. E., Taing, M. U., Ilie, A., Bauer, J. A., & Coovert, M. D. (2014). Explaining cyberloafing: The role of the theory of planned behavior. *Computers in Human Behavior, 36*, 510–519.
- Bates, R., & Khasawneh, S. (2007). Self-efficacy and college students' perceptions and use of online learning systems. *Computers in Human Behavior, 23*(1), 175–191.
- 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*, 1067–1084.
- Blatchford, P., & Lai, K. C. (2010). Class size: Arguments and evidence. In P. Penelope, B. Eva, & M. Barry (Eds.), *International encyclopedia of education* (pp. 200–206). Oxford: Elsevier.
- Bock, G.-W., & Ho, S. L. (2009). Non-work related computing (NWRG). *Communications of the ACM, 52*(4), 124–128.
- Boyle, E. A., Duffy, T., & Dunleavy, K. (2003). Learning styles and academic outcome: The validity and utility of Vermont's inventory of learning styles in a British higher education setting. *British Journal of Educational Psychology, 73*(2), 267–290.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (1999). *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academy Press.
- Brown, D. G., Burg, J. J., & Dominick, J. L. (1998). A strategic plan for ubiquitous laptop computing. *Communications of the ACM, 41*, 26–35.
- Brown, D. G., & Petitto, K. R. (2003). The status of ubiquitous computing. *Educause Review, 38*(3), 24–33.
- Brühwiler, C., & Blatchford, P. (2011). Effects of class size and adaptive teaching competency on classroom processes and academic outcome. *Learning and Instruction, 21*, 95–108.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York, NY: Harper & Row.
- Dembo, M. H., Junge, L. G., & Lynch, R. (2006). Becoming a self-regulated learner: Implications for web-based education. In H. O'Neil & R. Perez (Eds.), *Web-based learning: Theory, research, and practice* (pp. 185–202). Mahwah, NJ: Erlbaum.
- Elliot, A. J., & Dweck, C. S. (2005). *Handbook of competence and motivation*. New York, NY: The Guilford Press.
- Ergün, E., & Altun, A. (2012). Öğrenci gözüyle siber aylıklık ve nedenleri [Cyberloafing from students' perspective]. *Eğitim Teknolojisi: Kuram ve Uygulama [Educational Technology: Theory and Practice], 2*(1), 36–53.
- Fitch, J. L. (2004). Student feedback in the college classroom: a technology solution. *Educational Technology Research and Development, 52*, 171–181.
- Fraser, B. J. (1994). Research on classroom and school climate. In D. L. Gabel (Ed.), *Handbook of research on science teaching and learning* (pp. 493–541). New York, NY: Macmillan.
- Freeman, T., Anderman, L., & Jenson, J. (2007). Sense of belonging in college freshmen at the classroom and campus level. *The Journal of Experimental Education, 75*(3), 203–220.
- Fried, C. (2008). In-class laptop use and its effects on student learning. *Computers & Education, 50*(3), 906–914.

- Galluch, P. A., & Thatcher, J. B. (2007). Maladaptive versus adaptive use of internet applications in the classroom: A test of competing models. In *Proceedings of the 2007 southern association for information systems conference*, March 9–10, Atlantic Beach, FL, USA (pp. 24–29).
- Garner, R. (1992). Learning from school texts. *Educational Psychologist*, 27(1), 53–63.
- Garrett, R. K., & Danziger, J. N. (2008). Disaffection or expected outcomes: Understanding personal Internet use during work. *Journal of Computer-Mediated Communication*, 13, 937–958.
- Gibbs, G., Graham, R., Friese, S., & Mangabeira, W. C. (2002). The use of new technology in qualitative research: Introduction to issue 3(2) of FQS [Electronic version]. *Forum Qualitative Social Research*, 3(2) Art. 8. Retrieved June 23, 2015, from <http://www.qualitative-research.net/index.php/fqs/article/view/847>.
- Hativa, N. (2000). *Teaching for effective learning in higher education*. Dordrecht: Springer.
- Heikkilä, A., & Lonka, K. (2006). Studying in higher education: Students' approaches to learning, self-regulation, and cognitive strategies. *Studies in Higher Education*, 31(1), 99–117.
- Hembrooke, H., & Gay, G. (2003). The laptop and the lecture: The effects of multitasking in learning environments. *Journal of Computing in Higher Education*, 15(3), 46–64.
