



MESTRADO
MULTIMÉDIA - ESPECIALIZAÇÃO EM EDUCAÇÃO

**DIGITAL TRANSITIONS IN HIGHER
EDUCATION DURING THE
PANDEMIC: AN EXPLORATORY
STUDY.**

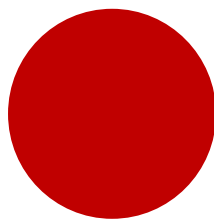
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Digital transitions in higher education during the pandemic: An exploratory study.

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Abstract

Educational practices have changed in the last years, especially with the COVID-19 pandemic, resulting in a shift from face-to-face to emergency remote teaching. Considering this situation, the present study focuses on transitional education at a Portuguese Higher Education Institution. This overall objective is pursued through the following specific goals: to explore students' perspectives on the transitions between face-to-face and remote teaching; and to understand the student's perspectives on the teaching-learning processes.

This exploratory study follows a mixed approach, using an online survey and a focus group. The results point to the need for adaptation by teachers and students to the different digital platforms that were used. On the one hand, the students emphasized the effort made by teachers to utilize innovative strategies and create more interactive situations in class. Students mentioned fewer positive aspects related to the difficulty accessing the internet, difficulty in time management, an increase of requests for individual and group work, as well as the maintenance of the old assessment modes, despite the new circumstances.

Keywords: higher education; distance learning; e-learning; students; transitions; remote distance education

Resumo

O processo educativo sofreu alterações nos últimos anos, especialmente com a pandemia COVID-19, resultando numa mudança de ensino presencial para o ensino remoto emergencial. Face a esta situação, o presente estudo centra-se nas transições ocorridas numa Instituição de Ensino Superior Portuguesa, com o objetivo de explorar perspectivas de estudantes sobre as experiências vividas durante este período. Este objetivo geral desdobra-se nos seguintes objetivos específicos: explorar perspectivas de estudantes sobre as transições entre o ensino presencial e remoto; compreender perspectivas de estudante sobre os processos de ensino-aprendizagem.

Este estudo exploratório segue uma abordagem mista, utilizando um questionário online e um grupo de discussão focalizada. Os resultados apontam para a necessidade de adaptação às diferentes plataformas digitais que foram utilizadas, por parte de professores e estudantes. Os estudantes referiram o esforço feito pelos professores para inovar estratégias e criar situações mais interativas na aula. Por outro lado, mencionaram aspetos menos positivos relacionados com a dificuldade de acesso à Internet, dificuldade na gestão do tempo, aumento dos pedidos de trabalho individual e de grupo, bem como a manutenção dos modos de avaliação, apesar das novas circunstâncias.

Palavras-Chave: ensino superior; ensino a distância; e-learning; estudantes; transições; ensino remoto emergencial

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Abbreviations

ERE	Emergency Remote Education
ERL	Emergency Remote Learning
ERT	Emergency Remote Teaching
ESG	European Standards and Guidelines in the European Higher Education
DGE	Directorate General of Education
DigComp	The Digital Competence Framework for Citizens
FPCEUP	Faculty of Psychology and Education Sciences University of Porto
F2F	Face-to-face
OL	Online Learning
OECD	Organisation for Economic Co-operation and Development
UAb	Universidade Aberta
UNICEF	United Nations Educational, Scientific and Cultural Organization
UNESCO	United Nations Educational, Scientific and Cultural Organization
VLE	Virtual Learning Environments
SASUP	Serviços de Ação Social da Universidade do Porto
WHO	The World Health Organization

1. Introduction

Education has evolved throughout the years in a formal or informal approach which has also made an impact on people's lives, either in their education or their personal ones. However, the format of teaching and learning has shown sparks of mutability along the way especially during the COVID-19 pandemic. The reasons for that are broad and given due to the major changes where online technologies needed to be employed. These changes affected class warfare, involved cultural and social shifts, and highlighted social issues.

In an academic educational environment, this approach related to teaching and learning has adapted due to the late pandemic events from 2019 until this current date. A respiratory disease, caused by a virus SARS-CoV-2 named COVID-19 emerged. As a contagious disease strict measures were adopted by the governments and universities to restrain the spread. The World Health Organization (WHO) classified COVID-19 as a pandemic in March 2020 due to its severity (WHO, 2020). Having to keep a certain distance to reduce and avoid the spread of the infections, the use of face masks in public, smaller gatherings of people in the same space, the closure of shops, institutions and lockdown in a global sphere were some of the policies taken and implemented. Due to this crisis, to avoid the interruption of studying and being educated it was classified as an emergency remote education (ERE) (Hodges et al., 2020) to fulfill the ongoing educational needs of society.

Uncertainty, perplexity, volatility, intricacy, and ambiguity have been placed in the daily lives of students and the academic community. Temporarily, ERE was adopted in various levels of education by institutions around the globe with the aim not of interrupting education (Behar, 2020). In this path, education and lesson formats also had to be adapted by using alternative techniques. This covered not only how professors have been reinventing themselves by creating and recreating diverse activities but approaches using technology and resources available in such circumstances (Arruda, 2020). Certain changes

and their adaptability led to reflection of how we see education nowadays, followed by various possibilities of teaching and learning.

Consequently, online methods and technological tools have never been so required and in the spotlight, there was a compelling shift from face-to-face lessons to digital ones (Chicha et al., 2021). In this academic panorama, this research envisions understanding how this recent and specific transitional moment was welcomed through the lens of master's students showing their experiences and how they have adapted to such a new context. Primarily, at the University of Porto, one of the most prominent institutions in Portugal. It was possible to feel the abrupt changes during this period by using diverse types of technologies students, professors and the university had adapted themselves to the new situation. In this regard, the university started using videoconferences software, applications, and recording videos, among other tools. It was a novelty with new experiences. The outcome has led to a path to determine how the students adapted and their feedback to the ERE format and its changes.

The University of Porto and other universities in Portugal have had similar experiences. Given this widespread impact, it is relevant to understand, explore and deepen how this transition and adaptability has affected the educational system. Thus, it is thought that new findings and developments might be a result of changes that took place during the COVID-19 outbreak. The educational system in Portugal is aiming to evolve, adapt or adopt techniques that have been obtained and proven positive via these studies and feedback.

Obviously, the students' perception about this transition could vary from one level to another depending on their level of education. For example, masters' students might have different ideas compared to bachelor or high school students. The reason could be because of age, experience, and the length of courses. In the referenced research (e.g., Monteiro & Leite, 2021; Sobral et al., 2021; Flores et al., 2021; Monteiro & Leite, 2020; Tang et al., 2021) evidence was found that shows student performances/ perceptions are different in various levels.

From previous bibliographical research, it was observed that most of the research production was destined for teachers, universities and other related subjects regarding COVID-19 in Higher Education, while the rest of the studies lay on having students as a main resource hearing role (Ilieva et al., 2021; Lockee, 2021; Oliveira et al., 2021).

Although it is important to know the perspectives of students and teachers, this study is concentrated only on the students' points of view at the University of Porto. The institution and society should be aware of the perception of these students, which is justified in this and the other highlighted studies.

The importance of hearing those who have seen and felt such changes leads to a path of reflection. For educational practices this helps to explore ways to improve them. According to previous studies cited in this dissertation and the perceptions brought from this selected target group (master's students from the educational department) it is possible to reflect on different techniques and ways of thinking about education, teaching and how these digital methodologies have been perceived, and welcomed by master's students.

Previous studies carried out in Portugal (Flores et al., 2021; Sobral et al., 2021; Oliveira et al., 2021) stated that students' grades in online lessons did not drop drastically, the flexibility of schedules and convenience of learning at home was appreciated, and finally, teacher-student interaction increased. These were some of the positive points shown in their studies reflected due to the pandemic restrains, some other studies (Gonçalves et al., 2020; Xavier et al., 2020) registered negative results as some students presented concerns related to stress, changes in teaching methods and scarcity of presential lectures, also the need for more practical activities such as laboratories.

Nevertheless, during the pandemic, both teachers' and students' mindsets have changed along the way (Cicha et al., 2021; Ilieva et al., 2021). Also, many modules' contents were modified to be applicable to the software and new technologies (Cicha et al., 2021). It can be concluded that there are several ambiguities about remote education and the new transition from face-to-face learning to online. Even though professors' and students' experiences are connected, both perspectives (students and teachers) should be studied separately.

Firstly, the research project defined the keywords and their synonyms. For online education, it was that found digital education, e-learning, distance learning and online learning were relevant (Appolloni et al., 2021; Aristovnik et al., 2020; Gonçalves et al., 2020). However, this dissertation aligns with common and observed misunderstandings depicted in studies cited previously, between the above terms ERE, according to what has been stated during the COVID-19 outbreak. Secondly, a clarification of such terms will be developed, and their differentiation outlined. Reviews, surveys and systematic literature were chosen to enlighten those concepts above. This central concept will be deepened going along with the target group: university masters' students that have been effectively studying in this transitional period to develop and apply for interviews.

Through a systematic literature review based on a current topic that have affected Education in general and its ways of teaching and learning, it was found that online learning has been seen through another point of view. The main issue found in the selected research is about the differentiation of what is called ERE (emergency remote learning) from online

learning, the experience of higher education students regarding the issues experienced in this transition period and is intended to investigate through a quali-quantitative methodology using an online survey questionnaire and focus group to investigate the initial question proposed (Hodges et al., 2020; Monteiro & Leite, 2020).

According to (Paiva, Abreu & Costa, 2021) in the study:

“Distance Learning in Higher Education during the COVID-19 pandemic: A Systematic Literature Review” had the scope, students, teachers, and education and the importance that has grown towards virtual learning. It is observed in several studies that the most frequently used words in literature will be explored in this dissertation. They are Online Learning (OL), Teaching-Learning Strategies and practices, Emergency Remote Education (ERE), Emergency Remote Learning (ERL), Emergency Remote Teaching (ERT), Virtual learning (VL), Students experiences/ perspectives (Hodges et al., 2020; Tang et al., 2021; Sobral et al., 2021; Flores et al., 2021; Cicha et al., 2021).

Besides this, it also brought out the challenges and perspectives regarding emergency distance education during the COVID-19 pandemic which were identified by Sunde et al. (2020). Some of these challenges are the lack of digital literacy and the lack of access to the internet, computers and technological tools. This makes online education less accessible to professors and students from disadvantaged or lower financial backgrounds.

It also reflects in other singularities that do not summarize only in the pandemic but also regards access of information, accessibility, usage of devices, lack of digital literacy among other issues stated in the discussed studies. To have a firm idea of these concepts some articles (e.g. Monteiro, A. & Leite, C., 2020; Leite, C., et al 2022) will aim to focus on answering the research questions that follow. These focus on ERE in the public University of Porto in Portugal at the education course. We will present our data with those students from the master’s course of education at Porto University.

Followed by the above statement, this dissertation propose is to find and explore what are the master's students' perspectives on the transition between face-to-face and remote education learning in a Higher Educational context. Focusing on the teaching-learning process in the Education Science department of University of Porto.

1.1 Research Justification and significance of study

Education can represent a milestone in one's life and a path to improvement. During the pandemic that hit abruptly it was possible to notice the struggles from teachers and students from all levels of education to keep on studying. The path was to continue working, studying, and even socializing through digital tools.

These sudden changes represented society with unprecedented challenges to leverage digital technologies and to adapt the curriculum, face-to-face activities, to continue the academic year by keeping engaged in the teaching and learning processes. Among these issues mentioned, the socioeconomic side became more in evidence due to the need to have internet connection and access to a device to keep studying.

If before that inequity was already present in society as well as the lack of access to education, then the gap has become even larger for the ones that didn't have access, making it an even bigger challenge (Jenkins, 2009). In Portugal, the country where this research was conducted, the data shows that most of the homes did not have a stable broadband internet (PORDATA, 2021).

With no prediction of a return to face-to-face classes, education is faced with a new reality – students being unable to attend lectures due to the pandemic by being unable to watch lectures due to pandemic, this would be unimaginable years ago that a pandemic would spread in such a magnitude and people forced to take drastic measures, lockdown and only online lessons. This situation became a reality daily with improvements and downs during the next couple of months. In this way, lectures have been transmitted in many formats possible. Using the Internet, with synchronous and asynchronous or synchronous, by podcasts or social media groups, sending activities on Moodle or other platforms, developing projects and portfolios, the most creative ways were thought to secure learning. It was supported by electronic devices such as cell phones, tablets, notebooks, and computers. Therefore, these was designed emergency remote education (Moreira; Henriques; Barros, 2020).

In overall, aiming to continue with the possibility to learn, emergency remote education needs to be study and understood especially what happened during these times and how to improve it. It can be unpredictable if an analogous situation in a context of pandemic or any other type of crises might happen in the future, however this is an opportunity to enhance and see how these students from the course of education that already have some knowledge regarding teaching-learning process due to their courses will differ their practices in their role, if this experience will change their practices in the future and at work.

This study is important, because it leads to a better understanding of students from the University of Porto and the community from the educational department. In this way, it favors the institution, future students and teachers to have a moment to reflect their practices, as well as to improve lectures and their techniques either presential or remotely. Secondly the result of this study contributes to the body of knowledge, is possible to be used as a reference to other studies and research lead for other scopes/universities. In conclusion it is beneficial for science as it was noticed rare studies that have as a reference student from the educational course.

1.2 Research Objectives

After careful research, consulting documents and articles produced on the subject, it was given a precise look at some information absence as well as the need to deepen this knowledge that was lacking. It was possible to concluded that there is currently an insufficient amount of relative literature that evaluates in a higher students' view teacher's educational practices in a humanities course, more specifically in an education master's course at a public Portuguese university. For this reason, and more importantly to hear these graduates' perspectives, we believe that is a highlight for pedagogy and its practices as soon they will be the workforce of tomorrow and possibly working in education as it what they have been studying and investing for.

As is explained in the introduction, this study tries to explore students' perspectives on the transitions between face-to-face and remote education in a Higher Education context focusing on the teaching-learning process. Envisioning this, the research objectives will be as follows:

1. To identify the main aspects of the transition processes from face-to-face to emergency remote education based on the master's students' experiences/perspectives.
2. To understand the student's perspective about the teaching-learning processes during the emergency remote Education.

These objectives will be answered throughout this dissertation using the data collected and other similar studies found to reinforce the idea.

1.3 Research Question

According to the aim of this study research questions can be written as follow to guide the development of this dissertation:

1. What are the main aspects of the transition processes from face-to-face to emergency remote education based on the master students' experiences/perspectives?
2. What are the master student's perspectives about the teaching-learning processes during emergency remote education?

1.4 Research Methodology

In general lines as it was outlined previously, the purpose of this study is to explore, identify and understand how students experienced the transition from face-to-face teaching to distance learning. In this way, as an exploratory study (Amado, 2021) investigates the Faculty of Science Education and Psychology (FPCEUP) having a sample of master's students from Educational Science course that have been through the transition from face-to-face- classes to ERE as participants of this study.

