SURVEY ON STUDENT STRESS DURING BLENDED LEARNING DUE TO THE COVID-19 PANDEMIC

Cláudia Silvestre[1,2]*, Ana Meireles[1]

[1]ESCS – Escola Superior de Comunicação Social de Lisboa, Campus de Benfica do IPL, Lisboa 1549-014, Portugal

[2]BRU-Business Research Unit Instituto Universitário de Lisboa, Avenida das Forças Armadas, Lisboa 1649-026, Portugal

Abstract

This study aims to analyze the effect of blended learning on psychological distress among college students during the COVID-19 pandemic. This work is part of an ongoing study that begun in the spring semester, which revealed that most students have adapted well to online learning. However, they felt exhausted and stated the hard work involved as a negative point, as well as the lack of meaningful social interactions. In the present work and in order to identify students' mental well-being, an online survey, based on Maslach Burnout Inventory–Student Survey, was conducted. This study provided a better understanding of how blended learning influences students' mental health. It also helped us adapt our teaching activities to this new reality, promoting teamwork and oral presentations.

Keywords: *covid-19 pandemic, blended learning, mental health, stress, teaching activities*

1. INTRODUCTION

During the last year, the effects of COVID19 pandemic have had an impact not only on our daily routines, but also on most areas of the employment landscape, worsening levels of population depression [1]. Higher education institutions were not left out [2]. The need to adapt to remote education has been pointed out as one of the aspects that has increased the levels of depression for both students and faculty at colleges and universities.

We cannot underestimate what students have lost during this period ([3], [4]). The substitution of face-to-face classes with online classes have highlighted the differences between students. Namely "in terms of digital skills, support networks and resources of home environment" [5]. These differences affect students learning outcomes. Subsequently, to feel worried, sad, unsupported, frustrated or disappointed are common feelings [6]. Mental health of university students was recognized as a public health issue [7]. The pandemic has aggravated this situation, as reported by the BBC - "Lockdown had 'major impact' on mental health" [8].

This study intends to be a contribution in this area. We explore pandemic's effect on university student stress based on a Maslach Burnout Inventory [9]. Burnout is associated to an exhausted state, it refers to tiredness, low energy, emotional exhaustion, and mental unstable. The World Health Organization (WHO) does not recognize Burnout as a medical or psychiatric condition or as a mental disorder but "a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed" [10]. This syndrome develops silently [11]. Burnout is defined by Maslach and Jackson [12] as "a psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with other people in some capacity" (p. 192).

This measure was originally restricted to the human services domain. However, Burnout definition changes slightly depending on the population under investigation. In many researches (e.g. [11], [13], 1and [14]) the Burnout concept has been expanded toward a diversity of professions and occupational groups, education being one example. For some authors, the "academic burnout is formed by three dimensions, the first is the belief of feeling fatigued, of not being able to continue with the tasks as a student (exhaustion); the second refers to cynical behavior or estrangement with the meaning and benefit

of the learning that is being developed (cynicism); and the third dimension is the feeling of academic incapacity as educating (inefficiency).” ([15] p. 1). Although, in the past years, there has been disagreement among Burnout researchers on whether burnout and depression overlap [13], recent studies indicate that Burnout may be viewed as a depressive syndrome ([16], [17]) and scores on the Emotional Exhaustion subscale of the Maslach Burnout Inventory (MBI) are, on average, more highly correlated with scores on depression and anxiety measures than with scores on the other two MBI subscales ([18], [12]). Blas-Atencia et al. [15] stress the importance of studying Burnout symptoms, as they can negatively affect students' academic performance. Therefore, they emphasize that the evaluation of these symptoms should be carried out systematically. Hence the importance of this type of studies.

According to Schaufeli and his work team “Burnout among students refers to feeling exhausted because of study demands, having a cynical and detached attitude toward one’s study, and feeling incompetent as a student.” ([9], p. 465). Based on previous works (e.g. [19] and [20]), the authors adapted the original scale from 22 items to 15 for use in students’ samples. This 15-item scale adapts to students became known as Maslach Burnout Inventory–Student Survey (MBI-SS). MBI-SS scale is constituted by three-factor structure: Exhaustion (5 items), Cynicism (4 items), and Efficacy (6 items) with alternatives of Likert scale response consisting of seven dimensions that capture responses ranging from never (1) to always (7).

