

ARE ONLINE CLASSES THE FUTURE IN HIGHER EDUCATION?

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Abstract

Currently, due to the COVID_19 pandemic, the world has shut down and higher education institutions (HEI) were among the institutions that had to change their traditional way of lecturing classes.

Traditional classes, lectured in a classroom where the teacher and the students were together and face-to-face were no longer an option, due to effective lockdown. Portugal was one of the countries that had to pursue solutions to maintain educational institutions functioning, to maintain students studying and learning and to minimize the effects of the pandemic.

In this context, this study describes a particular case in the north of Portugal, in a school of the Polytechnic Institute of Bragança (IPB), a higher education institution that had to close the facilities during the second semester of the academic year of 2019/2020. During this semester the classes were all online, using the zoom platform.

The importance of this study was not only to understand the impact of online classes in the students, in terms of availability of resources to follow classes, motivation, knowledge acquisition, and evaluation, but also to present measures to the school management so they could prepare and prevent problems with a possible second lockdown. This second lockdown did happen during the second semester of the academic year of 2020/2021.

From the study, we concluded that not all the students had the basic conditions to attend online classes, either they did not have a personal computer, or they had internet limitations. Also, they reported that, being at home, was harder to follow the classes and to study since their families required much more of their time to make other chores.

The major findings were that not all the students understood online classes the same way, in fact, older students from advanced years preferred online classes and had no restrictions on their relationships with their colleagues. However, the younger students, enrolled in the first year, and this was transversal to all courses, felt that they did not acquire the needed knowledge, found online classes harder, and, since they were freshmen, a considerable percentage reported that they could not establish social connections with their colleagues and felt demotivated and alone. Also, most of the students reported that the evaluation was harder, since the teachers, to prevent fraud and make cheating more difficult, reduced the evaluation time and blocked the possibility to see the entire exam, only allowing one question at a time. This was a complaint from the students and a valid one, since it only negatively impacted the engaged students, it had no evidence of reducing fraudulent behaviours.

With these findings it was possible for the HEI's management to implement some measures. The HEI had to be closed for the first half of the second semester of 2020/2021. Still, as soon as it was possible to return to face-to-face classes it was established that some years could be in hybrid mode (online and onsite), however not for freshmen years. This measure would enable them to form social connections and to properly follow the classes with a closer support by the teacher. The other measure implemented was that all evaluation was onsite, hence the good students were not affected, and it could also efficiently prevent fraud, when compared to online evaluations.

Keywords: Online education, students' relationships and motivation, online assessment, online knowledge acquisition.

1 INTRODUCTION

Currently, due to the COVID_19 pandemic, the world has shut down and higher education institutions (HEI) were among the institutions that had to change their traditional way of lecturing classes. Traditional classes, lectured in a classroom where the teacher and the students were together and face-to-face were no longer an option, due to effective lockdown and to the implementation of social distancing measures [1].

Portugal was one of the countries that had to pursue solutions to maintain educational institutions functioning, to keep students studying and learning, and to minimize the effects of the pandemic. The solution turned to online classes. Although this modality is already used worldwide it was not applicable in Portugal since almost all the degrees require presence in class. In some countries, such as the U.S.A., online education is already a reality for some decades. This is possible due to the accessibility of the internet and flexibility of online courses, allowing opportunities and access to education [2].

There are various reasons connected with online learning, among others it is accessible for a broader audience independently from where the students are located, more affordable than on site learning since it does not require accommodation and transportation expenses, and more flexible since the students can determine when and what to study [3].

Online education is reportedly expanding worldwide due to the existence of new technologies, global access to the Internet, and increasingly demand for easier forms of access to education. It is expected that online education will be mainstream by 2025. This alternative to on site education requires an adaptation from the institutions and they are doing so, since it is noticeable that online education has advantages, such as higher enrolments with more tuition fees, reduction of infrastructural costs, increasing offer to students and allowing them to better manage their time [4].

On the other hand, there are studies that enhance the challenges regarding online learning, centred in three aspects, the learners, the educators, and the content. Online learning is a challenge in several aspects: to engage students, to have the teachers move from face-to-face classes to online mode adjusting their methodologies, and regarding a proper online content [2].