This dissertation holds a research framework of a primarily qualitative basis, along with quantitative traits resulting in a mixed-method design. In this way, based on the research questions of this study, it is necessary to apply both quantitative and qualitative methods (Poupart et al.,2012). To answer the first question this study consists of an online survey with a total of 21 questions and the majority being closed questions that will be unfolded in the next pages, to answer the followed question the second part study consists of a focus group with an in-person interview and semi structured questions (Santhosh, Rojas & Lyons, 2021). To understand the specific aspects highlighted in the online survey a basis was used and adapted according to the objectives of this dissertation (Ilieva et al., 2021).

The methodology chosen for this study has as a reference the following authors (Amado, 2021; Bogdan & Biklen, 1994; Quivy & Campenhoudt, 1995; Poupart et al.,2012) as a way for understanding this unique moment through the contributions collected from the participants of this study which have felt and seen the changes of education through their own lens. More specifically during the pandemic and between the transitions that have occurred and affected the

educational community. This said, it involves bringing up such emotions and feelings that will be delineated in the next pages. As the author states below:

Systematic research, based on theoretical principles, information and understanding (the meaning) of certain behaviors, emotions, and ways of being. It's about an understanding that must be achieved taking into account the contexts human in which those phenomena of attribution of meaning occur and become unique when appropriate, in the short or medium term, directly or indirectly, through the application of this knowledge or, even, through the process of its construction, qualitative research aims to contribute to the improvement of situations and to the resolution of the problems existing in the context (Amado, 2021, P. 139).

As an exploratory study, this dissertation was carried out in five steps:

1. In the first step, we concentrated on the bibliographical research, elaboration, review, and validation of the Literature Review.
2. In the second step, an online questionnaire survey with closed questions was given to students attending a master's degree and a degree in Educational Sciences at the FPCE of the University of Porto in 2021. The survey asked about their specific experiences during the transition period from face-to-face to virtual teaching to Emergency Remote Education (ERE).
3. The third stage corresponded to the realization of a focus group of students who have expressed their availability to do so in the survey. The objective of this step was to deepen some aspects that the study reveals to be essential to be clarified. Eleven semi-structured questions were selected based on the gaps that were missing to be answered from the online survey. These questions were given to a sample of students who had participated in the online survey and agreed to participate in the interview.
4. The fourth phase corresponded to the presentation and discussion of the data, crossing data from the survey with the data from the focus group and other similar studies selected.
5. The last phase was dedicated to conclusions, future work, and perspectives of the study.

For this a schedule was outlined, aiming to achieve these objectives as is presented below:

Table 1 – Context and Timeline

CONTEXT			
Educational Sciences Master’s course	Faculty of Psychology and Education Science Porto University – FPCEUP Porto, Portugal.		
Students from the course cited preferably from 2 years and/or 3 years [1] of master’s that have experienced the transition while studying from presential to emergency remote learning - (ERL) focusing on the teaching-learning processes.			
TIMELINE			
2022			
1- State of art and characterization of the context.	JANUARY	FEBRUARY	MARCH
2- Analysis and requirements for the development of survey for the public in question.	FEBRUARY	MARCH	
3- Development of the survey and selection of the target group interviewed.	FEBRUARY TO MAY		
4- Application of online surveys and validation.	APRIL	MAY	
5- Development of focus group questions and Focus group interview.	APRIL	MAY	
6- Data analysis and Writing results.	MAY TO AUGUST		
7- Predicted date for the presentation/defense.	OCTOBER		

1) IDENTIFYING RELEVANT STUDIES AND DATA COLLECTION PROCEDURES

To obtain the results aimed for this research, according to the primary objective and secondary objectives listed previously, it was necessary to define the keywords used as well as the most common synonyms for “Emergency Remote Learning - ERL” and “Emergency Remote Education – ERE” using Boolean operators it was defined these keywords for the search: higher education and [distance learning OR online learning OR e-learning] AND students AND COVID-19. These keywords were used to conduct the research

The first search was in late October 2021 using Scopus platform that was 79 studies with majority in English language and after that Portuguese. The other support used was a software called Hazard & Perish. This platform conducts a search in all the academic websites such as ERIC, Scopus, Google Academic, Web of Science, among others.

A total of 490 research was found at those cited platforms including in this number 79 articles found on Scopus from the research conducted. From 490 articles duplicate studies were excluded, the titles were revisited and there were 210 studies left.

First by reading each article title if it goes along with what we are looking for according to the keywords and main research goal if it is possible to have a glimpse of what the study will discourse from the title. For instance, there were selected studies that were able to confirm that the main topic was “Higher Education” and not a secondary school or primary school as some have appeared.

The other criteria are that the magazine or journal was published in a trustable source by checking their Qualis position. i.e: (A1, A2, A3) and it was selected only for the years 2020 and 2021 for all the searches. In summary, the second step consisted of:

- The second step to exclude was by reading the summary of each study.
- If in the summary the researchers present results.
- If the work presents points that we are looking for based on our main and specific objectives.

Preferable research that showcases Higher Education in Europe in an Educational course or Humanities department, as this present study is going to work on data of students at University of Porto and currently attending the second, or third year of master’s in educational sciences we are looking for similar possible experiences from the studies searched. Regarding the language a considerable proportion of these studies found are written in English language, following with a parcel written in Portuguese and a minority in Spanish.

Filtering these points, from 210 studies we have selected 72 by the title, qualis, publisher, what country the study takes place, summary analysis, following what it was stated previously.

Finally, by checking the results presented in each study and if the methodology is like the one proposed in this dissertation (mixed), the number of 30 studies was encountered.

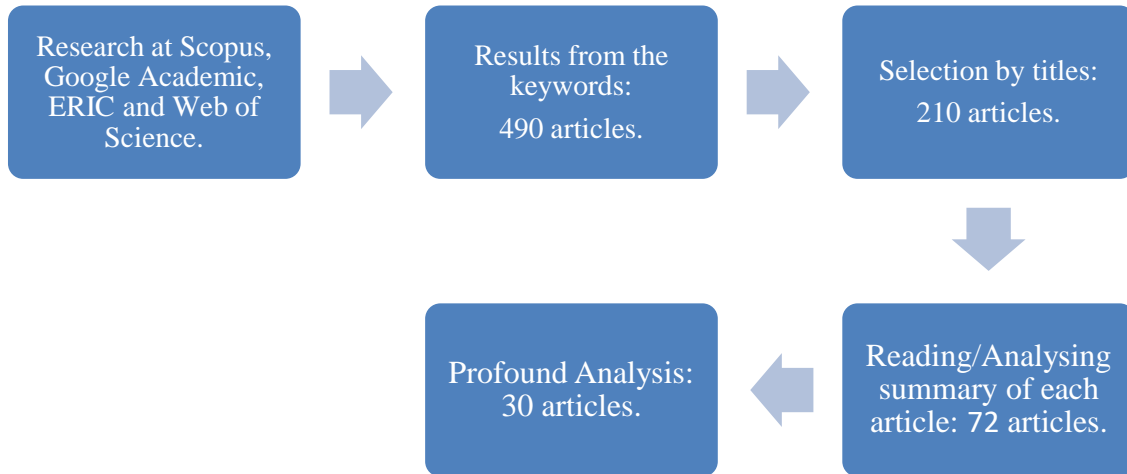
Regarding the first step of this search to include and exclude articles by the title, it was noticed that a part of the papers had in their titles the continent that was applied to the research such as Tawain, or it was pointing out and referring to specific issues such as the (psychological

effects and/ or motivation (Holzer et al., 2021; Sokolovskaya, IE 2020). Among other topics that don't go along with the goals exposed, related to the learning experience from students' viewpoint. Overall, the criteria used for inclusion and exclusion are:

1. Papers that have in their title, summary and in a deepened overview that the study was held in a Higher Education institute in Europe.
2. That these empirical studies held in the institute were made with a focus on higher university students' experiences AND portray the transitional moment from face-to-face to emergency remote lessons.
3. It shows student's experiences regarding or having the most presented from their learning/studying experience during the shift from on-site to online.
4. Students researched in the selected papers that are from the courses: Human Sciences and Applied Social Sciences - e.g.: Medical students' papers were excluded.
5. It has a mixed framework preferable: Quali-quantitative or qualitative approach or quantitative approach.
6. It presents the results found in its summary.
7. It was published and has data from the last two years: 2020 and 2021.
8. Qualis from papers chosen A1, A2, A3.

To present the path followed in a visual way, it was built an image is demonstrated below:

Figure 1 – Results of the Research



To sum up, a mixed approach methodology was adopted for this dissertation as established by (Amado, 2021), expanded by (Bogdan & Biklen, 1994; Quivy & Campenhoudt, 1995; Poupart et al., 2012). Finally, using the focus group foundation to map and comprehend the gaps and tendencies proposed by (Silva, Veloso & Keating 2014; Santhosh, Rojas & Lyons, 2021). followed by the data collection procedures using the technique "Triangulation of information" (Triviños, 1987) and the multi-method approach (online survey and focus group interviews with semi-structured questions).

2) OVERVIEW AND PRESENTATION: ONLINE SURVEY

In this step, the survey was embedded in an online form using google forms to facilitate accessibility, and its hyperlink was sent on 27 April 2022 for a selected group of students on their private email institution as well as social media groups focused on students from the Education course at FPCEUP as participants. This survey was based on previous European research works (Sokolovskaya, IE, 2020; Holzer, J., et al., 2021) and adapted to the context applied and sample investigated. It was preserved anonymity and students have marked in the online survey, before starting that have agreed on that.

The survey consists of 5 parts consisting of 21 questions. Those 5 sections are listed below:

1. Demographic profile of the students in the sample.
2. Knowledge and attitudes towards COVID-19.
3. Information about Educational Science course during Lockdown and its differences.
4. Platforms for online classes, sharing of materials and evaluation.
5. Impact of COVID-19 on the economic situation and school attendance.

The division of these sections and the elaboration of the questions in the present form were adapted according to the reality of the environment researched from the University mentioned, located in Porto, Portugal, and its purposes for this study. As said previously, these selected questions have been validated and adapted from the articles cited used as inspiration. Results from the survey were analyzed, charts and tables were made, and results were transferred to an excel spreadsheet. In the discussion part, it gives sequence in the following pages of this study, it was selected and built charts of the most representative answers pointed by this sample of students.

Therefore, using a survey favors greater quantification and certification over several responses. According to Marconi and Lakatos (2003) confirm that the advantage of using a survey allows a more comprehensive and flexible response regarding time, without the direct intervention of the researcher and therefore of the researcher and, consequently to the non-alteration of facts.

The Survey totalized 21 questions containing: 19 closed questions with a majority of answers containing multiple options and 2 open questions. The time predicted to answer these questions was between 6 to 8 minutes. Over the course of 3 weeks, we received 28 replies, which allowed us to analyze the results given using the bibliographical references and studies mentioned as support. In general lines, students have addressed what the main challenges for them were and what was observed in the teaching-learning process during their courses, their level of digital tools familiarity as well as what they have observed from teachers.

In a space of 3 full weeks, we had 28 respondents all from the master's degree of Educational Sciences at FCEUP. They passed through this first transition during their course of studies. Of the 28 students, only 8 respondents stated that they would like to collaborate in a focus

group and at the end. 5 master students participated in this focus group. Confidentiality was preserved during this study by signing an agreement.

Finally, the focus group took place at FPCEUP building room number 119 at the end of May due to the availability of the participants. In this focus group, 11 open questions were made to understand the student's perspectives on the teaching-learning processes and how it was for them in this transition from presential to emergency remote lessons.

From the first step mentioned in the online survey, the data results were processed. From the obtained answers and charts were made. It was possible to find some similarities between respondents' answers which are highlighted below and explained in the next pages.

Aiming to profound in what respondents have said, a focus group was applied, which gives sequence for the next step as well as its overview.

3) OVERVIEW AND PRESENTATION: FOCUS GROUP

According to Amado, 2021 a focus group consists of “involving a group of representatives of a certain population in the discussion of a previously fixed topic. The interaction generated within the group is, therefore, the main means and source of data production and is its main characteristic.” (Amado, 2021, p. 226)

For this step, a focus group (Silva, Veloso & Keating 2014; Amado, 2021) was conducted with five students of Education Sciences at the master's level from the FPCEUP - University of Porto. The focus group happened on 24 May 2022 at FPCEUP.

This said, the audience of this focus group was students from the public Higher Education at Porto University, more specifically those who are currently studying this year of 2022, in their 3rd year of studies considering the timeline that the pandemic has struck. There was no selection among gender, age, social or financial to participate in this survey.

To sum up, the only demand for the selection was:

- Students from the master's course of Education at FPCEUP, Porto University that is are the 3rd year at this present date of the survey has been through the shift from face-to-face to emergency remote learning AND have continued their studies during this first transition.

The interviews were recorded for later transcription, ensuring ethical care, confidentiality and anonymity of the institution and professionals interviewed. For this ethical consent, a model

was used from other previous studies that were used to inspire this research; this model was used as an example and adapted to this research (Appendix 01).

Considering these aspects and the objectives that guide this dissertation, this does not offer any additional risk to the participants whom it was asked about the direction of this course of Multimedia and Education at the Faculty of Engineering - (FEUP), University of Porto, if there was the need to send to the Ethics Committee, in which the faculty answered by email that for this case there was no need.

For the creation of these semi-structured questions, it was used as a base and adapted from the following authors studies (Sokolovskaya, IE, 2020; Holzer, J., et al., 2021). The focus group interviews started from the need to extrapolate the "social sphere" of Education in a University context as respondents have shared their feelings, frustrations, and overviews. We can state that four factors suggested this procedure: 1) the research problem; 2) the purpose of the study; 3) the title of the thesis; 4) the contexts both similar and distinct, in this regard, highlight that this type of procedure "allows the researcher and respondents to become more engaged in the research process, expanding the potential for involvement of both in the discussion and interpretation of data of common interest." (Silva Júnior, Martins-Silva, and Jose de Mesquita, 2014, p. 126).

For the preparation of this focus group, for the interview settled as well as the transcription, guidelines were followed and its steps were based on the theoretical paper "Interview transcription: conceptual issues, practical guidelines, and challenges" (Maia et al., 2017, p. 8).

Transcribing the group interview was undoubtedly challenging, considering that participants brought up specific terms, different language traits and ways of expressing themselves. Listening at a slow speed and several times was necessary to reassure the exact way that participants have chosen and put the words during their talk as well as making sure that what they said is what was meant for them. As an example, it was one participant that referred to herself and here I cite her words: "I am Felgueiras..." this author has confirmed with the student and researched at the official municipality website that Felgueiras is a municipality in Porto district. It was possible to notice some specific traits in the language and from informal language, however it was not a issue to understand.

The type of transcription made is denaturalized (Maia et al., 2017) as this dissertation aims to understand the essence of what respondents have to say regarding their experiences and it focuses more on this. Moreover, their names respecting confidentiality were omitted and replaced by codes represented as: i.e "P1" participant 1, "E1" interviewer 1, "O1" advisor teacher 1.