- Hidi, S., & Renninger, K. A. (2006). The four-phase model of interest development. *Educational Psychologist*, 41(2), 111–127.
- Jang, H. (2008). Supporting students' motivation, engagement, and learning during an uninteresting activity. *Journal of Educational Psychology*, 100(4), 798–811.
- Johnson, G. K. (2009). *Beliefs of graduate students about unstructured computer use in f2f classes with Internet access and its influence on student recall* (Unpublished doctoral dissertation). Orlando: University of Central Florida.
- Kalaycı, E. (2010). *Üniversite öğrencilerinin siber aylaklık davranışları ile özdüzenleme stratejileri arasındaki ilişkinin incelenmesi [Investigation of relationship between cyberloafing and self-regulated learning strategies among undergraduate students]* (Unpublished doctoral dissertation). Ankara: Hacettepe Üniversitesi/Fen Bilimleri Enstitüsü.
- Kauffman, D. F., & Husman, J. (2004). Effects of time perspective on student motivation: Introduction to a special issue. *Educational Psychology Review*, 16(1), 1–7.
- Keller, J. M. (1979). Motivation and instructional design: A theoretical perspective. *Journal of Instructional Development*, 2(4), 26–34.
- Kladko, B. (2005). Wireless classrooms: tool or distraction. *The Record*, 16.
- 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.
- McBride, J., Milligan, J., & Nichols, J. (2006). Who's teaching the kids? Cyberslacking in the classroom. *Journal of College and Character*. <https://doi.org/10.2202/1940-1639.1500>.
- McCroskey, L. L. (2003). Relationships of instructional communication styles of domestic and foreign instructors with instructional outcomes. *Journal of Intercultural Communication Research*, 32(2), 75–96.
- McCroskey, J. C., Valencic, K. M., & Richmond, V. P. (2004). Toward a general model of instructional communication. *Communication Quarterly*, 53, 197–210.
- McRobbie, C. J., & Fraser, B. J. (1993). Associations between student outcomes and psychosocial science environment. *Journal of Educational Research*, 87, 78–85.
- McWilliams, G. (2005). The laptop backlash. *The Wallstreet Journal*, B1.
- Meierdiercks, K. (2005). The dark side of the laptop university. *Journal of Information Ethics*, 9.
- Molnar, A., Smith, P., & Zaborik, J. (1999). *1998-99 evaluation results of the Student Achievement Guarantee in Education (SAGE) Program*. Milwaukee, WI: University of Wisconsin-Milwaukee.
- Mottet, T. P., Richmond, V. P., & McCroskey, J. C. (2006). *Handbook of instructional communication: Rhetorical and relational perspectives*. Boston, MA: Allyn & Bacon.
- Naughton, K., Raymond, J., & Shulman, K. (1999). Cyberslacking. *Newsweek*, 134, 62–65.
- Naumann, S. E., & Bennett, N. (2000). A case for procedural justice climate: Development and test of a multilevel model. *Academy of Management Journal*, 43(5), 881–889.
- Oravec, J. A. (2004). When work morphs into play: using constructive recreation to support the flexible workplace. In *Personal web usage in the workplace: A guide to effective human resources management* (p. 46).
- Osterman, K. F. (2000). Students' need for belonging in the school community. *Review of Educational Research*, 70(3), 323–367.
- Ozler, D. E., & Polat, G. (2012). Cyberloafing phenomenon in organizations: Determinants and impacts. *International Journal of eBusiness and eGovernment Studies*. Retrieved from [http://www.sosbilko.net/journal\\_IJEBEG/arhieves/2012\\_2/derya\\_ergun.pdf](http://www.sosbilko.net/journal_IJEBEG/arhieves/2012_2/derya_ergun.pdf).
- Padrón, Y. N. (1992). Comparing bilingual and monolingual students' perceptions of their classroom learning environment. In H. C. Waxman & C. D. Ellett (Eds.), *The study of learning environments* (pp. 108–113). Houston, TX: University of Houston.

- Palmer, D. (2007). What is the best way to motivate students in science? *Teaching Science-The Journal of the Australian Science Teachers Association*, 53(1), 38–42.
- Pierce, C. (1994). Importance of classroom climate for at-risk learners. *Journal of Educational Research*, 88, 37–42.