The Schaufeli et al. [9] research was carried out with samples from students from three European countries (Portugal, Spain and Holland). The authors showed the validity of this scale for those countries and confirmed the three-factor structure of the scale. Thus, MBI-SS is a validity scale for Portuguese students.

2. METHOD

For the purpose of our study, an online survey was distributed using non-probability convenient sampling to our students at Scholl of Communication and Mass Media (*ESCS - Escola Superior de Comunicação Social - Portugal*). The data were collected at the end of 2020 spring semester, during pandemic lockdown due to COVID-19 disease. Participation in this study was voluntary.

The questionnaire includes a section about Socio-demographic characteristics (Gender, Age, Year of study, and infrastructures for studying from home) and the 15-item Burnout Inventory–Student Survey [8]. Each item should be answered in a 7-point Likert that starts from (1) never, (2) sporadically few times, (3) from time to time, (4) regularly, (5) frequently, (6) very frequently and (7) always.

MERLOT Journal of Online Learning and Teaching Vol. 10, No. 2, June 2014internal consistency of the data was confirmed using Cronbach's alpha ($\alpha = .84$) Statistical analysis was performed using the SPSS – Statistical Package for the Social Sciences (version 26.0).

3. RESULTS

The survey was completed by a total of 316 students. Most of the participants were female (79%), ages ranging between 18 and 52 years, since we have working students and usually, they are older. However, the vast majority of students were between 18 and 21 years old (79%) and almost half were 19 years old (47%).

These students have good infrastructures for studying from home (Figure 1). They usually have a good internet connection and their own laptop. Some students use cell phones to follow classes, although they often use both devices cell phones and computers.

MBI-SS scale reveal adequate evidence of its validity in Kayser Meyer and Olkin measure (KMO = 0.838) and the Bartlett’s test of sphericity was significant ($X^2 = 2940.302$, gl = 136, $p < 0.001$) (Table 1).

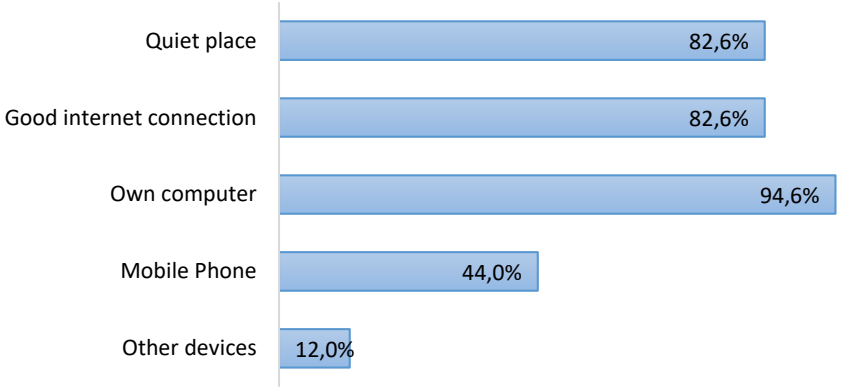

Fig. 1. Conditions to follow online classes.

Table 1. KMO and Bartlett's Test of Sphericity

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.838
Bartlett's Test of Sphericity	Approx. Chi-Square	2940.302
	df	136
	Sig.	.000

The qualitative characteristics of the 7-point Likert scale survey respondents are summarized in Table 2. The three sub-dimensions: Exhaustion, Cynicism and Efficacy are identified in Table 1 and a comparative analysis is in Figure 2. Although the distribution is skewed right for the three factors (i.e., there is a higher concentration of data in the lower values), factors are generally distributed in a non-similar way. Cynicism is the factor that presents greatest differences compared to the other two: Cynicism has a lower median (median = 3.2) but a greater dispersion of central values (interquartile range = 2.6). The factors Exhaustion and Efficacy are distributed in a more similar way. However, Exhaustion has a slightly lower median (median = 4.3) and a greater overall range of values (range = 7-1= 6) than the Efficacy factor (median = 4.7; range =6.9-2.2= 4.7). It should also be noted that the factor Exhaustion has five lower moderate outliers. However, these outliers should not cause particular concern, since their values are not much lower than the lower adjacent value.