Face to what happened all around the world, where almost every HEI had to close due to the Corona Virus and pursue other options, the online education came to the spotlight, even to the HEI previously reluctant to implement it. This event added another reason for online learning: it solves the educational problem when facing such a crisis [3]. This unexpected shift to online learning was easier or harder according to the HEI organizational agility and availability of resources and this implicated a complete change in the institutional approach ([5]; [6]).

This change has revealed emerging weaknesses in the education systems, since it should be more flexible in face to unexpected situations [6]. It was characterized with a principally concern regarding the transfer of the course content to the digital world and with less concern regarding a preparation on effective online teaching and delivery methods ([5]; [6]). This is reinforced by [3] that states that during this unusual and difficult situation, the concern was not about if online learning could provide quality education, it was much more focused on how HEI would be able to offer an online solution in a vast way.

The options implemented varied from pre-recorded lectures to synchronous video conferences and many other solutions in between. However, every different solution was conditioned to the students' availability of resources or to the institutions availability to lend the required resources to needed students or teachers [5].

This is an aspect that can restrict the online solution, since not all teachers and students involved have the required equipment or even access to the internet. This unavailability of digital requirements can jeopardize the entire online education. As such, the HEI must ensure that every student and faculty have access to the digital requirements [3]. The reality is that many HEI lack the digital resources and have insufficient availability of the internet services, and this affected the organizational effectiveness to adjust to this online reality but also affects the students' ability to engage on online activities and learning [5].

Furthermore, another aspect that is relevant is that traditional classroom socialization reportedly does not exist or is severely reduced in online learning, since students only communicate digitally and never connect face-to-face with their colleagues or with the teacher [5].

The fact that the students are alone and no longer participate in a class with their colleagues and with the presence of the teacher promotes a loss of connection and so the students may feel isolated which may affect their learning ([1]; [2]; [4]).

This disruption of the networks between teachers and students, due to changing from face-to-face lessons to online lessons, can promote a loss of interest and lead to lower learning outcomes and poor performances ([1]; [7]).

This is an ongoing discussion that was enhanced by the Covid crisis, whether the students' performance is better when they are attending face-to-face classes compared to online learning. Many studies sustain

there are no significant differences in terms of performance between both methods, online and face-to-face, and that both are equally effective in the transmission of knowledge [8].

However, there are some reports of high dropout rates and difficulties regarding achievement in online courses [2]. Furthermore, some studies sustain that, in fact, students do perform better when they are attending face-to-face classes. The authors sustain that there can be observed “persistent and consistent under-performance by online student’s vs face-to-face classrooms-based students” [9] and that these contradictions of other studies, that sustain that there is no difference, is because those are smaller scale studies ([9]). Moreover, some studies sustain that not only students performed better in traditional face-to-face formats, but they also strongly preferred this method when compared to online learning [11].

In this context, this study describes a particular case in the north of Portugal, in a school of the Polytechnic Institute of Bragança (IPB), a higher education institution that had to close the facilities during the second semester of the academic year of 2019/2020. During this semester the classes were all online, using the zoom platform.

The importance of this study was not only to understand the impact of online classes in the students, in terms of availability of resources to follow classes, motivation, knowledge acquisition, and evaluation, but also to present measures to the school management so they could prepare and prevent problems with a possible 2nd lockdown. This 2nd lockdown did happen during the second semester of the academic year of 2020/2021.

2 METHODOLOGY

To understand how the students perceived online classes a quantitative research was developed. The research focused on a Portuguese higher education institution, specifically the School of Communication, Public Management and Tourism (EsACT) of the Polytechnic Institute of Bragança (IPB) located in Mirandela in the northeast of Portugal.

In February 2021, to develop the descriptive study an online questionnaire was sent to all the students of the EsACT and 231 valid responses were obtained.

3 RESULTS

From the sample obtained, with 231 valid answers, it was possible to characterize them as 66.6% female and 33.3% male. The average age was 23.7 years with a median of 21 years.

The respondents could identify the cycle where they were enrolled and as it was expected, considering the population, the majority belong to an undergraduate degree (89.2%). There were also 7.8% belongs to a technical-professional degree and only 3.0% were master students.