- Pintrich, P. R., & Schunk, D. H. (1996). *Motivation in education: Theory, research, and applications*. Englewood Cliffs, NJ: Prentice Hall Merrill.
- Proserpio, L., & Gioia, D. A. (2007). Teaching the virtual generation. *Academy of Management Learning & Education*, 6(1), 69–80.
- 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.
- Richmond, V. P. (1990). Communication in the classroom: Power and motivation. *Communication Education*, 39, 181–195.
- Samson, P. J. (2010). Deliberate engagement of laptops in large lecture classes to improve attentiveness and engagement. *Computers in Education*, 1(2), 1–19.
- Sana, F., Weston, T., & Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and nearby peers. *Computers & Education*, 62, 24–31.
- Schiefele, U., Krapp, A., & Winteler, A. (1992). Interest as a predictor of academic achievement: A meta-analysis of research. In K. A. Renninger, S. Hidi, & A. Krapp (Eds.), *The role of interest in learning and development* (pp. 183–212). Hillsdale, NJ: Erlbaum.
- Schraw, G., & Lehman, S. (2001). Situational interest: A review of the literature and directions for future research. *Educational Psychology Review*, 13(1), 23–52.
- Schunk, D. H., Pintrich, P. R., & Meece, J. L. (2008). *Motivation in education: Theory, research, and applications* (3rd ed.). Upper Saddle River, NJ: Pearson Education.
- Schwartz, J. (2003). Professors vie with Web for class's attention. *New York Times*, 2.
- Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4–31.
- Stanton, J. M. (2002). Company profile of the frequent internet user. *Communications of the ACM*, 45(1), 55–59.
- Stephens, B. R. (2005). Laptops in psychology: conducting flexible in-class research and writing laboratories. *New Directions for Teaching and Learning*, 101, 15–26.
- Stewart, F. (2000). Internet acceptable use policies: Navigating the management, legal, and technical issues. *Information Systems Security*, 9(3), 1–7.
- Stipek, D. (1988). *Motivation to learn: From theory to practice*. Englewood Cliffs, NJ: Prentice Hall.
- Szanişzlo, M. (2006). Harvard profs lay down law: no laptops in class. *The Boston Herald*, (June 4), A6.
- Tabachnick, S. E., Miller, R. B., & Relyea, G. E. (2008). The relationships among students' future-oriented goals and sub-goals, perceived task instrumentality, and task-oriented self-regulation strategies in an academic environment. *Journal of Educational Psychology*, 100(3), 629–642.
- Thomas, R. (2001). The class-size reduction program, PL 105-277: 1999–2000 Evaluation. ERIC Document Reproduction Service No. ED454364.
- Ugrin, J. C., Odom, M. D., & Pearson, J. M. (2008). Exploring the importance of mentoring for new scholars: A social exchange perspective. *Journal of Information Systems Education*, 19(3), 343–350.
- Verton, D. (2000). Employers ok with e-surfing. *Computerworld*, 34, 1–16.
- Vitak, J., Crouse, J., & LaRose, R. (2011). Personal Internet use at work: Understanding cyberslacking. *Computers in Human Behavior*, 27, 1751–1759.
- Wang, M. C., Haertel, G. D., & Walberg, H. J. (1993). Toward a knowledge base for school learning. *Review of Educational Research*, 63(3), 249–294.
- Whitty, M. T., & Carr, A. N. (2006). New rules in the workplace: Applying object-relations theory to explain problem Internet and email behavior in the workplace. *Computers in Human Behavior*, 22(2), 235–250.
- Williams, K. C., & Williams, C. C. (2011). Five key ingredients for improving student motivation. *Research in Higher Education Journal*, 12(2), 1–23.
- Wurst, C., Smarkola, C., & Gaffney, M. A. (2008). Ubiquitous laptop usage in higher education: Effects on student achievement, student satisfaction, and constructivist measures in honors and traditional classrooms. *Computers & Education*, 51(4), 1766–1783.
- Yin, R. K. (2003). *Case study research: Design and methods* (3rd ed.). Thousand Oaks, CA: Sage.
- Young, J. R. (2006). The Wght for classroom attention: professor vs laptop. *Chronicle of Higher Education*, (June 2), A27–A29
- Zahorik, J. A. (1999). Reducing class size leads to individualized instruction. *Educational Leadership*, 57(1), 50–53.