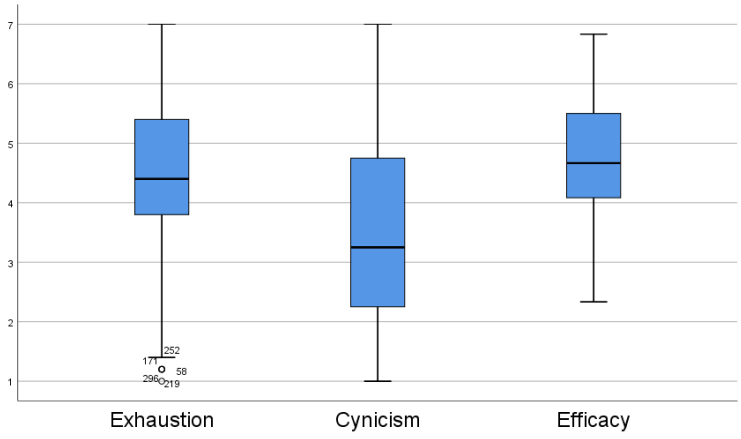

Fig. 2. Comparing three factors.

Table 2. Maslach Burnout Inventory–Student Survey: answers.

Itens	1	2	3	4	5	6	7
Exhaustion - Cronbach's alpha coefficient = 0.819							
I feel emotionally drained by my studies	1.3%	3.2%	8.2%	19.3%	28.8%	25.9%	13.3%
I feel used up at the end of a day at university	5.4%	6.3%	15.8%	16.5%	24.1%	18.7%	13.3%
I feel tired when I get up in the morning and I have to face another day at the university	10.4%	12.3%	15.8%	15.8%	19.9%	13.9%	11.7%
Studying or attending a class is really a strain for me	14.6%	13.3%	13.0%	16.8%	15.5%	13.9%	13.0%
I feel burned out from my studies	3.5%	7.0%	13.6%	20.9%	23.1%	20.9%	11.1%
Cynicism - Cronbach's alpha coefficient = 0.904							
I have become less interested in my studies since my enrolment at the university	20.6%	21.5%	16.5%	8.5%	14.6%	9.8%	8.5%
I have become less enthusiastic about my studies.	10.4%	17.4%	14.2%	19.0%	13.6%	15.2%	10.1%
I have become more cynical about the potential usefulness of my studies.	20.9%	17.1%	15.5%	15.2%	15.2%	9.2%	7.0%
I doubt the significance of my studies.	19.3%	24.1%	15.8%	11.1%	14.9%	8.2%	6.6%
Efficacy- Cronbach's alpha coefficient = 0.725							
I can effectively solve the problems that arise in my studies.	0.9%	5.4%	16.5%	25.0%	26.3%	22.8%	3.2%
I believe that I make an effective contribution to the classes that I attend.	2.8%	11.4%	18.0%	20.6%	21.2%	20.3%	5.7%
In my opinion, I am a good student	1.3%	5.7%	7.9%	26.6%	32.0%	21.8%	4.7%
I feel stimulated when I achieve my study goals.	0.9%	0.9%	3.2%	7.3%	18.7%	24.4%	44.6%
I have learned many interesting things during the course of my studies.	0.6%	3.2%	7.0%	13.9%	26.9%	29.7%	18.7%
During class I feel confident that I am effective in getting things done.	10.1%	15.8%	24.1%	15.8%	17.1%	11.4%	5.7%

4. DISCUSSION

The three-factor structure: Exhaustion, Cynicism, and Efficacy fits to the data. Each factor has a good internal consistency, with a Cronbach's alpha coefficient 0.819, 0.904, and 0.725, respectively.

For our students it is hard to face another day with classes. Speaking about their studies, most of them feel emotionally drained, burned out or used up at the end of a day. Female participants feel more used up ($X^2_{(6)}$=18.764, p-value=0.046 < 0.05; Female=60%, Male=36%).

The students felt very comfortable to carry out the work groups. They considered these moments as a way to have contact with other colleagues (70%) and, therefore, to combat the loneliness caused by isolation. On the other hand, work groups allow them to follow classes online and thus help to manage their autonomous study.