ETHICAL CONSIDERATIONS CONCERNING THE RESEARCH

The survey was sent by e-mail to the respondents. The anonymity and confidentiality were preserved. A consent is available in Appendix 2 will be archived in an electronic device for a period of five years of the results, and after this period, they will be deleted.

1.5 Structure

Concerning work structure, besides the contextualization is organized in 5 chapters and listed:

- 1. Introduction:** Overview of the theme of this dissertation, how the initial idea originated and motivation, importance for society, education and for the science. This chapter is divided: a) Research Justification and significance of study; b) Research Objectives; c) Research Question; d) Research Methodology.
- 2. Literature Review:** The first chapter presents a short introduction followed by literature review, according to the topic chosen and keywords searched. In this selection made it was presented the most significant studies for this dissertation concerning ERE, ERL, ERT and students that have experienced the same situation according to other studies.
- 3. Data Collection Procedure:** In this chapter, data are presented and discussed. This data and references will be conjugated and analyzed together with the empirical research and interviews made.
- 4. Results and Discussion:** This chapter is divided in 3 items followed below: a) Presentation and Discussion: online survey questionnaire; b) Presentation and Discussion: focus group interviews; c) Data Triangulation: online survey versus excerpts from focus group interviews.
- 5. Conclusion:** Finally, conclusions, future work and bibliographic references are presented.

2. Literature Review

2.1 Introduction

In this chapter, prominent studies and relevant concepts within this dissertation are presented, starting with the COVID-19 outbreak, a respiratory disease caused by the SARS-CoV-2 virus and the impacts felt by Higher University undergraduates in terms of education, faced by these sudden changes, more specifically during the first transition. Also, main concepts and differentiation of synonyms have been mapped that contribute for a better understanding this dissertation. A global overview of the impacts of this disease was outlined aiming to produce a better understanding, however it was predominantly used as the main scope European University experiences and studies narrowing to Portuguese's perspectives at the department of social sciences courses to finally, direct to our aim at the masters' educational department from University of Porto in the following chapters.

Continuing this line, the present research intends to verify how this transitional moment was lived by students from our community at the Education Course and have a fully understanding from other literatures as their experiences, contrasting, exploring, and finally painting a whole picture of the situation.

From those selected studies it will be highlighted for this bibliographic review some authors that aim similar about finding the perspectives from teaching-learning at Emergency Remote Education in a Higher Education context. These studies were focused on findings from European and Portuguese Universities that researched Social Humanities and Educational courses.

2.2 Theoretical Framework

In December 2019 the identification of a new respiratory disease (COVID-19) caused by coronavirus (SARS-CoV-2) was found in Wuhan, China and after, spread around the globe. In March 2020, the World Health Organization (WHO) declared that COVID-19 is a global pandemic with one of the characteristics being highly contagious (WHO, 2020). In addition to its susceptibility to transmission, Covid-19 has another characteristic that aids in its dissemination, the infection can be asymptomatic or can take a couple of weeks to manifest any symptoms. In this way, an infected person can infect dozens of others until these others find out they have the virus.

Aiming to reduce the spread, many places were closed, including schools and institutions. Overall, more than 90% of enrolled students of all ages from all over the world experienced interruptions of education on a global scale. In Portugal, the document “Estado da Educação 2020” from the Educational National Council (CNE) released a compilation of studies related to the effects of pandemic in an educational viewpoint showing global data and national. Overall, guidance based on these studies was recommended for students and the whole team (e.g., professors, associations, research, institutions) that made it possible the continuity of studies. (CNE, 2021; UNESCO, 2020a; 2020b; UNICEF, 2020).

It is, indeed that the sharing of knowledge and the disclosure of such information's and practices that has turned this pandemic into something considerable manageable. and despite these measures, the disease kept spreading and several countries enacted severe measures to contain its spread that included temporary quarantines, social isolation to avoid movement and gatherings, and what became known as to what became known as lockdown, the limiting the free circulation of the disease and the closure of public and private places.

Consequently, many things have evolved in the last two years in terms of new vaccines, healthcare, and strategies to contain the virus. Besides science another topic that has changed, was Education. Technologies have been gradually inserted into education for their purpose through the years.

However, during this pandemic, it was inserted ad hoc. It was a situation that was not previously planned but just happened. Teachers and institutions used their knowledge to keep up with the classes but adapted to the only possible format that everything would be online. No hyperflex environments or on-site lessons but the start of an emergency remote learning (ERL)

or Emergency Remote Education (ERE) was put into practice to ensure the continuity of learning and its practice (Flores et al., 2021; Sobral et al., 2021; Leite et al., 2022).

It was published by the Organization for Economic Cooperation and Development – OECD (2020, p. 3) that 70% of the respondents have indicated the interruption of the institution calendar also learning processes as challenges to be overcome during these changes. This emergency remote learning (ERL) acquired is only a proportion of what students would have learned if they had been in schools in person, confirming the benefits that students receive from attending their studies regularly along with learning and interaction with their teachers and peers.

According to (Karnal, 2021), historian and professor at The State University of Campinas - UNICAMP, Brazil states at the online international congress “2º Movimentos Docentes¹” Affirms that “historically, this is the second time that students do not have access to face-to-face classes in such a proportion or format with such interruptions. The first time was during the Spanish flu that students stayed so long without classes”.

To avoid this interruption, it was encountered the use of technologies to continue classes remotely whilst at the times of Spanish flu that was not possible to continue online due to its inexistence as education is a human right and important as an enabler of other rights (Sinclair, 2001). In parallel to the great advance of using technologies it is the enhance of learners’ engagement and boost to their knowledge, lessons and course material resulting in an advantageous academic performance in overall (Li, 2018; Oga-Baldwin, 2019). Hodges et al. (2020) refer that the temporary shift of instructional delivery mode, due to the crisis, represents emergency remote teaching (ERT), that involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated (Hodges et al. 2020, p. 8)

Nonetheless, a reliable internet connection and access to electronic devices were not the only means that results in a successful implementation of ERE, as in some cases, it was possible to verify that other issues reflected to the good function of remote lessons during the pandemic. The absence of knowledge about ERE due to the unexpected situations might have direct teachers to an attempt to replicate face-to-face teaching strategies in online lessons (Baran & Baran, 2021).

In addition, more than sharing knowledge, the concerns of teachers should be addressed to the set of skills and development that prepares students to engage in participatory and critical

¹ Excerpt from Dr. Prof. Leandro Karnal’s speech at the 2º International Congress “Movimentos Docentes” – Unicamp, Brazil, 2021.

citizenship (Neves et al., 2021). Therefore, the continuity of education is a great contributor for that as well as the inclusion of digital skills in the curriculum.

The advance of digital information technologies has enabled the creation of tools that can be used by teachers in the classroom. This allows a greater availability of information and resources for the student, making the educational process more dynamic, efficient, and innovative. In this sense, the use of technological tools in education must be seen under the optic of a new teaching methodology, enabling digital interaction of students with the content. In other words, the student can interact with various tools that enable him to use his mental schemes from the rational and mediated rational and mediated use of information (Cordeiro, 2020, p. 4).

However, the use of technologies in the classroom is seen by many teachers as mere tool that, in many cases replaces some teaching methods contrary as a support for the promotion and implementation of active methodologies (Tavares, Gomes & Fratelli, 2021; Monteiro & Leite, 2020). Due to the rapid spread of COVID-19, the lack of preparedness regarding the unanticipated shift from face-to-face teaching to remote despite what preceded the use of technologies in education has been adopted previously in teaching practices by some teachers, from all levels of education and used in their practices in the current situation, the usage need, with agility and creativity with the available resources is a response to an emergency circumstance (Arruda, 2020).

Therefore, “temporary shift of instructional delivery to an alternate delivery model due to crisis circumstances” (Hodges et al., 2020, p 7). In other words, the suspension of face-to-face teaching activities, all over the globe has prompted teachers and students to switch to an online scenario, transferring and transposing methodologies and pedagogical practices typical of online teaching around the world, has generated the need for teachers and students to migrate to the online reality, transferring and transposing methodologies and pedagogical practices typical of the physical learning spaces in what has been called emergency remote learning (Moreira, Henriques & Barros, 2020).

As the virus spread and reached exponential proportions, educational institutions and teachers were forced to adopt distance learning practices, but not program-based teaching practices properly tested, evaluated using digital networks. Institutions, teachers, and students adapted in time-record as they could and in most cases without any specific training (Tavares,

Gomes & Fratelli, 2021). In this way, a clear differentiation of what is ERE is possible to confirm by previous studies mentioned and following ones.

By being in a path that “navigates in times of uncertainty and crisis” (Bozkurt et al., 2020, p. 2) "for the authors, a remarkable difference between emergency remote education and distance education is that the first one is an option and a planned activity while the emergency one is a compel about surviving in a time of crisis with all resources available, including offline and/or online. With the upcoming events, two terms have been commonly confused: online classes/learning and emergency online learning. According to Bozkurt et al. (2020) in his work: “A global outlook to the interruption of education due to COVID-19 Pandemic Navigating in a time of uncertainty and crisis” for the authors, a remarkable difference between emergency remote education and distance education is that the first one is an option and a planned activity while the emergency one is a compel about surviving in a time of crisis with all resources available, including offline and/or online (Bozkurt et al., 2020).

In addition to this, it was possible to verify some ideas of each concept from the selected authors who have studied the field. This was made to clarify this topic from similar concepts and as the first concept brought to this study: emergency remote learning versus distance education: “The crash nature of emergency remote education inevitably results in its weakness in theoretical underpinning and is far from being a pedagogical concept in its own right” (Bozkurt et al., 2020, p. 2). Moreover, the shift from face-to-face teaching to the remote model does not mean that teachers substantially changed their pedagogical practice by altering the format of teaching. The use of these technologies, with a certain potential for innovation, has served in most cases merely as mediators for knowledge transmission (Tavares, Gomes & Fratelli, 2021). In this way, according to the authors, it is possible to understand emergency remote education and its differences.

Furthermore, the authors Moreira, Henriques & Barros (2020) bring an idea of how an online class should be well planned and organized going along with pedagogical elements to achieve the main goals and skills of the content proposed to be studied. “These elements go through a didactic strategy with activities, resources, moments of synchronous communication and guidelines for moments of asynchronous communication and, finally, the weekly, biweekly or even thematic organization of the contents to be studied” (Moreira, Henriques & Barros, 2020, p. 6).

For this, it requires equipment, knowledge, and skillset for it. Online learning as the author says: “Is not simply a geographical separation of learners and teachers and more importantly is a pedagogical concept” (Moore, 1997, p. 22). Also, it requires an executed planning for online

learning: “Is a planned activity and its implementation is grounded in theoretical and practical knowledge which is specific to the field and its nature” (Bozkurt et al., 2020, p. 2); Sequentially also in remote education, emphasis should be also placed on the development of a range of skills that aim the autonomy of the learner, critical thinking, and the ability to argue.

The way how it’s conducted and prepared the lessons to influence students' lives academically and in their performance. Online education, before being compulsory to continue the studies during a pandemic, was associated with some stigmas regarding its effectiveness in comparison with the presential classes. Nowadays the new technologies of information and communication are not mere abstract realities. They are concrete possibilities that can contribute significantly to the quality of teaching and education and at the same time if well used and exploited to their fullest potential, improve the learning process (Tavares, Gomes & Fratelli, 2021).

Current events have sped the flourishing of existing and new technologies, besides the processes of online instruction and practices developed as new insights have emerged from the present situation and affected teaching and learning. In this case, we had the use of the designated Emergency remote education (Hodges et al., 2020). Another thing we need to make clear is that remote learning is different from distance learning or e-learning. According to the document REDE (2020, p.4), it "is a transitory and emergency modality, while e-learning has its own characteristics and is regulated by law in several countries." Also, the same document Rede (2020) explains that teachers can use virtual learning environments (VLE), such as Moodle, Google Classroom, among other digital platforms to conduct remote classes, share materials and course evaluations (Sobral et al., 2021).

Moreover, returning to the clarification of terms and aiming a better understanding Hodges et al. (2020) referred Means, Bakia & Murphy (2014) content was adapted to a list that explains the design options for Online Learning (OL) and its variables. Online Education covers online teaching and learning, and it has been studied throughout the years its variables such as models, standards, and design and this has an impact in learning as the author assures. In this way, the modalities outlined are: 1) fully online; 2) blended (over 50% online) or Hyflex (Hodges et al., 2020; Kohnke & Moorhouse, 2021); 3) blended (25% - 50% online) web-enabled/ face-to-face (F2F).

Regarding the type of online communication, Hodges et al. (2020) divides in three: 1) only asynchronous; 2) only synchronous 3) some blended of both. These outlined summarizes the concepts and gives a full understanding of its differentiation Means, Bakia & Murphy (2014) article was also consulted to verify the information and initial resource. These cited designs have

a typical planning, calendar, preparation, and time schedule to be delivered in opposition to ERE affirmed in the study.

Navigating through all these terms to find out about emergency learning, also other terms were presented, and a list was created to differentiate them from emergency remote education (Jung, 2019; Moore & Kearsley, 2012). “Against wide assumptions, distance education does not specifically refer to online education, but a wide range of technologies used throughout its generations” (Bozkurt, 2020, p. 8). Therefore, technologies are not summarized only in the digital ones as is possible to confirm from Bozkurt's (2020) statement. In this regard, we can say that educational technologies have always been present in education in the university and allied to teaching and learning due to the COVID-19 pandemic, their level of importance has become even more evident.

Nevertheless, it is relevant to point out that the use of these resources does not always meet all the demands and needs of both teachers and students. As such, the author Kenski (2013, p. 89) affirms this regard:

Relationships and mediations between teachers, students, content, and technologies aim to discern amid the profusion of a diversity of information, what is important for learning and needs to remain for life is the importance for the development of skills and attitudes that will help them perform actions and attitudes. This will help in the performance of actions and activities and how to explore the changes and specificities of media in which the information is made available - texts, images, videos, sounds, etc. - with a view to offer favorable conditions that respect their different learning styles and of the students as well. (Kenski, 2013, p. 89)

In this sphere, although digital technologies and social networks that emerge in the teachers' practices are relevant, they need to be looked at with caution, with the necessary care in relation to the specificities of each context, reality, and peer's background. Even though previous preparation was not made due to the unexpected spread of COVID-19 students have affirmed that the efforts made by teachers were visible to achieve a good function of lectures (Flores et al., 2021).

Moreover, some reports to overcome these limitations during lockdown were noted in Portugal. An educational sector from the Portuguese government called Direção Geral da Educação (DGE) partnering with Universidade Aberta (UAb-Portugal) an Open University to

give full support for these professors and lessons during ERE. The authors Campos & Pereira (2020) stated this measure as well as another reported initiative from teachers themselves to seek knowledge, for example, organize themselves institutionally and occupy the social networks social networks to exchange information, share knowledge, and experiences in groups such as Facebook communities/ groups (Campos & Pereira, 2020, p. 397). In overall, the initiative of these measures reflects in the experiences lived by students. Also measures to support financially with scholarships, grants were supported by University of Porto and published in their official websites the news in 2020 and 2021. The extent of the university fees and no extra fees was adopted by the same institution during pandemic.