To determine how respondents perceived the online semester, 2nd semester of 2019/2020, it was important to consider whether the students were displaced from their original residence and, therefore, in the houses rented locally, or if they had returned to their homes of origin (such as their parents' houses). This question was not addressed to students who enrolled for the first time in EsACT in the current school year, so only 196 valid responses were considered. It was determined that 88.8% of the 196 respondents watched the semester online at their home of origin (whether in Mirandela or in other regions). Only a small percentage remained displaced 11.2% (22 in 196).

3.1 Students' difficulties when attending online classes

Among the difficulties that were intended to be analysed on whether they existed during the online semester, we initially focused on the availability of equipment and technical means, named functional difficulties.

3.1.1 Functional difficulties

Regarding the availability of equipment to attend classes, it is observed that 79.6% of the 191 responses reported that they had the necessary equipment most of the time, but there is still a worrying percentage (11.0%) who admit not having the equipment needed to attend classes (60% or more of the time it was needed).

Another aspect that could affect online assistance was access to the internet. The students identified if they had easy or difficult access to the internet, as shown in Table 1.

Table 1. Access to the internet.

<i>Registered difficulties in accessing the internet?</i>	<i>Frequency</i>	<i>Valid percentage</i>
Rarely (< 20%)	117	61.9
Few times (20-39%)	31	16.4
Sometimes (40-59%)	21	11.1
Many times (60-80%)	12	6.3
Almost always (>80%)	8	4.2
Total	189	100.0

With the data presented in Table 1, we can see that 21.6% had difficulties accessing the internet service, at least 40% of the times. As such, it is not surprising that there were many students referring their difficulty in following the online classes (attending the classes) as is shown in Table 2.

Table 2. Following online classes.

<i>Registered difficulties in following online classes?</i>	<i>Frequency</i>	<i>Valid percentage</i>
Rarely (< 20%)	83	42.6
Few times (20-39%)	30	15.4
Sometimes (40-59%)	43	22.1
Many times (60-80%)	24	12.3
Almost always (>80%)	15	7.7
Total	195	100.0

Table 2 shows that 20.0% of the respondents often or almost always could not follow the classes. And those who sometimes could not keep up with classes (between 40 and 59% of the time) rose to 22.1%. Which means that, despite 57.9% being able to follow the classes most of the time, a large percentage of respondents (42.1%) could not follow a significant part of the classes, which have to conditioned their motivation and results.

3.1.2 Family obligations and other distractions

It was also intended to analyse if the fact of being permanently confined would have implied the fulfilment of more obligations or if there were more distractions, because of the environment where they were. This is because, as in the previous questions, these would be aspects that could affect the academic involvement of the respondents during the semester under analysis.

Regarding the existence of many sources of distraction, 66.2% stated that there were rarely or only a few times. On the other hand, 33.8% considered that there were often or almost always distractions.

In the need to have more obligations, in addition to studying, as they spend more time at home, it is observed that 38.1% consider that they rarely or few times had more obligations beyond studying. However, 40.7% consider that almost always or many times had more obligations, as described in Table 3.

Table 3. Family obligations.

<i>Performed other tasks besides studying?</i>	<i>Frequency</i>	<i>Valid percentage</i>
Rarely (< 20%)	41	21,1
Few times (20-39%)	33	17,0
Sometimes (40-59%)	41	21,1
Many times (60-80%)	35	18,0
Almost always (>80%)	44	22,7
Total	194	100,0

These last two questions reflect the difficulty of studying in a family environment, which translates into more sources of distraction, such as television or video games, and a greater necessity to fulfil other obligations.

3.1.3 Emotional difficulties

In this more personal and emotional management perspective, it was asked whether, during the online semester, they had felt isolated from their colleagues and, as can be seen in Table 4, this was a common situation for many of the respondents.

Table 4. Connection with other colleagues.

<i>Feeling of isolation from colleagues?</i>	<i>Frequency</i>	<i>Valid percentage</i>
Rarely (< 20%)	68	35,1
Few times (20-39%)	26	13,4
Sometimes (40-59%)	31	16,0
Many times (60-80%)	24	12,4
Almost always (>80%)	45	23,2
Total	194	100,0

As shown in Table 4, respondents felt isolated from their peers, sometimes or many times (16.0% and 12.4%, respectively), with 23.2% indicating that they almost always felt isolated. These values clearly show the impact on interpersonal relationships both online and in person, where 51.6% of respondents identify at least some isolation from colleagues.