Cynical attitudes, such negative reactions about usefulness and significance of studies are not common feelings. In the particular case of enthusiasm, it was found that students had a great diversity of responses

[21]. It was found that in courses with a large practical component students felt less enthusiastic ($X^2_{(18)}$=49.597, p-value=8.7E-04 < 0.05).

Despite the fact that half of the students do not feel confident that they are effective in getting things done in class, the majority have positive feelings about the Efficacy factor. In their opinion, 59% are good students, and 87% achieve their study goals.

Cynicism and Efficacy are similar both for male and female students. However, female feel a little bit more exhausted than male students (Mann-Whitney: test statistic=6688.5, p-value=0.0178<0.05; Female median= 4.5, Male median=4 in a 7-point Likert scale from 1=never to 7=every time).

5. CONCLUSIONS

Online classes have become a necessary resource for students all over the world. However, there are challenges to overcome [22]. In context, it is important to understand students' feelings about this unfamiliar learning environment [3]. Are they more anxious or stressed due to online learning?

According to this study, our students have privileged conditions. They have reliable internet access technology that allows them to follow online classes and digital background. These conditions have certainly contributed to the low prevalence of Burnout. Students rarely have cynical feelings about their study and consider that during blended learning, they were able to learn and achieve their study goals.

Furthermore, the students have considered that the work group was very positive. Since it has allowed them to keep in touch with their colleagues and follow online classes more easily. Work with peers is still an active-learning approach [23]. During lockdown it remains a good teaching-learning approach, but it contributed mainly to the prevention of student stress.

In our first study we have realized that students were used to spend most of their time accompanied by peers. However, during lockdown they spent most of their time alone. Further most online classes did not allow interaction between students. Thus, during this semester we have been promoting teamwork, especially during online classes, and oral presentations. We have also conducted quizzes so that they can periodically do their self-assessments. We think that these measures have led students to have a positive perception about the effectiveness of their studies and feel more confident.

One of the aspects that need to be improved refers to the feeling of Exhaustion, which is related to decreased student academic motivation [24]. Both teachers and students feel tired and exhausted with blended learning. It is necessary to rethink the way classes are taught and the amount of work required.

In this work we made a first study about students' mental health in ESCS. A further investigation is needed to understand underlying psychological impact of COVID-19. This study also provides results that will allow comparative analysis.

ACKNOWLEDGMENTS

This work was financial supported by Instituto Politécnico de Lisboa, IDI&CA - ref IPL/2020/ETC_ESCS.

We would like to thank all students who answered the questionnaire and volunteered as participants. Their co-operation was essential to understand deeply peer interaction in student work groups and the usefulness of these learning moments.