Additionally with such changes it has become latent inequalities. As is needed for this situation the use of technologies, electricity, and devices to keep going to the classes and studies. To have a perspective around the globe, according to Internet World Stats (2020) the percentage of Africans that have internet access is 39.6% compared to 87.7% of Europeans and 95% of North Americans in the year 2019. In addition, some digital and internet literacy are also needed but also the self-directed learning skills to best benefit from online/remote learning (Adam, 2020). In Portugal, the country that is conducted this research, data shows that most of the homes do not have a stable wideband internet (PORDATA, 2021).

Moreover, it was launched by the Commonwealth of Learning (2020), a partnership with over 44 universities and educational institutions to collaboratively work on supporting learning throughout the crisis. Most of these universities are open and distance learning institutions. Many ways were found to reduce the flaws found in this sudden shift from on-site to remotely.

Education systems must confront issues of inequity front and center. They must also prepare multi-modal responses, capitalizing on existing infrastructure and utilizing a combination of different learning mediums to ensure students are engaged and learning. [emergency remote education] can ensure that students continue learning through a variety of avenues. While digital technologies can offer a wide set of capabilities for remote learning, most education systems in low- and middle-income countries, including schools, children and/or teachers, lack access to high-speed broadband or digital devices needed to fully deploy online learning options. As such, education systems need to consider alternative ways for students to continue learning when they are not in school, like in the current Covid-19 crisis (The World Bank, 2020b, p. 1).

Apart from this, from the limitations that teaching and learning an ad-hoc can bring while the society is passing through a pandemic and no preparation was made before or time to improve, issues that go from the lack of facilities and digital tools to class warfare were present and became protruding from the shift to the compulsory online learning. ERE according to the follow author, is about surviving in a time of crisis with all resources available, including offline and/or online” (Bozkurt et al., 2020). As Tardif (2002, p. 21) explains, the experiences that occur in the course of time in teaching are multiple. It is essential to "mobilize a wide variety of knowledge by reusing them at work and adapting to transform them through and for work".

In this sense, we revisit time aspect, as a central element of actions, that in the modern fluidity, time, and space demand multitasking (Bauman, 2001). In other words, the ability to perform multiple activities at the same time and facing such unpredictability has demanded a position to optimize. Some of the highlights of an emergency remote learning (ERL) is the capability to readapt due to external changes and target group.

The Digital Competence Framework for Citizens (Dig Comp, 2021) established five competence areas to provide a mutual understanding of what is being digital competent. In the first dimension there are five other competences that are: 1) information and data literacy; 2) communication and collaboration; 3) digital content creation; 4) safety; 5) problem solving. It is possible to confirm that some of these dimensions need to be used for a good function of technologies and virtual classes. Following the same line, a second dimension stated in the document is about “communication and collaboration”. Among them are interacting through digital technologies, sharing, engaging, and collaborating with digital technologies.

Moreover, this capability to engage and resolve problems and situations is important for learning and pointed out at Dig Comp Framework. Based on that, it also aligns with learning and teaching methods its function and how students perceive that.

According to the European Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) it is suitable when applied to the offers and possibilities of e-learning (AAVV, 2015). Additionally, another document developed from the work of the “European Association for Quality Assurance in Higher Education”, this document “Considerations for Quality Assurance of E-learning Provision” (AAVV, 2018) intends to provide guidelines and indicators for remote online courses. The creation of those standards must deal with the accentuated evolution of information technologies and digital communication towards the necessity of developing non-traditional methodologies to evaluate these online formats of education. Aiming to pursue a better understanding from what is ERE and what is e-learning the following document explains more about it.

It can be underlined that e-learning components present opportunities for students to use personalized and flexible (in time and place) paths while ensuring the achievement of learning outcomes. The presentation of content can be more flexible than in traditional classroom-based environments, exploiting online information sources as well as video and audio channels (AAVV, 2018, p. 5).

2.3 General Overview in the European Union and Portugal and its impacts

Recent literature has brought a perspective from different European countries, during this period as well as academic students' perspectives. In Ireland online experiences involved many challenges that noticed a reduce in students' engagement and disrupted learning opportunities. However, the same authors also identified bright aspects related to online learning experiences and flexibility of learning (Hill & Fitzgerald, 2020) not only this Irish study has found this result regarding to flexibility but also in studies conducted in Italy, Poland, Portugal, Bulgaria, among other countries (Appolloni et al., 2021; Cicha et al., 2021; Flores et al., Ilieva et al., 2021; Sobral et al., 2021; Tang et al., 2021).

In addition to this Sobral et al. (2021) has gathered data from 27 countries² in European Union, making a compilation of its results, differentiation, and contrast. In this study, is possible to confirm from data analysis that highest peaks of COVID-19 cases in the 27 researched European Union were in the months October and November 2020 followed by April 2020. The lowest peak was during summer July and August 2020. From these countries the most expressive numbers of cases are Luxembourg, Czechia, and Belgium apart from this, in numbers of death cases Belgium, Italy, and Spain have registered the highest number of reports (Sobral et al., 2021). In sense this literature review, students stated their satisfaction with the learning process, use of distance tools, level of mastery of these tools and by professors. It also resulted in not drastic changes with their grades and performance of Portuguese students (Sobral et al., 2021).

As stated by Mohammed et al. (2020, p. 2), emergency remote teaching “comprises ultimate exploitation of the available remote teaching tools for delivering the curriculum or educational materials that would normally be delivered physically or as hybrid or blended courses (...).” This

² Some of the countries of the European Union are Spain, Poland, Portugal, Romania, Cyprus, Czech Republic, Estonia, France, Hungary, Latvia and Italy.

view aligns with the obstacles and negativity that teachers felt in these changes from face-to-face to ERE (Watermeyer et al., 2021) also students had cited some prospects for instance it was declared the impacts caused such as upgrade of workload and projects, support from the institutions, afflictions, decrease of interaction, among other situations that have affected in their studies directly (Tang et al., 2021; Sobral et al., 2021; Cicha et al 2021). However, the usage of virtual tools and videoconferences software's and platforms for instance (Zoom, Jitsi, Skype, Microsoft Teams and other tools Forums, chats, and audios) has been accessible for students to keep up their studies, however less enjoyable (Gillis & Krull, 2020).

Complementary, it is also pointed out by Gillis & Krull (2020) social and emotional impacts during pandemic connected with sleeping problems, anxiety, unmotivated, distracted, personal finances and accessibility of medical cares. However, another research demonstrated that peers that demonstrated readiness for virtual learning have reported feeling less tension, overload and lastly, social, and emotional loneliness were less in comparison to those who did not demonstrate such an opening for online lessons (Händel et al., 2020).

Besides this, it was noticed that these students from the academic level and most of them are adults or young adults have lower digital difficulties in contrast with teachers from the literature reviewed. However, regarding gender differentiation by the usage of computer skills perceived by Aristovnik et al. (2020) it was affirmed that male students' digital skills and confidence for this were higher in comparison to female peers. Even though, female students depicted prominent level of knowledge, positive attitudes, and engagement in preventive attitudes in contrast to male peers (Alves et al., 2020).

2.4 Assessment in Higher Education during ERE and its challenges

Many ways to evaluate during ERE was chosen by teachers, however some were highlighted the most in literatures. Basically, the online tests sometimes in questionnaires format, pdf's or posted at Moodle were the format and ways chosen by most teachers. It was registered some challenges regarding assessments and constraints (Metcalf, 2020; Yang, 2020) connected with remote teaching and it was not known if these students respected assessments rules such as not cheating.

Therefore, it was found by Gonzalez et al. (2020) that the higher scores may be bounded to using other consultancy resources during exams, contrasting with lower grades that could be due to the autonomous teaching method. Nonetheless, when assessment questions are personalized or scheduling presentations was seen as a positive aspect from students view for evaluation (Guangul et al., 2020).

Professors have innovated in these terms, whereas other approaches were used redesigning evaluation. It was registered by the same author Guangul et al. (2020) the use of quizzes, demonstrations, oral presentations, argumentative essays, blog posts, student diaries, discussions on blogs, wikis or forums, research projects and presentations for synchronous assignments, whereas for asynchronously it was used podcasts, video recordings or any various multimedia products (OECD, 2020).

Is important to keep in mind a variety of assessments and how this reflects and redirects teaching-learning process. Additionally, literature suggested a continuity in assessments along the way as a form to keep them engage (Fernandes, 2010; Levatti, 2020; Marinho, Fernandes & Pimentel, 2021

Another relevant point is the choice of extended activities, instead of teachers suggesting long-term or grand projects small tasks should be more valuable as it was already stated in this literature scope the substantial number of students being overloaded with work and academic activities during emergency remote learning (ERL) Flores et al., (2021).

Additionally, aiming to pursue a constant frequency of this peers and as it was already stated by authors in the previous page of this dissertation, academy should provide means for the ones that are in a way economically or face situations that cannot follow classes and their assessments. Is suggested by Crawford et al. (2020) digital support from institutions focusing to come to terms to not compromise academically and curriculum quality.

Having in mind this citation from the author, what was observed by academic students from University of Porto and posted in the official webpages³ and social medias from the institution is measures and policies to borrow computers and devices during lockdown for peers in need. As it was referred previously at the beginning of this writing due to lockdown public places such as libraries or Lan houses had to close respecting government laws.

Finally, regarding study strategies resulted due to the current situation, it was registered some positive effects during COVID-19 lockdown related to students' performance. It was confirmed by Gonzalez et al., (2020) that there was changing of strategies by students themselves in their learning manners.

Overall, most studies cited have pointed social inequalities or issues during ERE and presented mixed answers from students regarding positive and negative teaching-learning practices during this period. It is possible to see students that have been confronted with the lack of computers or mobile devices, however attitudes were taken for the diminution of such issues and implemented measures that came from the government and institutions it was a way to lower the impacts provoked due to the pandemic and lockdown. All these emergency measures were necessary aiming to continue and keep in function academic activities. ERE was a way out from the occurrences outlined. Even though, there was such limitations and challenges it was possible to confirm the gaps of the implementation of these models, the transition phase and gather this information as a lead to improvement. From all these experiences and perspectives shown institutions and government should see this as a significant learning and preparedness for similar situations.

In the next pages it will be brought into light the experiences of master's students from the educational sector at University of Porto, Portugal using the methods proposed. Finally, studies

³ University of Porto created an official page to support students and was also posted in their Facebook page. Links are available in the references.

from cited in this literature review will be contrasted with the results found discussion and conclusion will be presented.

3. Results and Discussion

Considering the main subject of this dissertation, is about the transition of emergency remote education (ERE) at a Higher Education Portuguese University, more specifically University of Porto. This learning approach is acknowledged as a social and cognitive process and not only a matter of conveying the information, states Hodges (2020) referring to this learning approach. Therefore, to recall the main group target are masters' students that have passed this transition during their Educational Science course. As it was cited before in this research, the requirements to participate are:

1. Being a master's student of Educational Science students at Faculty of Psychology and Education Sciences (FPCE).
2. Having passed through the first transition from presential to ERE.

In this mixed methodology approach, the first step was to collect and select the information required related to the teaching-learning process. At this specific period, an online survey was created. This specific audience were sent an email or approached personally among these students who I knew had passed this transition during their studies.

The survey is a quantitative instrument that allows us to enlarge the research subjects, and in this specific case, aims to measure the research subjects' opinions regarding remote teaching and the conditions under which it is delivered. We started from the hypothetical perception that most students had a negative outlook towards remote teaching, leaning toward

face-to-face teaching as the predominant preference. However, results have taken another direction.

The Survey was entered into the Google Forms platform and answered online by the students. The figures presented were generated by Google Forms. The variables under study, we selected, a priori, the following: socioeconomic analysis; platforms used in remote teaching; adequacy of teaching materials; assessment of learning; positive and negative points; and general effectiveness according to the students' opinion. twenty-one questions were stipulated. Of those, 19 were closed questions with multiple options and 2 were of open type.

All questions related to the first transition to ERL and its changes (Hodges et al., 2020). By choosing this approach, it was possible to filter, select and understand more about the topic, the type of students who have participated and understand the general idea of the difficulties they had during this emergency remote learning (ERL). Regarding the creation and design of this survey, it was used as guidance to the existing literature from Law et al. (2019), Geng et al. (2019) and Flores et al., (2021).

In general, it was possible to notice from the respondents who gave their sociographic profile data.

Table 2 - Sociodemographic characteristics

Total sample of respondents
(n=28)
100%

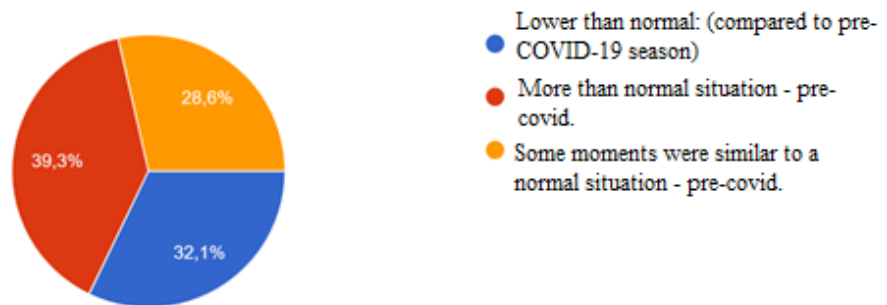
Gender	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-right: none;">Feminine (n= 24) 85,7%</td> <td style="width: 50%; border-left: none;">Male (n= 4) 14,3%</td> </tr> </table>	Feminine (n= 24) 85,7%	Male (n= 4) 14,3%
Feminine (n= 24) 85,7%	Male (n= 4) 14,3%		
Age	18-21 years old: 6 students (21,4%) 22-25 years old: 12 students (42,9%) +29 years old: 10 students (35,7%)		
Course	Masters in Educational Sciences		
Residential area	Urban: 23 (82,1%) Rural: 5 (17,9%)		
Residence during lockdown	Their own house: 23 (82,1%) House/bedroom rental: 5 (17,9%)		
Home Internet access	Intermittent Internet access: 2 (7,1%) Good internet access conditions: 10 (35,7%) Excellent internet conditions: 16 (57,1%)		
Owns a personal computer/tablet.	Yes: 28 (100%)		

As shown by Table 1 from the participants' characteristics, it was possible to notice that most of them were living in an urban area owning their own houses with a good or excellent internet connection. Only a small parcel of 2 students had intermittent internet access. The majority are 22 to 25 and in a second place over 29 years old. The total of students owns their personal computer and do not need to rely in other's people's devices or public places. Regarding about their experiences in college during lockdown data demonstrates that when it comes about autonomous work during lockdown the proportions among the marked options were very balanced and participants. However, the majority thinks that it was "more than normal – pre covid" autonomous work represented by 11 students and 39,3% represented by the red colour, in contrast of 9 students 32,1% that believes is "below normal: (in relation to the pre-COVID-19

season)” while 8 students 28,6% have marked that “some moments were similar to a normal situation - pre-covid”.

