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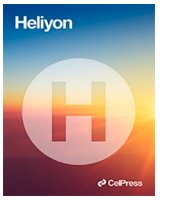

Research article

Determination of cyberloafing level of speech and Language Therapy Department students

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ABSTRACT

Cyberloafing is the use of (e.g. smartphones, tablets, laptops, and the Internet) for purposes other than work related reasons during work hours. Although cyberloafing in the workplace has been widely investigated, there is relatively a small number of studies on cyberloafing behaviors in educational settings, which refer to students' tendencies to use technology for non-class-related purposes during lectures. The goal of the current study is to determine how frequently and for what purposes speech and language therapy (SLT) students at Biruni University engage in cyberloafing during lectures. In this quantitative study, The Cyberloafing Scale was administered to 264 undergraduate students (235 female; 27 male; 2 preferred not to disclose). The results revealed that SLT students' cyberloafing behavior was very high. However, there is no statistically significant difference between the gender variable and the overall mean score for cyberloafing. There is a statistically significant difference between genders in gaming/gambling subscale favoring males and in shopping subscale favoring females. Further studies should be conducted to analyze cyberloafing behavior in health education.

1. Introduction

Information and communication technologies are widely used in daily, professional, and academic settings, including home, workplace and classroom. Individuals depend on technologies such as desktop and notebook computers, tablets, and mobile phones (smartphones) to perform working/learning tasks and satisfy personal needs. In the literature, cyberslacking or cyberloafing was defined as using company resources for personal reasons unrelated to the company's goals [1–5]. Cyberloafing includes reading personal emails, chatting, shopping, online banking, visiting adult websites, and gambling/betting online [1,6,7]. The scope of cyberloafing research extends beyond the confines of office workers engaging in internet activities unrelated to their work responsibilities. Several studies investigate the utilization of the internet by university students for extracurricular activities within the school setting, specifically during instructional periods. Activities related to cyberloafing in educational settings predominantly encompass the exchange of electronic mail and text messages, engagement in online gaming, consumption of films, and utilization of social media platforms [8–11].

Lu found a positive correlation existed between the levels of academic stress experienced by senior university students and their engagement in cyberloafing behavior [12]. Stress and cyberloafing in students can be triggered by various factors such as excessive

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course loads, homework, tests, time management, competitions amongst students, teacher proficiency, and lack of resources [13].

The prevalence of students utilizing the Internet for personal purposes has increased due to the widespread availability of digital devices, particularly smartphones [14]. In other words, the prevalence of cyberloafing in universities can be attributed to the widespread availability of mobile devices and convenient access to Internet services. Prior research has indicated that cyberloafing is linked to diminished classroom focus [15], decreased academic involvement [16], conflicts between instructors and students [17], and subpar academic achievement [16,18,19]. Furthermore, it has been observed that cyberloafing plays a significant role in the emergence of smartphone addiction among student populations [20–22].

There are several limitations that have been imposed on the current body of literature about cyberloafing in the educational environment and the literature examines cyberloafing from two different points of view, either good or bad. Firstly, cyberloafing has been proposed by academics as a potential means by which students might alleviate the effects of technostress [23] and workplace or school stress [24] and achieve a better work–life balance [25], consequently contributing to a beneficial impact. Due to their numerous benefits, notebook computers and smartphones have become indispensable in higher education [26,27]. According to these studies, the internet provides a flexible environment by reducing stress; as a result, it increases job/task productivity, contributes to creative thinking skills, enhances social relationships, and facilitates more active participation in learning environments by facilitating access to information [1,28–31].

Secondly, they explored the possibility that cyberloafing might lead to a decrease in staff or student productivity [32] and efficiency [9,33]. Studies have shown that the use of notebook computers/smartphones in schools and the availability of wireless internet at universities leads to non-course-related behaviors among students [17,26], [34–36]. In other words, if students perform their personal tasks instead of their (Internet-based) learning tasks, their learning interactions are absent and/or their learning is incomplete, resulting in a decrease in the effectiveness and efficiency of the course. The rapid transformation has a significant impact on educational settings, particularly in the field of health science, since technology may serve as a source of distraction during lectures. Cyberloafing is the phrase that people use to describe this kind of behavior. This condition affects decreasing productivity in education settings. Thus, it has become an interesting topic for the educational environment, how cyberloafing behavior affects education and students. This is an important study to determine SLT student's cyberloafing behavior, as they will become health professionals responsible for various types of patients and their quality of life.