3.2 Students' perception of online assessment

To understand the respondents' evaluation of the online academic semester, they were asked to evaluate how the online assessment took place. Fig. 1 presents the respondents' perception on a scale of 10 scores, where 1 means "harder" and 10 means "easier".

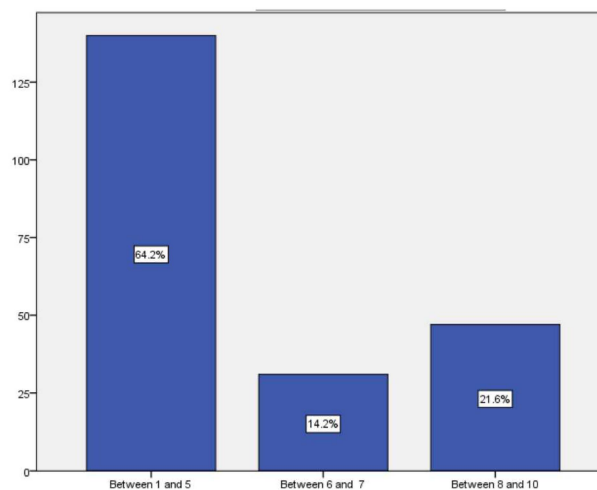


Figure 1. Students' perception of online evaluation.

From Fig.1 it can be inferred that the majority considered the online assessment to be more difficult. On average, the assessment was 4.82 out of 10 points and 64.2% of respondents scored "between 1 and 5" the degree of difficulty, that is, they considered it more difficult than the face-to-face assessment.

The difficulty felt in the evaluation was considered as a function of the study cycle attended, as described in Fig.2, considering the same 10-point scale.

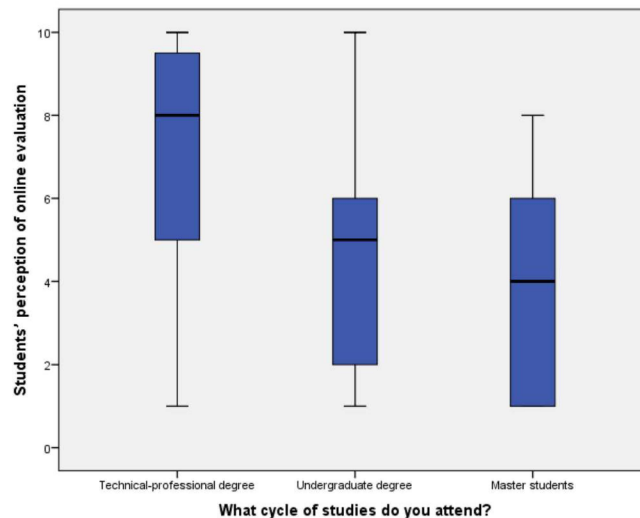


Figure 2. Students' perception of online evaluation versus study cycle.

Examining according to the cycle of studies attended, the respondents of CTeSP (Technical-professional degree) consider that the online assessment tended to be easier than the face-to-face one and that the undergraduate and masters' respondents considered that it was more difficult, with the master students being the ones who identified greater difficulty.

3.3 Students' concerns regarding future online semesters

The last question in the questionnaire was an open question, in which the question asked was "In view of the possibility of the 2nd semester of 2020/2021 being taught online, what are your biggest concerns?".

This was an extremely relevant question from the students' perspective, given that 135 respondents identified their greatest concerns, with some answers referring to more than one, with a total of 178 named worries.

The analysis of the responses allowed for the determination of seven large groups in relation to 163 concerns identified: online assessment, difficulty in acquiring knowledge, excessive academic workload (attributed to curricular units), concentration difficulties, technical problems, teachers and programs difficult adaptation to the online regime, and, finally, difficulty in teaching practical curricular units online (Fig. 3). 15 concerns were not included in these groups, as they were totally dispersed and were classified as "others".