Figure 3 - Autonomous working time during lockdown

Autonomous working time during lockdown:
28 responses

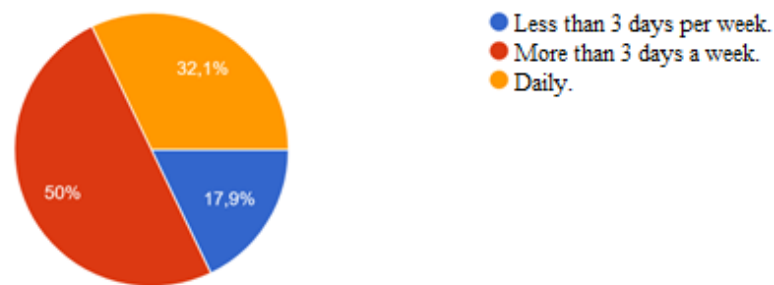


On the other hand, half of the respondents, 50% affirm that they had over 3 classes per week shown by the red colour, whilst the second most marked option, with 9 respondents represented by 32% had daily online lessons during the first phase of lockdown represented by the yellow colour.

Figure 4 - Number of online classes attended per week during the first phase of the first lockdown.

Mark the amount of online classes attended per week during the first phase of the first lockdown.

28 responses



Online Classes per week during the first lockdown.

The contrast that we can see from the first figure and the second is that the proportions among autonomous work are very well divided, having the same number of opinions between students in its options. However, when it comes to having online lessons at home during lockdown, the number of classes per week were high among most of the participants, from daily to up to 3 times per week. Only a limited parcel marked in blue that had less than 3 classes per week.

In conclusion it's possible to verify that the amount of time spent at home had been elevated due to pandemic. Besides watching lessons online, students had to stay at home to conclude their activities from university, elevating their time at their houses and behind screens.

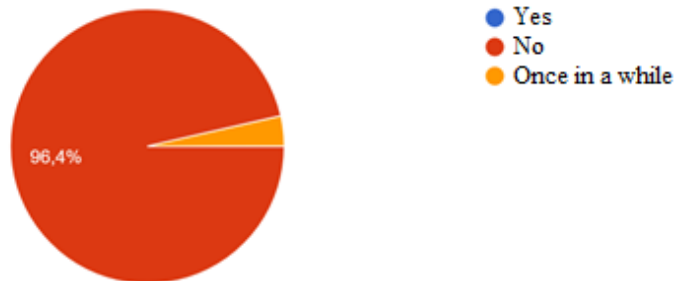
When respondents were asked about the frequency of university classes in online formats, participants were unanimous that before pandemic COVID-19 outbreak, there were rarely any online classes, represented by 96,4% or 27 students that did not have virtual classes in contrast with 3,6% or 1 student that answered, "from time to time". As it's possible to verify below:

Figure 3 - Frequency of online format classes before the outbreak of COVID-19.

The results and categories of the figures have been translated from Portuguese into English using a reliable online translation tool.

Before the outbreak of COVID-19 were there many university classes in an online format?

28 responses

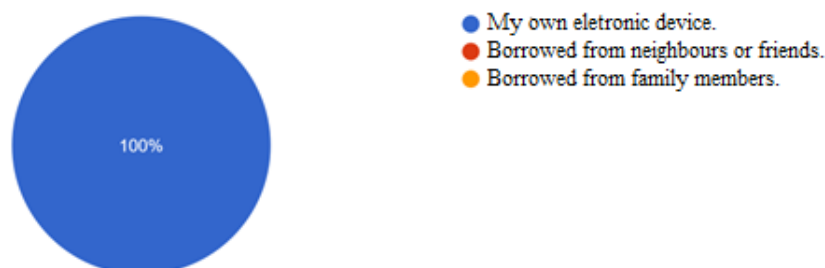


However, a particular point of interest with this audience is that these respondents all had electronic devices during the lockdown to follow and participate in the classes. It's possible to interpret from this data that these groups had the means to buy or to find a way to have their own computer, as 28 out of 28 students have marked that they owned their own devices.

Figure 4 - During the remote lessons corresponding to the lockdown period, I had electronic devices:

During remote lessons corresponding to the lockdown period I possessed electronic devices:

28 responses



From this, it's possible to understand and have an idea of this group's socio-economic status and habits during lockdown when it came to the learning-teaching process. None of them, have added the option that they needed to go to public places, such as libraries or Lan-houses to keep up with their lessons. They also had good internet access. Moreover, most of them live in urban areas and own their houses.

Regarding the second topic of the online survey: "Platforms for online classes, sharing materials and assessment." a common factor was found in the survey, which was further reinforced afterwards in the focus group. It was almost unanimous among the participants that during the emergency remote learning, the most used platform for lessons was Zoom, representing 96,4% and in second place, Skype with 10,7%.

When it came to the sharing of materials used for lessons during the emergency remote learning, the most used pointed by participants were Moodle with 89,3%, following google drive/email with 67,9% and zoom with 46,4%.

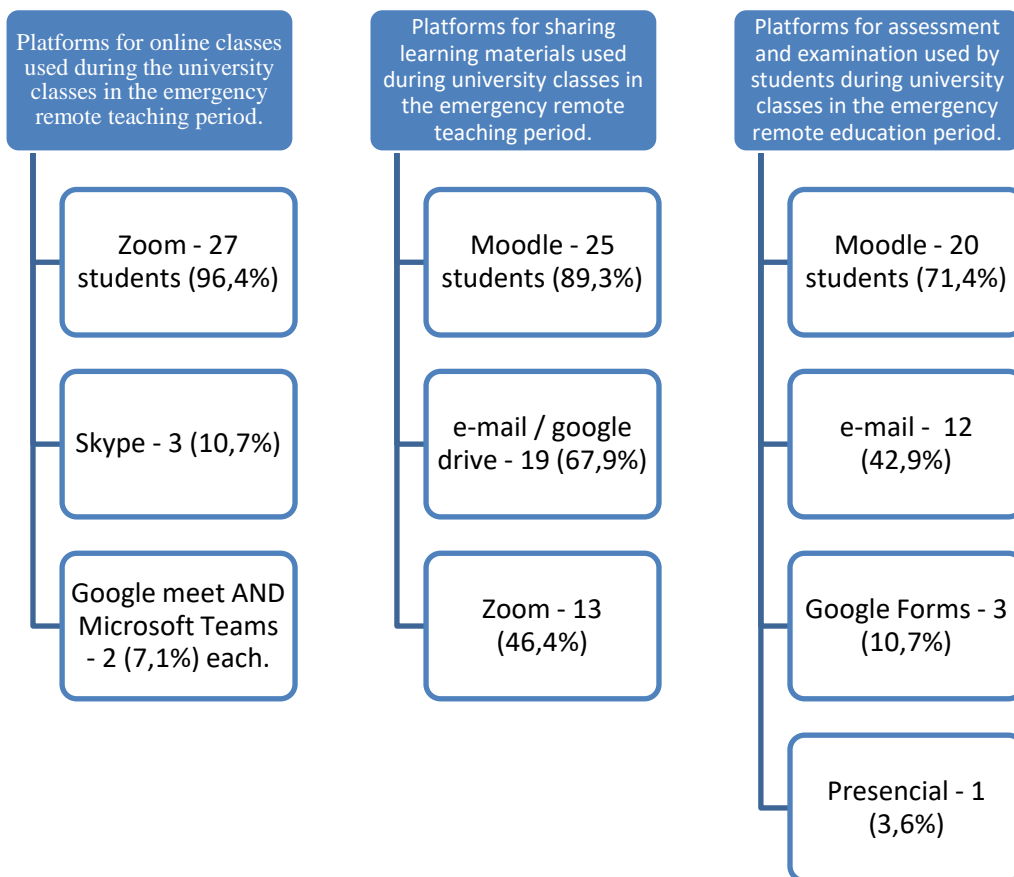
The next chart about platforms for assessment and examination used by the students during university classes in the emergency remote education period, illustrates that Moodle having 71,4% and following email 42,9% were the most voted ones.

In addition to this, other platforms were also put forward to students as options, like Jitsi Meet which had zero votes and Moodle with one vote as the first option of used tools for online learning during ERL. Whereas for sharing materials for their learning during ERL, the least voted were Youtube Live containing zero votes, Skype with one, Microsoft Teams had 2 votes

and finally, Google Classroom which obtained 4 votes among respondents. Similarly, when it came to used platforms for evaluation and exams during ERL the least used were again: Jitsi Meet with zero votes, Google classroom containing one vote and "in-person" with one vote.

To sum up, it was possible to confirm which online platform respondents chose and most used for different goals or needs. Below, I summarize the top 3 most voted digital tools among students based on their frequency of use during their classes in the Science Education course.

Figure 7 - Summary of the most used platforms for online classes, sharing of materials and assessment during ERE.



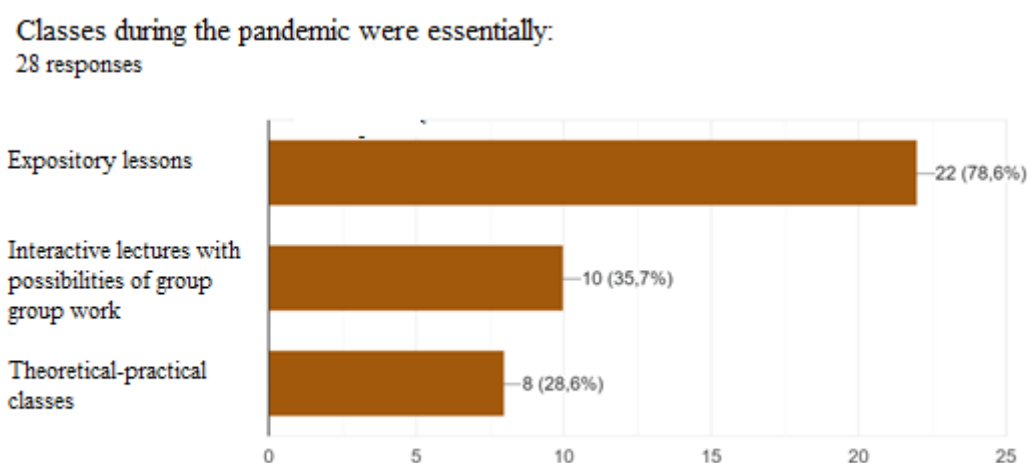
The results and categories of the figures have been translated from Portuguese into English using a reliable online translation tool.

On the other hand, the research shows the impacts on a personal and educational level with regards to how the classes were taught to students due to COVID-19 in this order:

1. Expository lessons – 22 students (78,6%).
2. Interactive lectures with possibilities of group work - 10 students (35,7%).
3. Theoretical-practical classes - 8 students (28,6%).

To illustrate these answers a chart was made to see the proportions:

Figure 8 - Type of lectures during Pandemic



To understand this phenomenon and choices a bit better, 13 students have specified, with phrases written by them, that evaluation processes have changed according to their experiences during the pandemic. Some of those experiences were selected and shown below and translated using a reliable online correction tool from Portuguese to the English language to keep the essence of what these students have said.

To point out the least and most common answers, only one student wrote that there were no alterations in the evaluation process during that time, while the rest affirmed that something

The results and categories of the figures have been translated from Portuguese into English using a reliable online translation tool.

had changed. It's worth highlighting four other respondents who unanimously thought that some exams were replaced by written projects instead and as referred by them, that "this switch was occupying a lot of their time" (P2, Master's student – Focus Group)

Others wrote that there were "more evaluations during the pandemic" and "some evaluations turned to be online". It was also stated by another respondent that "many of us students were not used to the online format and suddenly we found ourselves "forced" to use it, so, the assessment process suffered because it was not the same, and the big difficulty I think in managing the assessment process in general". Another also pointed out that "the assessment of some courses started to be done by weekly assignments which ended up taking up a lot of the time we needed to work on the thesis."

From 13 anonymous responses 7 were highlighted below as those were the ones chosen based on their details and relevance given by students:

Figure 9 - Changes of evaluation process specified by sample of respondents.

If the evaluation process has changed, please specify:

13
anonymous
responses

Excerpt 1: "The exam process use to be face-to-face and changed to the online format."

Excerpt 2: "Some examinations became assignments."

Excerpt 3 : "Only in one subject; part of the evaluation took place through participation in forum tasks organised by the teacher."

Excerpt 4: "Written assignments were maintained."

Excerpt 5: "This was altered in so far as some individual or group assignments no longer had the same weight they had in the final mark."

Excerpt 6: "A test and an exam, in two different curricular units, were transformed into two written assignments."

Excerpt 7: "Because I believe that many of the students were not used to the online format and were suddenly "forced" to use it. The evaluation process suffered because it is not the same thing, and it was a great difficulty. I believe it is the management of the evaluation process in general."

When asked about the positive and negative aspects that identify in the process of transitioning classes from face-to-face to online and vice versa the total number of respondents gave their opinions to this open space question. Notably, most of this sample of respondents shared some common thoughts that they considered positive for them. Some that were pointed out frequently by the students were:

1. The possibility to not commute between university and home, which saves a lot of time that could be put toward other studies.
2. The efforts that teachers had made to accompany the students in their classes during the transition and the remote lessons.
3. Some classes could be recorded more easily.

On the other hand, some of the most representative issues found were highlighted and analysed. Those are listed below:

1. The lack of interactivity between colleagues, with the teacher and especially when doing group work.
2. There was greater fatigue due to exposure to the computer for several hours and there was an abuse of class schedules by some teachers, which was justified by the fact that we were at home.
3. Difficulties in establishing a routine at home.

Below a table was created aiming to fully show what respondents have demonstrated from their perspectives. From twenty-eight answers, the most prominent and cited ideas from different respondents that participated in the online survey were chosen. They were divided into the figure separating positive and negative sides to make it easier to visualize. It follows the question and result found below:

Figure 10 - Positive and Negative aspects during transition

Positive aspects	Negative aspects
<p>Excerpt 1</p> <p>“The avoidance of trips home from school, which resulted in more time to work, I consider as a positive aspect.”</p>	<p>Excerpt 6</p> <p>“Significant decrease in classroom debate. Hours listening to a teacher without a break and little exchange between students who do not know each other.”</p> <p>Excerpt 7</p> <p>“Interaction became more difficult, namely doing group work.”</p>
<p>Excerpt 2</p> <p>“It was positive because I was in Brazil waiting for my student visa and it was possible to follow some classes because some teachers did it online.”</p>	<p>Excerpt 8</p> <p>“The increase of the normal timetable is a negative aspect.”</p> <p>Excerpt 9</p>

The results and categories of the figures have been translated from Portuguese into English using a reliable online translation tool.