According to research conducted by Demir, the study found that the amount of cyberloafing among healthcare personnel is correlated with a drop in their overall job productivity [37]. Cyberloafing may be considered either serious or minor, depending on the behaviors that are considered to constitute cyberloafing. McBride and Bergen came to the conclusion that healthcare professionals commonly engage in modest forms of cyberloafing, such as sending e-mails and text messages to their relatives and friends while they are on the job [38]. The most prevalent kind of cyberloafing behavior is the use of social media platforms when one is expected to be working [39]. In a study conducted with nurses, one of the healthcare providers, it was found that researchers have discovered that nurses engage in a wide variety of cyberloafing behaviors, ranging from minor to serious [40,41]. In accordance with the findings of previous studies, it is of the greatest importance to have an understanding of the cyberloafing practices of students in the healthcare field.

While several researches have been conducted on the cyberloafing activities of students in educational settings, none of them have been specifically tied to the education of speech and language therapists. In the light of current literature, to fill this gap in the field this study aims to determine how frequently and for what purpose SLT students at Biruni University engage in cyberloafing during class activities.

The study hypotheses were as follows.

H1. The prevalence of both minor and serious cyberloafing behaviors among students is high.

H2. The cyberloafing behaviors of SLT students are influenced by their demographic characteristics and virtual environment habits.

2. Materials and methods

This study is both quantitative and prospective in nature. It received ethical approval from the Biruni University Ethics Committee (Protocol no. 2023/77-35) and was conducted on 284 undergraduate students at Biruni University in Turkey during the academic

Table 1
Demographic information.

Variables		n	%
Gender	Male	27	10.2
	Female	235	89.0
	Not to disclose	2	0.08
Total		264	100.0
Class	Preparatory Class	9	3.4
	First-year students	131	49.6
	Second-year students	46	17.4
	Third-year students	58	22.0
	Fourth/final-year students	20	7.6
Total		264	100.0

years 2021–2022. For the purpose of speed and convenience, the participants were selected using the technique of convenience sampling during the data collection process.

Convenience sampling is a common sampling technique and The sample is selected based on the investigator's convenience. Frequently, the respondents are chosen based on their being present at a specific location and a specific time. Convenience sampling is frequently employed in clinical research to select patients who meet the inclusion criteria for the study [40]. In this study, SLT undergraduate students from Biruni University were chosen for the benefit of the researchers. However, the findings derived from the data cannot be extrapolated beyond the specific sample.

A questionnaire on cyberloafing activities and cyberloafing behaviors were administered to students in the first, second, third, and fourth grades at the Speech and Language Therapy Department of Biruni University. All students have smartphones and are permitted to bring them to school. 235 respondents were female and 27 were male out of a total of 264 and 2 of them chose not to disclose their gender. In the first grade, there were 131 respondents, 46 in the second, 58 in the third, and 20 in the fourth and 9 in the English preparatory class. Table 1 presents the demographic information of the participants.

Inclusion criteria include the following: (1) being currently enrolled in the Department of Speech and Language Therapy at Biruni University; (2) completing the form without missing data; (3) being native speaker of Turkish; (4) having a smartphone. Exclusion criteria include the following: (1) having graduated from the department; (2) not being able to complete the questionnaire; (3) not being a native speaker of Turkish; (4) not having a smartphone; (5) being a student in another department besides SLT.

At the start of the data collecting process, we gathered information from a total of 273 students. However, 9 individuals were subsequently eliminated from the dataset due to exclusion criteria (e.g. failure to complete the questionnaire).

2.1. Data collection

The Cyberloafing Scale was used for the research. This scale was developed by Akbulut et al., and consists of 30 items [41]. The measure yields scores ranging from 30 to 150, where higher scores indicate greater amounts of cyberloafing during class hours. It evaluates cyberloafing in 5 sub-dimensions. These sub-dimensions are sharing (Questions from 1 to 9); shopping (Questions from 10 to 16); real-time updating (Questions from 17 to 21); accessing online content (Questions from 22 to 26); and gaming/gambling (Questions from 27 to 30). Permission was obtained from the scale authors for the use of the scale. The participants were sent the survey link and requested to complete the questionnaire after the survey items were moved to the Google Survey application. On average, it took participants 10 min to complete the survey.