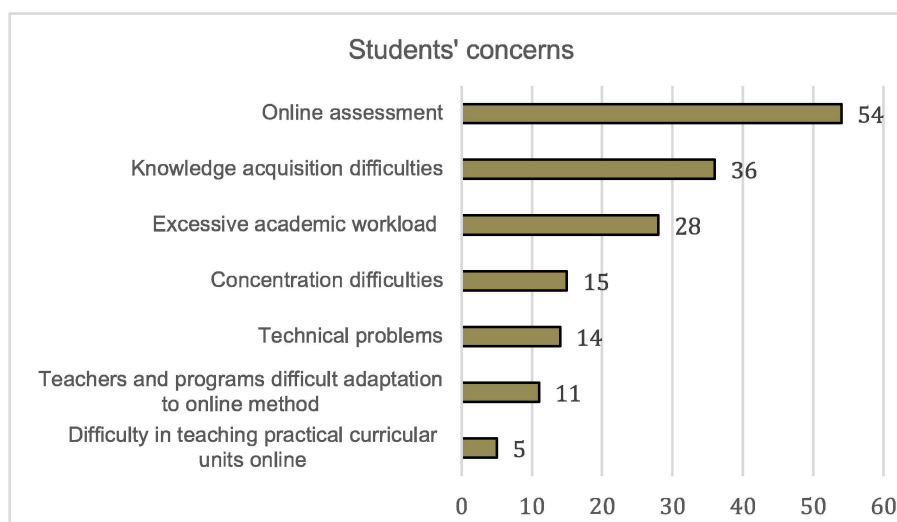


Figure 3. Students' concerns regarding future online semesters.

The concerns of most respondents are centred in three main groups: a) the online evaluation (54 respondents), described by students as much more difficult given that to prevent fraud, resolution time was greatly reduced and the fact that it was not possible to go back on the questions made time management even more complicated; b) knowledge acquisition difficulties (36 respondents); c) and the excessive workload that teachers imposed on the various curricular units (28 respondents).

It should be noted that the feeling of increased difficulty and injustice due to online education, especially online assessment, cannot be ignored. This is a very important aspect since students' engagement and motivation are related to their perception of an effective assessment method [12].

In this matter, we cannot consider the assessment to be adequate when students are not allowed to read the entire exam before taking it or to manage the sequence of questions during the exam time, with the mandatory option in the test of "no return". In this way, with the justification of preventing fraud, this is in fact preventing a fair and competent assessment of students. It is necessary to consider whether, to prevent fraud to some students (which it does not), all others should be penalized.

"Ultimately, the ones who might have been harmed were the good and committed students; those who studied and wanted to take the exams with all the freedom they usually have, managing the order of the questions to answer or the time they take the test." [13].

4 CONCLUSIONS

The study analysed the impact of the COVID_19 pandemic on the EsACT students. The sample collected from 231 respondents, had a female majority and an average age of 23.7 years.

The analysis of the responses of EsACT students allowed us to evaluate the academic semester that took place online (2nd semester of 2019/2020). It was observed that 88.8% of respondents attended the semester online at the residence where they usually live when they are not in school, and only 11.2% remained displaced in Mirandela.

It was found that EsACT students were able to adapt to online learning, with the majority having access to equipment (79.6%) and the necessary conditions (78.3%) to be able to follow the classes. Even though, it was recorded that 57.9% of respondents reported being able to follow classes most of the time, a large percentage of respondents (42.1%) could not follow part of the classes, which could have an impact on their motivation and results.

Staying at their usual residence could have conditioned their dedication to study, but most felt that they rarely or few times had distractions. In relation to more obligations, it was found that 40.7% said they had more obligations further than study. It is noteworthy that 51.6% of respondents felt at least sometimes isolated from their peers.

In this analysis of the greatest concerns, seven major groups were identified: online assessment, difficulty in acquiring knowledge, excess work attributed to curricular units, concentration difficulties, technical problems, teachers and programs difficult adaptation to the online regime, and there were some students who mentioned the difficulty in teaching eminently practical curricular units online, specifically in areas more associated with, for example, multimedia.

Overall, respondents are more concerned about the added difficulties they face in online assessment (54 respondents) and the fact that they may not acquire the expected knowledge (36 respondents). To overcome these difficulties, the institution must focus on working not only on these aspects, but also on the other aspects that fall under its competence, namely the increased workload felt in the various curricular units and the perceived difficulty of adapting teachers and programs to the online scheme.

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