<p>“Some classes could be recorded more easily.</p>	<p>“There was greater fatigue due to exposure to the computer for several hours;”</p> <p>Excerpt 10</p> <p>“It was very complicated to keep me attentive to the classes.”</p>
<p>Excerpt 3</p> <p>“As a positive, I highlight the convenience. It was easier to adjust schedules, no travel expenses.”</p>	<p>Excerpt 11</p> <p>“Negative aspects in relation to online classes: difficulty in establishing a routine at home.”</p>
<p>Excerpt 4</p> <p>“Time in online classes was better organised to study, no time was wasted travelling, study was more autonomous (...)</p>	<p>(...) However, there was a greater volume of work in the online period and face-to-face relationships were lost.”</p>
<p>Excerpt 5</p> <p>“If on the one hand we had more autonomy, (...)</p>	<p>(...) on several subjects there was a lack of feedback from teachers regarding the work we were doing and that when in the construction phase needed feedback from the teacher”</p>

In addition to this, it was possible to observe great efforts that some teachers have made during their pedagogical practices and lessons during this transition period. Moreover, Moreover, some difficulties with digital tools and platforms were noted, which made activities harder for some who were not so technologically able, as stated by one student: “Not to mention the lack of digital literacy of some colleagues which made the task even more difficult for them.” (P4, Master’s student – Focus Group)

Many respondents emphasized the abuse of workload and activities in online classes as well as the high number of hours in expository and theoretical classes, the lack of interaction among colleagues as is mentioned in two examples: “Extremely expository classes, without breaks and in some situations ending after the established time” and “The lack of interaction in the online format makes learning difficult, it is difficult to pay attention to the class.”

Moreover, a bright side that was pointed out regarding the teaching and learning practices is how teachers have changed their strategies once they returned from emergency remote learning

to in-person classes and how they tried to innovate and look for possibilities during the compulsory virtual classes.

More comments were made along this line of thinking by other respondents: “Good adaptation and visible effort of the teachers to the platforms (positive aspect).” and “Apart from one course, the classes were not adapted to the online format and were lectures, by Zoom. This seemed acceptable to me, but, in contrast with the only Course in which this adaptation took place, it was negative. On the positive side, the effort made by the teachers to accompany the students.”

Also, another said: “The bad teachers magnified the negative points while some good ones got worse, and others were exceptional from classroom to online initially everything was very confusing, both learning and assessments were unclear, but the openness of teachers to hear our difficulties and rectify the work / assessments was greater. there was more time and less load of class time. When he returned to the classroom the teachers were more prepared for possible unforeseen events.

Although some points were made during ERL, specially about the first transition and how these graduates have perceived that, their views were also brought up regarding presential lessons.

Figure 2 - Viewpoints from students about presential classes.

Viewpoints from students about presential lessons.

"In the face-to-face regime, participation and interaction are greater. The face-to-face method makes it easier to understand the contents."

"Positive points face-to-face: more participation, more dialogue and just the fact of being there with other colleagues already changes everything, and in the online format it is totally different."

"On the one hand, the online system allows not travelling to the faculty which may be an added value for travelling students, on the other hand, it inhibits us from face-to-face interactions, which in turn are much more beneficial both in terms of learning and communication. Therefore, the face-to-face regime is much more favourable than the online regime in several senses."

However, if some have shared that after going back from online to presential classes have improved and changed in some aspects as mentioned previously other students experienced something different that when returning to face-to-face lessons went back to “the traditional classroom” as is possible to confirm from these respondent: “Added to the negative aspects is the fact that the pedagogical methods, after a positive evolution in the online, went back to the traditional classroom, not noticing, in general, an updating of the methods. As a positive aspect, a greater interaction at all levels is possible!”

Overall, it was unanimous among graduates the lack of interaction and socializing present in virtual classes in contrast with presential lessons, as well as the high amount of workload during the compulsory remote learning, however, they felt that they spent less time commuting resulting in a better management for students: “Time in online classes was better organised to study, no time was wasted travelling, study was more autonomous. However, there was a greater volume of work in the online period and face-to-face relationships were lost. From the face-to-face to the online regime, I identify as negative the fact that there was an increased the workload in front of a computer and the little social interaction. On the positive side, I was able to manage time better and was less dependent on space for group work, because we can always meet online, easily!”

Finally, at the end of the online survey a last question was made for these participants, if they would like to participate in a focus group. From 28 graduates 8 (28,6%) have signed up and 5 could participate, followed to the next step as well as clarifying issues and statements made by participants in a profound way during the interview of this focus group.

3.1 Analyzing Focus Group Data

Followed by the survey, the focus group has an observation aspect and a common strategy in investigation going along with the procedures for transcription (Maia et al., 2017) in this sense we aim to highlight and contextualize what was collected and achieved during this focus group. After signing the ethical consent to preserve anonymity we started our focus group with five participants and introductions following the designed questions aiming to answer the research

questions mentioned previously. The endurance of the focus group interview conducted completed almost 2 hours.

It was confirmed again by participants that they were currently studying when lockdown started, and lessons changed to remote. The first participant in the interview, states that experienced the start of university in 2019 and at the first semester of classes switched to online, only afterwards she has seen the return from remote lessons to presential classes. Most of the students interviewed started the masters at that year.

For the first question “Can you talk a little about your experiences in the transition period from face-to-face teaching to online teaching? What was that period like for you?” it was noticeable some common feelings and circumstances among students such as tiredness at being at home in front of a screen for hours as it was stated during the interview, also the number of activities, projects have upgraded and the feeling of being overwhelmed was common during lockdown and online classes as it was mentioned during the focus group.

Another factor mentioned it was the number of distractions while studying at home, e.g., many people having to stay at the same house due to pandemic circumstances, external sounds and doing or watching other things in parallel while having online classes, scarcity of interaction in comparison to presential lessons was some of the obstacles highlighted.

On the contrary, some positive factors were detected such as the flexibility of being at home and watching classes, students could multitask easily, however they felt that production has decreased due to distractions. Another factor mentioned was the need to not commute anymore between faculty and home, this have offered a possibility to students to save money, time, and energy as some graduate’s stated as they are living far away from the city of Porto but in other cities and coming to Porto only to study. From these statements it was selected some excerpts that are listed below and followed with frequent words used by participants during focus group.

ROUTINE

For the initial question for graduates talk about their experiences during this transition from face-to-face to online learning it was undivided for participants that routines have changed completely during this sudden shift from presential to ERE as participant number 2 stated:

The routines changed completely. I woke up early, but our classes were only in the afternoon. Then in the morning I had nothing to do, or we had things to do

that I left them for later. This gave me the feeling that I could do everything later. In the end, everything had accumulated. This made it a bit more difficult. Compared to our attention spam in class, I speak for myself. It wasn't the same because everyone was at home where we had all the noises and distractions. The television was in front of you. Working from the computer we ran Zoom⁴ and had many other tabs open. The others were not Zoom nor were they from class. All of that was a little distracting and was a complete change from what we were used to in class.

(P2, Master's student – Focus Group)

Another participant added that the social interaction and the habits of preparing to go to university has turned in something totally different out of a sudden, however, according to participant 3 - P3, this social lack has been felt as well as the social connections with colleagues, however, according to the graduate, even though it was difficult this adaptation a new routine this issue was overcome in her opinion:

(...) It was a process of adaptation because we were used to getting together and establishing social and close relationships. On a physical level, that is, being with each other, living with each other, we have our stipulated routines. Waking up and going to college we lost all of that! We lost our social relationships in a certain way because we could not be face-to-face with our professors and our colleagues. We established a new routine. They were waking up, turning on the computer, and being attentive in our classes or not. It was difficulty because, being at home we always have distractions. Although, we had a lot of our own space it was harder to concentrate 100%. More than that. It was the whole process of the adaption. I must confess it was a little difficult, but we got there. In my opinion we overcame this transition.

(P3, Master's student – Focus Group)

⁴ Zoom Meetings is videoconference software.

While the scarcity of social interaction was listed as a downside by most graduates. In this sample, some participants felt it was beneficial to be at home for “15 days” quoting participant 2 – P2, however after a while they stated it started getting “complicated” as lockdown was not 15 days at the end. Adapting to a new routine and dealing with the unsure was some of the words mentioned from other’s student’s studies (Cicha et al., 2021;

When I reflect to when this pandemic begun, I was at home for 15 days I thought this is good, let's rest a bit. This was because I am not from Porto, but from Maia and having to commute by public transport is a bit of a tiring routine. I thought it was ok 15 days rest at home. The truth is that it wasn't 15 days but was almost three months. It started to be a little complicated, because, as P3 said... The routines changed completely.

(P2, Master’s student – Focus Group)

Despite that, for participant 4 - P4, there was also a downside being remote from her colleagues, breaking their social interaction as it once was. She was a bit more used to working remotely on her computer, although it became more hours in front of the screen. These changes and common experiences from students were also stated in other studies (Flores et al., 2021; Ilieva et al., 2021).

I also felt a lot through all these changes an initial vagueness and it was especially in the part that P2 talked about. I think when I was in college, I always studied afterwards, I think the master's degree was all after normal college hours. I felt deep down the lack of that part and the adaptation itself. I'm used to working at the computer, but it was many hours at the computer during the working day and at the end of the day.

(P4, Master’s student – Focus Group)

TIREDENESS AND DISTRACTIONS

The results and categories of the figures have been translated from Portuguese into English using a reliable online translation tool.

Many respondents not only in the survey but also in the interview have affirmed feeling overwhelmed and tired due to the long hours exposed to the screens forced to be at home and afterwards still had projects or homework's to do besides watching the lessons.

In an initial phase and as the colleague has already mentioned...We thought it was going to be 15 days and I thought that this perception was also taken by the teachers. We felt some teachers seemed to devalue the work requirement and said that it was not necessary to do anything that week. We also had other teachers who ended up demanding much more from us, we were at home, and we had a lot more work, we had to put in a lot more hours, we had 3 hours of class and a half an hour break. Sometimes we had 5 hours of classes in a row without a break. I felt that the teachers thought we didn't need a break, we were already in a comfortable environment, and we could take lots of breaks...

(P1, Master's student – Focus Group).

Other students have declared the same experience which is presented in the following pages aligning with other issues.

FLEXIBILITY

Some students confirmed that while having remote lessons, they could adapt to online classes making use of their time by doing simultaneously activities while listening to the class by using a recorder as this graduate added:

When the lesson were not synchronous, that is, asynchronous...I found the methodology interesting. Because the teacher, would make a short video accompanied by a Power Point which was about 10 minutes or 15 minutes. I even turned this into audio so I could take them in the car radio. When we had interaction tasks in the forum.

(P1, Master's student – Focus Group).

MOST USED PLATFORMS DURING EMERGENCY REMOTE LEARNING

In the first transition period that occurred in mid-February 2019, how were classes taught? Were there synchronous classes? Asynchronous?

(E1, Interviewer – Focus Group)

When asked these students: “What platforms were used during that time?” the answer was that the main one was Zoom for synchronous lessons, Moodle was used for content that teachers added for activities and tasks. Teams and Skype were also used: as we confirmed in the survey previously and below.

“(…) the main one was Zoom, it was also Moodle, in the case the teacher didn't give classes and just emailed the course material. I have an idea that Teams was also…” (P1, Master's student – Focus Group)

“Essentially, for synchronous classes, I think it was Zoom. (P4, Master's student – Focus Group)

“In our case we had Moodle, Zoom, Skype.” (P2, Master's student – Focus Group)

“I'm also in P2's class and we were given the same platforms that we used.” (P3, Master's student – Focus Group)

“I was thinking I don't know the period exactly, but I had one of our teachers who gave the course asynchronously. He made the content and assignments available on Moodle. In other words, it was Moodle, Zoom...In our case, maybe we used Skype but not sure...” (P4, Master's student – Focus Group)

All these discussions pointed by these graduates refers to the following topic about digital limitations according to their view.

DIGITAL LIMITATIONS ACCORDING TO STUDENTS

It was verified that not only some students were not familiarized with the digital tools used, especially the videoconference ones, such as sharing the screen or using the chat. Such issues were commonly between students and some teachers as some graduates referred. However, it is also important to bear in mind that, the age gap among these sample of these focus group has a big gap from 20's to 45's years old. This was also intentionally, to see the different perspectives brought.

At the beginning, we also didn't have the practice of working with Teams or Zoom, that was also an adaptation even the resources sometimes teachers didn't know how to share the screen... It ended up limiting the class itself a lot. The degree itself, Educational Sciences is very much done through group work, this was also a constraint to articulate schedules, then... Some could, others couldn't, communication was sometimes not easy when... it goes online, people stop answering and we have no way to contact them and then also the fact that we are always sitting in the same position to appear on the Zoom screen, it also ends up being a bit overwhelming sometimes.

(P1, Master's student – Focus Group)

It was also asked their experiences regarding group work during ERE. Participant 2 stated that as she was in her final year, she had her group connections and her group works were with the same people, however she shows the contrast between meeting every day at faculty and online:

So, my group projects were mostly with the same people...And they were people that I knew well, and I had regular contact with them even outside of college. You managed to keep close contact with these people, for the group work... But if I changed people, for some reason, in the group I entered...I entered a different group...Then yes, it would be more complicated. You don't check your messages all the time and sometimes we want an answer right away, but the person isn't on the cell phone, there's no reason why they can't answer me right away and we'd be left with that thought: "but I need to, I need to know, I need to do it". I became a little more anxious, a little more pressured, a little more complicated.

(P2, Master's student – Focus Group)

The rest of the participants added that for her experience “there was less group projects during this period” and “it was used some intervention technologies during online classes” (P4, Master's student – Focus Group). It was followed by participant 1 – P1 that explains more about these intervention technologies used referring to the synchronous lessons in videoconferences:

In an initial phase...I don't know if because there wasn't...Those functionalities or because I didn't know, there weren't in the simultaneous classes, the tool of raising the arm, the reactions... I think that was only the final phase of the online classes where we could interact more than ever with the teacher...But in the initial phase group work was done more offline, not in class...Because it would be a mess because the teachers and we didn't know how to work with the platforms. So, we just did it offline.

(P1, Master's student – Focus Group).

At the end, offline as it was confirmed with the participant it was regarding recording classes or asynchronous. Following her line of thought she referred teacher's practices aligned with digital tools and functionalities that were mentioned previously:

I also felt that teachers had to adapt their practices to manage providing not only that we were attentive to their classes and that it wasn't only them speaking as it also cut down a lot the issue of us having to turn on the microphone just to speak and interrupt... And then we wouldn't understand the question properly and we would lose that 2 or 3 minutes and the class would break down a bit... (P1, Master's student – Focus Group).

Afterwards, there was some novelties according to the participant 1 – P1 that were helping at work as it was created separated online rooms for group discussions in online videoconferences: “each group would go to their room, then we would all go to the large group where we had to present what was discussed”.

It was also claimed that for her point of view this was important: “This was very important so that afterwards the groups could interact with each other and discuss different perspectives. There

were also teachers who chose to record the classes and then To do an online lesson in Zoom, where we only discussed the questions, we had..." however, there were teachers that would rather record classes "and then in class would only discuss questions and do a more practical activity or something." (P1, Master's student – Focus Group).

The next topic to be follow is about teaching learning practices according to these participants experiences. It was highlighted the most outlined ones during this focus group.

TEACHING-LEARNING PRACTISES THROUGH THE LENS OF GRADUATES

During the focus group it was noticed that the preponderance of the amount of work and projects was an issue for these graduates during ERE. As some stated, that they felt pandemic would be initially a short period of time, these students also felt that professors had the same feeling according to their impressions below. Nevertheless, the fact of being home was translated for having more time and overwork was a matter.