2.2. Data analysis

The SPSS 25.0 program was used to analyze the quantitative data collected for this study. The skewness and kurtosis values were examined to see whether the data had a normal distribution in order to choose the appropriate analytic method. Field states that when one of the skewness and kurtosis z-scores is more than 1.96, the data do not exhibit a normal distribution at the 0.05 level [42]. The skewness score of −2.196 indicates that the data are normally distributed. After confirming the validity of the hypotheses, frequencies and percentages were utilized to describe the data; the T-test and numerous ANOVAs were employed to determine the effect of the dependent variables on cyberloafing behaviors. The significance levels of the data were computed based on the value $p < .05$.

3. Results

In this section, results of this research will be presented. It was aimed to determine the cyberloafing behaviors of SLT students at Biruni University, and data was collected from 264 students from varying levels of education. Findings with regard to prevalence of each cyberloafing type revealed that sharing was the most frequent cyberloafing behavior (M: 31.53, SD: 5.54) followed by shopping (M: 20.94, SD: 5.46), accessing online content (M: 20.41, SD: 4.16), real-time update (M: 13.17,SD: 5.66), gaming/gambling (M: 7.21,

Table 2
Results of the T-test between the gender variable and students' cyberloafing scores.

Subscale	Group	N	$\overline{X}$	Ss	sd	t	P
Sharing	Female	235	31.82	5.03	260	1.53	0.125
	Male	27	30.14	7.74			
Shopping	Female	235	20.80	5.13	260	−1.97	**0.049**[a]
	Male	27	22.96	7.08			
Real-time updating	Female	235	13.38	5.57	260	1.40	0.162
	Male	27	11.77	6.29			
Accessing online content	Female	235	20.51	3.99	260	0.65	0.514
	Male	27	20.00	4.70			
Gaming/gambling	Female	235	6.69	2.63	260	−9.04	**0.000**[a]
	Male	27	11.81	3.91			
Cyberloafing	Female	235	**93.25**	**15.17**	**260**	**−1.06**	**0.289**
	Male	27	**96.70**	**21.83**			
Cyberloafing	Total	264	**93,28**	**16.39**			

[a] $p < .05$ significant.

SD: 3.17). Total score values were M: 93.28, SD: 16.39. In this scale, high score means a great deal of cyberloafing behavior exists.

To determine the difference between gender and cyberloafing behavior, the *t*-test was used. As shown in Table 2, the results revealed that there was no statistically significant difference between the gender variable and the overall mean score for cyberloafing. When the mean scores of the sub-scales were evaluated, it was discovered that there was a significant difference in gaming/gambling between the gaming/gambling sub-scale and the gender in favor of males. Additionally, there was a significant difference in shopping in favor of females. The *t*-test results of the students' cyberloafing scores by gender variable revealed that female students spent the most time shopping and male students spent the most time betting and playing betting games.

In order to determine the educational level and cyberloafing behavior one way ANOVA was used. As shown in Table 3, at each level of education, the sub-dimensions of shopping, instant updating, accessing online content, and gaming/betting were compared. Accordingly, the prep class students showed the least shopping behavior and the second-grade students showed the most. The behavior of cyberloafing for the purpose of instant updating was observed at least in 1st grade students and at most in 4th grade students. The behavior of accessing online content was demonstrated by students of at least the fourth grade and at most the preparatory class. It was determined that the behavior of playing games/claims was shown at least by the 4th grade students and at the most by the 2nd grade students.

4. Discussion

Cyberloafing can be defined as the use of technological devices during class time for non-academic purposes. Many learning problems are caused by the misuse of technological tools and facilities in educational environments. Cyberloafing is one of the most significant behaviors contributing to this issue. In this study, we aimed to determine whether cyberloafing is a common behavior in academic settings, especially among SLT students. We found that cyberloafing behavior is common in SLT students, and there is a significant difference between genders and education levels.

As the primary objective of this exploratory study was to investigate the cyberloafing behaviors of SLT students, it is very important to determine types of cyberloafing behaviors in academic environments. Based on the research, the most often seen undesirable behaviors are personal problems, lack of interest in the course [43], failure to listen to the teacher, and arriving to the classroom unprepared [44–48]. According to the results of our research, a sizable proportion of the students were found to engage in activities such as messaging, surfing websites, and using social media as stated in the literature [15]. Also, the majority of users engaged in activities such as checking their e-mails and reading the news [47]. This was the case in our study that students tend to use smartphones to do cyberloafing during educational activities and lectures.