REFERENCES

1. Collinson, A. (2020). Lockdown had 'major impact' on mental health. Health Correspondent. Published 21 October 2020, viewed 12 April 2021 <https://www.bbc.com/news/health-54616688>.
2. Sahu, P, 2020, "Closure of universities due to coronavirus disease 2019 (COVID-19): impact on education and mental health of students and academic staff", *Cureus,* vol .12, no. 4.
3. Abdous, M. H, 2019, "Influence of satisfaction and preparedness on online students' feelings of anxiety*", The Internet and Higher Education*, no. 41, pp. 34-44.
4. El Said, GR, 2021, "How Did the COVID-19 Pandemic Affect Higher Education Learning Experience? An Empirical Investigation of Learners' Academic Performance at a University in a Developing Country", *Advances in Human-Computer Interaction*, vol. 2021, Article ID 6649524, viewed 12 April 2021, <https://doi.org/10.1155/2021/6649524>.
5. Barada, V, Doolan, K, Burić, I, Krolo, K & Tonković, Ž, 2020, "Student life during the COVID-19 pandemic lockdown: Europe-Wide Insights." University of Zadar, viewed 20 April 2021, <https://ehea.info/Upload/BFUG_DE_UK_73_11_6_students_Covid_19_survey_results.pdf>.
6. Crawford, J, Butler-Henderson, K, Rudolph, J & Glowatz, M, 2020, "COVID-19: 20 Countries' Higher Education Intra-Period Digital Pedagogy Responses", *Journal of Applied Learning & Teaching*, vol. 3, no. 1, pp.1-19.
7. Stallman, HM, 2010, "Psychological distress in university students: A comparison with general population data", *Australian Psychologist*, vol. 45, no. 4, pp. 249-257.
8. Collinson, A, 2020 "Lockdown had 'major impact' on mental health", *Health Correspondent,* viewed 20 April 2021 <https://www.bbc.com/news/health-54616688>.
9. Schaufeli, WB, Martinez, IM, Pinto, AM, Salanova, M & Bakker, AB, 2002. "Burnout and engagement in university students: a cross-national study", *J. Cross Cult. Psychol.* 33, 464–481. doi: 10.1177/0022022102033005003
10. Burn-out an "occupational phenomenon": International Classification of Diseases viewed 20 April 2021, viewed 23 April 2021, <https://www.who.int/news/item/28-05-2019-burn-out-an-occupational-phenomenon-international-classification-of-diseases>.
11. Hock, RR, 1988 "Professional burnout among public school teachers", *Public Personnel Management*,vol. 17, no. 2, pp. 167-189, viewed 23 April 2021, < http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1.4571&rep=rep1&type=pdf>.
12. Maslach, C, Jackson, SE & Leiter, MP, 1997, The Maslach Burnout Inventory Manual. In book "Evaluating Stress: A book of Resources" The Scarecrow Press, pp.191-218.
13. Schaufeli, W, Leiter, M & Maslach, C, 2009, "Burnout: 35 Years of research and practice". *Career Development International*. Vol. 14 No. 3, 2009 pp. 204-220. DOI 10.1108/13620430910966406.
14. Heinemann, LV Heinemann, T, 2017, "Burnout Research: Emergence and Scientific Investigation of a Contested Diagnosis". *Sage Open*, vol, 7, pp. 1-12, viewed 23 April 2021, <https://journals.sagepub.com/doi/pdf/10.1177/2158244017697154>.
15. Blas-Atencia, C, Bravo-Cunza, J, Nolberto-Quispe, L & Iraola-Real, I, 2020, "Burnout in University Students of the Initial Education Career", In 2020 IEEE World Conference on Engineering Education (EDUNINE), pp. 1-4.
16. Koutsimani, P, Montgomery, A, & Georganta, K, 2019 "The relationship between burnout, depression, and anxiety: A systematic review and meta-analysis", *Frontiers in Psychology*, vol. 10, no. 284, viewed 20 April 2021 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6424886/>.
17. Yildirim, M, ÇiÇek, Í, & Mehmet ES, 2021, "Coronavirus stress and COVID-19 burnout among healthcare staffs: The mediating role of optimism and social connectedness" *Current Psychology*, doi: 10.1007/s12144-021-01781-w.

18. Schonfeld, IS, Verkuilen, J & Bianchi, R, 2019, Inquiry into the correlation between burnout and depression", *Journal of Occupational Health Psychology*, vol. 24 no. 6, pp. 603–616.
19. Balogun, JA, Helgemoe, S, Pellegrini, E and Hoeberlein, T, 1996, "Academic performance is not a viable determinant of physical therapy students' burnout", *Perceptual and Motor Skills*, vol. 83, pp. 21-22.
20. Gold, Y, & Michael,WB, 1985, "Academic self-concept correlates of potential burnout in a sample of first-semester elementary school practice teachers: A concurrent validity study" *Educational and Psychological Measurement*, vol. 45, pp.909-914.
21. Besser, A, Flett, GL, & Zeigler-Hill, V, 2020, "Adaptability to a sudden transition to online learning during the COVID-19 pandemic: Understanding the challenges for students" *Scholarship of Teaching and Learning in Psychology*, viewed 20 may 2021 <https://psycnet.apa.org/fulltext/2020-77530-001.pdf>.
22. Pokhrel, S, Chhetri, R, 2021, "A Literature Review on Impact of COVID-19 Pandemic on Teaching and Learning" Higher Education for the Future, vol. 8, no.1, pp. 133–141, viewed 20 may 2021 <https://doi.org/10.1177/2347631120983481>.
23. Haller, CR, Gallagher, VJ, Weldon, TL, & Felder, RM, 2000, "Dynamics of peer education in cooperative learning workgroups", *Journal of Engineering Education*, vol. 89, no. 3, pp. 285-293.
24. Liu, YY, 2015, "The longitudinal relationship between Chinese high school students' academic stress and academic motivation", *Learning and Individual Differences*, no. 38, pp. 123–126.