We thought it was going to be 15 days and I think that perception was also "taken" by the teachers, because while some seemed to devalue and say that we didn't need to do anything that week, we also had opposing teachers who...They ended up demanding much more from us and by...by the fact that we were at home we had to show much more work... Having many more hours... We here had ...3 hours of class but we always had half an hour break, sometimes in class we had 5 hours of class in a row without a break because being at home it wasn't so necessary to have a break, why because we are already in the comfortable environment, and we could take breaks.

(P1, Master's student – Focus Group)

Participants affirmed, when asked how classes were taught in the first transition period that happened around February 2019. Participant 2 stated that "until March it was presential and after that switched to online. So, the second and third semester was all online." Another participant – P1 completed that in her experience "there were professors that were giving lessons at Zoom, others were recording and after putted on Moodle, but she also had teachers that did not

given any lesson just sent emails with the tasks to be completed and deadline and if they had any doubt, they could send email, but they usually did not have any doubts. This specific lecture was given a lot of texts as well”.

The rest of the participants added that “it became less interactive, and some mechanism used ended up being less collaborative as they did not participate a lot in the forums” (P1, Master’s student – Focus Group). On a pedagogical issue participant 3 – P3 stated that teachers did their best to readjust their practices and dynamics and it was noticeable for them:

I felt that there was an immense effort, whether on the part of the students or on the part of the teachers to try to readjust and find methodologies or practices that were not so exhausting, because you’re already on the computer all day long. It’s exhausting. So, they tried to find mechanisms here, and I felt a lot of effort from some teachers in finding dynamics that allowed us to interact in groups or small assignments that were not written, that were more prompt. That they would move research and interaction among us. So, I felt that they readapted, readjusted rather than that helping these learning mechanisms was important at the content level. Right, they also tried to readjust and introduce a space that we had never. At least, we had never worked directly with Moodle and the people who used it a lot, they put the recorded classes there, PowerPoint and we asked them to go there and interact with each other, of course that face-to-face was not in question... But everything had to be online we felt the effort and I think it was important.

(P3, Master’s student – Focus Group)

Similar finding was stated about the interactivity in videoconferences platforms and the reduced of connections and group interactions as well as while using Moodle (Ilieva et al., 2021). Another participant emphasized her experience on Zoom followed to how was as an Educational Sciences student and dynamics:

The classes started using Zoom. There was a curricular unit that was taught asynchronously, through recorded classes and if needed we would schedule a tutorial. We lost a little bit of contact with some teachers and some teachers. I really saw it at hand, but we also understood, from a certain point on, that our fatigue was also the fatigue and desperation of those teachers, because... No

matter how hard we tried, it seemed we couldn't reach people, the lack of interaction was inevitable in Zoom.

Those of you who were in your degree in educational sciences know that there is a range of interacting and online you lost so much, and it was always the same people talking, that you didn't want a dynamic, let's say diversified, right? So then, there were some obstacles both for the teachers in the dynamics of the classes and for us students as learning. That learning got lost a lot in the interaction with our colleagues.

(P5, Master's student – Focus Group)

Similar experiences were described in other literatures regarding the lower of interactivity (Flores et al., 2021). Finally, it was asked: “What do you think be improved in this transition period from face-to-face classes to online classes and vice versa?”. Participant 4 – P4 brought up the fact that she would include a more variety in the asynchronous lessons otherwise can be exhausting.

Maybe more variety in terms of organization of the classes, because for example, I realized that the teacher who ended up choosing to do asynchronous classes, ended up being quite different. And maybe because of that, he also ended up sometimes with tiring moments. I don't know, maybe if there was more variety or more choices also for asynchronous methods.

(P4, Master's student – Focus Group)

An observation made by participant 2 – P2 was the possibility to change the pedagogical online practices according to its subjects:

(...) When we went from online to face-to-face again, that's when I think the professors didn't take into consideration. The course itself had to change; the teachers had to look at the course so that we could... We withdraw as much as possible. For example, a course that would probably be a hybrid, which means it would be face-to-face and online. It turned out to be online. There were courses that didn't make much sense because they were set up as if they were going to be face-to-face and we were going to have all the face-to-face components that they

had had until then. A lot of components were lost, but they were signed off that way. I may be being a little bit confusing (light laughter) but I felt that it was some of those constraints. (P2, Master's student – Focus Group)

The same student mentions the fact when they went online at first and how they felt:

When we started online. It was very complicated, because we were already, we had already started a semester, so we had already defined everything that we were going to do in that semester and we had defined as if it was a semester, normal face-to-face with everyone, so it was an effort. Some professors tried to do it and others didn't and it's understandable. To go from something that is in person and with several people to something that is online and without contact with anyone else and it is very complicated, for example, I speak for myself, I was in the third year, I had a subject about intervention outside the college and go for an internship. That subject was completely lost and there was nothing else to do because everything was closed. (P2, Master's student – Focus Group)

Participant 3 – P3 describes about returning from online to presential lessons that in her experience some teachers used a lot of interactive games

Positive X Negatives Aspects

Students underlined some personal thoughts and how they felt during this transition and while having online classes. It was possible to notice that the most common was about lack of attention and short attention span.

“Negative aspects were that my concentration was not what it was supposed to be, it was much lower, and much more dispersed than it was in class... If in class I already feel that I'm a dispersed person, online it was literally the end of the world, my concentration was everywhere but not in the class. Also, my will to ask questions was not so great, that is, as we had to interrupt the teacher to ask the question, and sometimes the video connections were not so good, and the sound was not so good...And the teachers didn't understand, and I was

embarrassed. I wouldn't ask the question again. I wouldn't speak anymore..." (P2, Master's student – Focus Group)

Interaction, lack of concentration aligned with the digital tools was highlighted by the participant as well as the feeling of being “embarrassed” to interrupt the lesson as we can see below:

The interaction decreases a lot because. At least I was a little embarrassed, to interrupt the teacher and he wouldn't listen to me, because he was talking and I spoke over the top, and then I wouldn't ask him again. Maybe I had that question for myself or that doubt or that thought... I wouldn't ask him anymore. I'm a person who asks a lot of questions, has a lot of thoughts and ideas, and in that case, I wasn't managing to do it with the same amount. (P2, Master's student – Focus Group)

Besides the decrease of interaction another key factor outlined was the fatigue by being at the computer for long hours:

The fatigue that is inherent by being at the computer and having more tasks to do than just have a class because you can do many of the tasks that the teachers proposed, now we had to coordinate our time, to fulfill everything, so I think there was also a deposit of too many tasks by the teachers. I also felt this in some curricular units. Because of this I was able to reorganize the time in my favor. (P3, Master's student – Focus Group)

However, on the positive side, for some students the organization of the routine and being possible to be at home instead of spending time commuting resulted in good grades for this participant:

The fact that we were at home allowed us readapting our methods, at least my study methods. I could organize more time for my personal life and my academic life... Of course, the social part was missing, right? But I could find and even create study routines and new study habits that I wouldn't have. You lose the time

in commuting. It's no wasting time hanging out with friends, but the reorganization of time is different, so I managed to adapt a little bit to that. I also felt this at the level of my grades, and this is important, because I confess that the year I had the best grades, my academic results, was precisely the year of the pandemic. It has a little to do with that reorganization and that readjustment. I think those are the ones that I highlight most positively.

(P3, Master's student – Focus Group)

Besides routine and grades improved according to this participant experience, it was outlined the fact online assessments had a limited time to answer each question and the totality of the exam. Sometimes there was internet connections issues, and this resulted in a student to lose their points and answers:

“In this online exam, for example in a multiple-choice exam, we had 2 minutes to answer. 2 minutes was just the time I needed to read and answer a little because I didn't have time to interpret the answers and think about the correct answer, so I think that was also a negative aspect or not being able to choose the order in which I want to answer the questions.

(...) It happened to a colleague at the end of the exam she ran out of internet and the whole exam was down and so, it was annulled and that's something that can happen to everybody” (P1, Master's student – Focus Group)

However, when it comes about online assessments participant 5 – P5 states that while she is doing the exam, if she goes to the next page and wants to go back to correct an answer it is not possible to return and correct. She also adds:

“I have never taken so long for an exam, it took 10 hours, counting all the hours added up, because when we finished the questions, I needed time to collect my thoughts, it wasn't possible to continue at that pace. Also, we were at home, and we had all the possible and imaginary stimulus around us to distract and disturb our thinking, then there had to be lots of pauses during our answers, because we

did not have the best concentration possible. I guess the online remote work did not work in the optimal way.” (P5, Master’s student – Focus Group)

“On the assessment part, with the educational science colleagues we know that educational science has very few exams, so when we got to the third year of the second semester, we thought we would not have any exams. We didn't have any exams. in the rest of the master’s, I don't remember I had any exams online either so being only written exams the workload obviously increased. It was a bit more complicated having to manage our time.” (P2, Master’s student – Focus Group)

From all these experiences that follow in the next pages these contrast with other studies found in the online survey that was discussed previously.

3.2 Data Triangulation: Online survey contrasted with excerpts from focus group interviews

As mentioned previously, the dissertation used for data collection procedures: the "Triangulation of information" technique (Triviños, 1987) and the multi-method approach (online survey and focus group interviews with semi structured questions). In this step, data from online survey, excerpts from the focus group interview are contrasted with studies mentioned previously about ERE as well as students experience in this teaching-learning process transition. An analysis and discussion are made to give sequence to this repertoire in this chapter.

In the first step by the application of the survey it was possible to gather an overview and background of the respondents. To contextualize the whole process and understand these undergraduates’ issues as well as where is needed to focus a characterization of the sample profile was made. It was possible to conclude that most of these students, from their sociodemographic profile are women, that have as spent during COVID-19 outbreak and their studies at their own houses the majority of 82,1% while the rest of this proportion was renting a room. However, it is also preponderant that all these respondents have access to internet, most of them in “excellent”

and “good” conditions and a minor parcel has intermittent access. Furthermore, it was unanimous that all these participants own their personal tablets and/or computers.

Having in mind this, it makes the access to online classes and participate in the meetings and activities proposed easier as they can connect easily with their devices and interact with a reliable connection. This possibility to keep up the classes continuously makes for them significant to keep up with the classes during pandemic and even if is online to have the opportunity to check the content given by teachers and lessons taught nurturing their studies during this emergency remote learning.

The use of continuing classes even though it was encountered some issues already mentioned was significant considering the pandemic situation testified by the sample of this present dissertation and other studies (Richter, 2020; Sobral, 2021) and having the possibility to use technologies can turn as tool in case it may occurs unexpected situations in the future such as pandemic or global environment changes, it is a way to keep up regardless presential barriers that may occur.

These undergraduates from Educational Sciences have brought into light thoughtful overviews and personal feelings regarding this transition time while doing their masters.

From the focus group it was found that in general was a positive experience, even though there is always room for improvement is also understandable the tiredness felt behind the screens, among other points that was outlined from students and similar studies.

It also helps the possibility of relying in technologies and continue classes in extreme and sudden situations such as diseases or environmental impacts (Oliveira, 2021) as one of the undergraduates declared in the focus group “

Moreover, having support from the University or public policies measures it makes this process in overall manageable. It was confirmed by undergraduates that measures were taken by Porto University aiming to help those that were affected during pandemic.

“I know they launched a measure there that is currently back in use again, which was the home support covid-19 that was student volunteers who assisted and provided care. They provided basic care, in this case bringing meals, medication to students, and to faculty and staff who were in isolation. I know that this was

implemented at the university level, so all the organic units in particular, the faculty of education.” (P3, Master’s student – Focus Group)

These measures are important for the good function of university and support for the ones that do not have the means to it. Besides this measure providing basic care it was also brought into light the support that undergraduates had during pandemic financially regarding university fees. A prolonged deadline was settled regarding the university fees and follow ups from the academy to restrain the spread was settled.

“I remember the fact that the fees they made it easier to pay, the deadline was extended, they also made it easier to pay another time.” (P1, Master’s student – Focus Group)

“There was a weekly measure and procedure of informing the communities how many cases of infected people there were. Also, that each one of us was in contact or were infected, we had to report this situation to the pedagogical council so that the faculty could take measures to control the situation.” (P5, Master’s student – Focus Group)

It was also found from other studies that measures and similar policies were taken during COVID-19 outbreak at Higher Education Universities (Flores et al., 2021; Turnbull et al., 2021; Sobral et al., 2020). Such policies result in education to keep going as a path to ease the sudden changes. During this time of lockdown, it was noticeable the changes in the routines, being at home as a measure to restrain the spread of the disease made many people to lose their jobs as it was not needed to be presential or for some their income was reduced.

Among this general changes around the globe, for this graduates a key factor that is believed it keep them from watching the classes is the possibility to have their own electronic devices. It was unanimous that these respondents according to the survey, have their own devices and before COVID-19 outbreak also had their private computers.

This said, is possible to conclude from the survey and interviews that this sample of students did not have major issues when it comes about having a device to follow the class –

100% have confirmed in the survey that they possess their own devices, a great proportion of them live in their own houses representing 82,1% while the rest of this parcel rents a place or a room. Moreover, the same number of respondents live in the urban area and the access of internet at home is not limited as it was possible to verify in the survey that a great deal declared “good” or “excellent” access to internet.

These specific experiences stated contrast with other studies analyzed when it comes about equality during the outbreak and a stable internet access, personal devices, or a place to keep the studies going on. It was possible to see that during the pandemic inequality became more present among people and their difficulties were more highlighted (Kohnke & Moorhouse, 2021; Flores et al., 2021). However, even though it was presented these perspectives current data shows that in Portugal 84,1% of Portuguese households have access to a computer with broadband internet (PORDATA, 2021) being relevant during ERE and the continuation of education.

However, much was learned from this period and even though these respondents have shown both sides according to their viewpoints it was pointed higher amount of workload during ERE and lack of interactivity in comparison to presential classes. Moreover, students have concluded that there were some pedagogical changes and in activities by teachers when they presential lessons took place after the first transition and remote lessons as it was mentioned in previous excerpts.

“I must agree with my colleague P5. I felt that online we were much more bombarded with assignments and small tasks, and I felt that boom of work to do. In the face-to-face I didn't notice it as much in my experience, but I noticed that online classes professors exaggerated a little bit in the workload they gave us because it implied since we were at home, we had all the time in the world. They thought, and maybe I thought so too, in our naivety because we had never experienced that.” (P3, Master’s student – Focus Group).

Aside from the tiredness, reduced interactivity, and increase in workload during ERE, time management and the feeling of being at home were also described which brought a sensation of having more hours or free time, as is described by the interviewee. These perceptions have been explored by other researchers that have studied, as well as the students’ experiences of

synchronous and asynchronous learning. Similar findings were discussed that also includes motivation, higher amount of workload, tiredness, and time management (Kohnke & Moorhouse, 2021; Cicha et al., 2021; Sobral et al., 2021). From the literature analyzed that were cited in the bibliographic research it was testified alike results that are outlined above.