The findings of a different study are consistent with our own in the sense that they demonstrate that males engaged in cyberloafing more frequently than females did in the context of gaming or gambling [48,49]. According to Gökçearslan, male students demonstrated higher cyberloafing behavior than female students did; nonetheless, the scores for the two variables were not very different from one another [39]. However, this information should be carefully considered in this study. As the majority of our participants were female, male participants can be underrepresented in this research. In the future studies, more data should be collected for understanding male cyberloafing behavior better.

It is very important to decide how cyberloafing behavior affects educational settings. In their meta-analytical research, Mercado concluded that cyberloafing does not have a detrimental impact [50]. Additionally, Lim and Chen found that cyberloafing enhances people' mood and has a favorable influence on workers' loyalty [3]. It is an interesting finding and should be explored further also in speech and language therapy students as cyberloafing behavior may result in possible challenges in the field of education and subsequently give rise to issues in therapeutic settings, particularly when dealing with patients who have speech and language

Table 3
The cyberloafing test scores and grade levels of students, as determined using ANOVA.

Subscales	Source of Variance	Sum of Squares	sd	Mean of Squares	F	p	Significant Difference
Sharing	Between groups	87.28	4	21.82	0.706	0.589	–
	Within groups	8008.47	259	30.92			
	Total	8095.75	263				
Shopping	Between groups	415.69	4	102.92	3.613	0.007[a]	0-1; 0–2; 0–3; 1–2;
	Within groups	7450.45	259	28.76			
	Total	7866.14	263				
Real-time updating	Between groups	190.14	4	47.53	1.491	0.205	–
	Within groups	8258.48	259	31.88			
	Total	8448.63	263				
Accessing online content	Between groups	29.76	4	7.44	0.425	0.790	–
	Within groups	4530.23	259	17.49			
	Total	4559.99	263				
Gaming/gambling	Between groups	63.85	4	15.96	1.596	0.176	–
	Within groups	2591.40	259	10.00			
	Total	2655.25	263				
Cyberloafing	Between groups	1685.80	4	421.45	1.583	0.179	-
	Within groups	68967.89	259	266.28			
	Total	70653.69	263				

[a] $p < .05$ significant.

abnormalities.

As stated in the literature, students are more active in social networking sites than they are in online shopping, reading or information searching [51,50]. Similarly, our research found that SLT students actively participate in activities such as sharing, shopping, and accessing online content. This can be related to decreasing negative emotions, such as boredom and increasing positive emotions are important motivations for students [10,52]. However, no significant relationship was found between real-time updating and positive or negative effects [14].

Additionally, there is a lack of consistency in the information of specific characteristics, such as sociodemographic, in relation to cyberloafing situations. As an example, although some researchers have discovered gender-based variations in cyberloafing [53], others have shown that there are no such differences [54]. So it is important to determine whether gender can be an efficient factor in cyberloafing.

There are various limitations to the study. First, the sample consisted of merely university students from Biruni University, limiting the findings' generalizability to other populations. Second, the study's cross-sectional design precludes the interpretation of causal correlations. Thirdly, an overwhelming majority of students in SLT departments in Turkey are female. Hence, gender matching was not possible. Lastly, since this is a cross-sectional study it is impossible to determine any changes of SLP students' cyberloafing behaviors throughout the years.

By defining variables in subsequent research and working with a variety of samples, it is possible that significant additions to the existing body of literature will be made. It is also necessary to conduct research on the link between the factors that influence motivation and the behaviors associated with cyberloafing.

Ethics statement

This study received ethical clearance from the Ethics Committee of Biruni University (Protocol no. 2023/77-35). All participants provided online informed consent for the use of their data for scientific research purposes.

Data availability statement

Data available on request from the authors.

CRediT authorship contribution statement

Fenise Selin Karali: Writing – review & editing, Writing – original draft, Validation, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Samet Tosun:** Writing – review & editing, Writing – original draft, Validation, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Meltem Şen-Aksüt:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Dilber Kaçar-Kütükçü:** Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2024.e31068.

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