Regarding the platforms used for lectures it had similar findings demonstrated previously as the use of real-time video conferences using Microsoft Teams, Zoom, Skype, among others with the same purpose as for synchronous lessons the use of forums, video recording and sending presentations were confirmed by these undergraduates' sample (Cicha et al., 2021; Stevanović, Božić & Radović, 2021; Ilieva et al., 2021)

If we participated, we scored points. I found that this dynamic had little interaction with each other also in the forum. Although we could sometimes make some references to each other I did not think that this was the goal previously we had individual work and group work. I also felt that it had differences, before we had a lot of group work and then it ceased to exist. That is what I remember.

(P4, Master's student – Focus Group)

This focus group interviews served to deepen in the situation and clarify existence doubts of this transition. It was possible to confirm the main issues about ERE according to this sample of students. Another finding, mentioned at the introduction of dissertation agrees with Tang et al. (2021) is that older students, particularly the ones in a Master or higher level, pursue more success in online classes.

3.3 Final Discussion

It was used focus group approach and authors Stevanović, Božić & Radović (2021) and similar Oliveira et al. (2021) have used interviews to obtain more details about their experiences and cover the objectives proposed. Their findings go along with general perspectives brought previously. Current studies find ambiguity in the position of student's opinion regarding ERE. It is mentioned by them a mixed of positive and negative sides (Tang et al., 2021; Flores et al., 2021; Oliveira et al., (2021). Overall, the result can be considered consistent as during all the steps followed in this dissertation it was also obtained similar results.

The results and categories of the figures have been translated from Portuguese into English using a reliable online translation tool.

This said, aiming to answer the questions proposed and fulfill the objectives it was found from other studies similar results that have as a focus to understand higher university students' experiences about distance learning process. It was found from participants analysis in this research from European Universities experiences that as a positive side some are the possibility to save travel time, working according to students' own schedule, re-watching the lecture (Stevanović, Božić & Radović, 2021) in addition to this in another study was found that a significant use of computers has influenced in their level of tiredness according to these undergraduates experience's (Cicha et al, 2021) however, it has brought opportunities to continue their studies as is confirmed by data analysis from students answers (Appolloni et al., 2020).

The studies analyzed focus on the students' experiences, besides pertinent literature references presented along this path and outlined in this dissertation, our results indicates that face-to-face approaches and methods used by teachers were transported in the first transition to emergency remote education as something useful for that time considering the pandemic outbreak restrains and adaptability. Teachers, in general, have adjusted to the new technologies, reinventing themselves to continue scientific and pedagogical activities (Rondini et al., 2020).

Even though this pandemic has brought several issues for society in terms of Education a way out was ERE to keep a reasonable function. It is known that also during and before pandemic inequity is considered a challenge (Jenkins, 2009). Moreover, it was declared by most students that it was noticeable the reinforcements and improvements by professors to adapt to such changes,

It was confirmed by interviewees that synchronous and asynchronous lessons had their pros and cons, such as flexibility by the usage of technologies to adapt in other formats of learning besides the university space. For instance, one of the students stated turning the video classes into audio to listen while driving her car, the visual aesthetics when teachers implemented different types of tools for online classes e.g. games, questionnaires with visual charts and tools for simultaneously answers from other students was possible to visualize during lessons.

Teaching-learning practices during ERE have been considered improved over time from the first classes during the first transition as the teachers have adapted their classes. In addition, it was also observed changes in their techniques when the first transition ended some professors used such tools and interactivity games during the presential classes after the first wave of COVID-19. However, it was perceived as unsatisfactory the abuse of workload and activities given in this period, it has provoked tiredness and lack of encouragement to continue the classes. Another factor pounded as negative was the amount of time dedicated behind the screens and this was also

a path that led to distractions by the majority interviewed as there were many open resources sometimes that were not connected to the class itself.

Moreover, the fact of not being in a class at the university space it was negative for some graduates as they had disturbances from other family member or people that were living with them such as external noises. This parcel was confirmed in the focus group and represented the number of students that marked in the survey they did not have their own houses or were renting a room.

Nevertheless, when asked at the end of focus group if they prefer face-to-face classes or online as they have experienced them both even though it was necessary ERE due to pandemic, most of these graduates exposed that they would choose a middle ground. Not only online or presential but hybrid, as they confirmed that it would be the favorable for learning to have some classes online and others face-to-face as it would be brought up beneficial aspects from both sides (P1; P2; P3; P5, Master's students – Focus Group) in contrast with one graduate that prefers personally presential, however she recognizes great benefits from online lessons (P4, Master's student – Focus Group) if this was a choice in reason to the pandemic strains and forced lockdown

In overall, from all the reasons and situations exposed that was lived by these graduates, contrasted with other studies it was not given a precise answer if it was unsatisfactory or not ERE as both sides were presented having negative and positive points. What was possible to conclude are the limitations according to what teachers, graduates and even the higher education system has been through due to the pandemic as a path that can lead to improvement in future situations that might be needed to use ERE.

Additionally, it was given by these interviewees a perception that presential lessons have evolved in terms of teaching practices when returned from the transition and tools that were used for remote lessons were adopted in presential classes. This was a positive experience for students as they affirmed.

Overall, for that purpose and situation it was fulfilled most of the objectives to continue their studies. This situation was also a learning experience for teachers and students as some have stated and the level of preparedness was developed throughout this ERE situation making room for the adoption of tactics that have worked successfully for future experiences according to what they been trough. This said, by identifying these social groups and its limitations is possible to have a full understanding of these circumstances and propose significant educational policies and complement teaching-learning practices guiding to a fruitful ERE.

To conclude, this discussion answers the first research question proposed at the beginning of this dissertation, which identifies the main aspects from transition processes from face-to-face to emergency remote education followed to our second research question that gathers their perspectives about the teaching-learning processes during emergency remote education based on master's students' perspectives giving an opening for future improvements and studies.

4. Conclusion and Future work

The present dissertation extends an invitation to explore what ways and forms the marks of COVID-19 have reflected in the process of teaching-learning in what it tells about pedagogical acceptability or not of the entire process. For this purpose, this research work proposes, herewith higher education institutions and students, to rethink the education and teaching in extreme situations as well as the future and possible pedagogical applications in an educational context.

Centrally, the aim of this dissertation's is to explore students' perspectives on the transitions between face-to-face and remote teaching in the context of Higher Education with a focus on the teaching-learning process. This main objective is unfolded by two others which follows: to identify which aspects were most mentioned by students in relation to the transition processes during ERE and secondly to understand the student's perspective in relation to this transition processes from face-to-face teaching to emergency distance learning.

These uncertainties of today have led us daily to a reflective path. In 2019 a disease started-Covid-19 leading to a pandemic affecting in many aspects. This situation has taken hold in the contemporary world and a demand was needed to overcome challenges in all social spheres. In an educational context, emergency actions were required to ensure the continuity of higher education. In unforeseen situations such as a pandemic, it has become necessary to implement public policies that have action plans aiming the right to education reaches everyone. The emergency remote education format was unusual and demanded the reconfiguration of teaching and learning processes, triggering proposals for actions, modes of relationships, for teachers, students, and other technical support professionals.

Therefore, it was necessary to act quickly, precisely, and consciously on the part of the University, more specifically from Porto University as well as professors to ensure a good flow of studies, routines, curriculum and learning in general. A new format had to be reinvented so the studies would not overlook. As a result, the technological resources became allies to the educational system under the guidance of teachers had an impact on the teaching and learning processes.

Having as consideration that future percussions of this transition are still unknown and how the various aspects from ERE have been marked in Education are still being studied, this dissertation intends to contribute and bring a perspective from these undergraduates. For this, at first place it was pursued studies that their aim was the same focus and interests.

After analyzing the studies found the second chapter consisted in a scoping review it was possible to have a better understanding of the questions needed to achieve our objectives. Survey was drawn based on the research findings that has given a direction, it was adapted to the to this research context, Portuguese Higher Education master's students from educational department, more specifically from University of Porto. Data was processed and an analysis was made, this originated the following chapter. The survey was distributed electronic by email for a specific audience to make sure they fulfilled the requirements pointed out previously.

From the survey it was given a better understanding of who are these social characters and social demographic profile was drawn. By having some open questions, in the survey it was given space for these respondents to expose their difficulties, issues and positive views regarding teaching-learning during ERE. In this chapter it was identified what aspects were the most mentioned by students in relation to the transition processes during ERE.

Consequently, by having this perspective that was brought it up in the survey, questions for the focus group interview were drawn. It was again, used the reference studies that used the same method and approach so it could be adapted to our objectives and what it was noticeable to develop from the survey step. This subchapter was a path to comprehend and deepen these students' perspectives and finally, in the last subchapter triangulation of data was made contrasting the studies selected with the results from the survey and focus group.

The results presented in the survey and focus group allow us to highlight perceptions found regarding the modes of time management, the process of autonomous study, the use of digital resources as well as the unfeasibility of studies and issues declared during this transition. These perceptions include the impact of remote education on the students' learning represented in Portugal by Educational Sciences master students.

As a result, based on the collection, analyses of data and focus group interview, the following conclusions were draw and together with the discussion it was notice the structural changes at the University during the transition, how the assessments, group works, and dynamics were conducted. The overwork, tiredness, break of the routine, short attention span was mentioned several times by the interviewees. As a positive side, according to undergraduates was how

professors have evolved their practices for better throughout emergency remote period and these practices was brought when they turned to face-to-face lessons again.

Nonetheless, some limitations should be noted. Firstly, to this dissertation to happen it was necessary the participation of students that follows the points mentioned in the previous chapters. Even though, the survey was distributed to a considered number of students at FPCEUP, it was needed from time to time to ask them to participate. The same happened in the focus group, however at the end we gather a reasonable number of respondents for both.

Secondly, only some masters students that have passed to the first transition were still at university. The ones that were, mostly started their studies in 2019 and were doing their masters in a part time regime, so they were still studying at this present year or had their studies finished and it was managed to get their contacts through the suggestion of colleagues.

Lastly, in the bibliographic studies until the present date it was not found a great number of studies that depicts teaching-learning process according to students view in the educational department. It was found studies that used as a focus from Social Sciences courses in Portugal and Europe but a minority about Educational Science's courses in Portugal. Nonetheless, it was possible to surpass these issues and observations.

4.3. Future Study

This study gives an opening for many paths and ideas for future research. It also, gives an insight regarding professors' practices in teaching-learning process shown by the lens of students. It gives for them, a role to externalize everything that they have been though while facing these abrupt changes in Education. In addition to it, is a start to question ourselves by the data presented as well as rethink and/or adapt by finding directions to improve by others experiences as presented here, from a Higher Education scope.

In conclusion, future studies can concentrate on other universities in Portugal and other countries or other departments as this research was had as a panorama the Education department. Different feedbacks help education system to improve as well as the diversity of outcomes if applied in other modalities such as for bachelor level, PhD students, high school students' demonstrating different overviews. This elevates educational system and reassess our practices contributing as well for science and academy.

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6. Appendix

Appendix 01 – Informed consent form

Termo de Consentimento Livre e Esclarecido

Informações gerais sobre a pesquisa

No âmbito da conclusão do curso de Mestrado em Multimédia e Educação da Faculdade de Engenharia da Universidade do Porto, orientada pelas professoras Doutoras Preciosa Fernandes e Angélica Monteiro, Aline Martins Costa está a realizar uma investigação com o título provisório “Digital transitions in higher education during the pandemic: An exploratory study”, para o qual pede a Vossa colaboração. Este estudo tem como objetivos:

- Objetivo principal: Explorar as perspetivas dos alunos sobre as transições entre o ensino presencial e remoto no contexto do Ensino Superior com foco no processo de ensino-aprendizagem.
- Objetivos específicos: Identificar quais aspetos foram mais mencionados pelos alunos em relação aos processos de transição do ensino presencial para o ensino a distância emergencial.
- Compreender a perspetiva do aluno sobre os processos de ensino-aprendizagem durante a educação a distância emergencial;

Para isso, será realizada um grupo focal com cinco estudantes de Ciências da Educação nível de licenciatura e/ou mestrado da instituição FPCEUP – Universidade do Porto. As entrevistas serão gravadas para posterior transcrição, sendo assegurado os cuidados éticos, confidencialidade e anonimato da instituição e dos/as profissionais entrevistados/as. Tendo em conta estes aspetos e os objetivos que norteiam a pesquisa, esta não oferece nenhum risco acrescido às participantes. A sua participação neste trabalho é voluntária, podendo deixar de colaborar a qualquer momento.

Tendo tido conhecimento sobre os objetivos do estudo e os procedimentos metodológicos previstos para a sua realização, declaro que aceito colaborar na investigação e que concordo com as condições aduzidas.

Assinatura do participante _____

Assinatura do(a) pesquisador(a) _____

Data ____ / ____ / ____

Appendix 02 – Focus Group Questions

Caro/a estudante,

Sou estudante do Mestrado em Multimédia da Faculdade de Engenharia da Universidade do Porto. Estou na fase de elaboração da minha dissertação, focado na mudança do ensino presencial para o ensino online no Ensino Superior, auscultando a visão dos estudantes. Gostaria, por isso, de pedir a tua colaboração para a partilha da tua experiência, e vivências, nesse período. A participação é voluntária, mas requer o vosso consentimento. Por favor, atenta na informação relativa a esse consentimento informado na parte inicial deste documento.

Quero que te sintas à vontade. Não há respostas certas nem respostas erradas. Podes desistir sempre que quiseres ao longo da entrevista.

Ressaltamos que nenhum dado pessoal será publicado e esta pesquisa visa somente seus contributos académicos.

Muito obrigada pela tua colaboração!

Para iniciar a nossa conversa, gostaria que cada um/a se apresentasse, pode ser?

Quem quer começar?

Passando agora às questões. Estas não são dirigidas ninguém em especial pelo que pode iniciar quem estiver mais à vontade para o fazer. Eu procurarei assegurar que todos participem, desde que assim o manifestem.

Podem falar um pouco sobre as vossas vivências no período de transição do ensino presencial para o ensino online?

No primeiro período de transição ocorrida em meados de fevereiro 2019, como foram lecionadas as aulas? Houve aulas síncronas? Assíncronas?

Que plataformas foram utilizadas?

Contem um pouco como decorreram essas aulas: que aspetos positivos destacariam? e aspetos negativos?

Como foi o processo de comunicação com os docentes?

E em relação aos colegas da turma: O que sentiram em relação ao contato e socialização com os colegas de curso durante essa mudança das aulas online para a presencial?

Quais foram as principais dificuldades com que se confrontaram no período de transição das aulas presenciais para aulas online e vice-versa?

Durante o período da pandemia, houve alguma medida por parte da faculdade e/ou universidade para apoiar os estudantes? Que tipo de apoio foi prestado?

O que acham que poderia ter sido melhorado nesse período de transição das aulas presenciais para aulas online e vice-versa?

Depois de terem experienciado aulas online e presenciais, quais preferes? Por quê?

Querem acrescentar algum aspeto que não tenha sido abordado?

Obrigada pela vossa participação!