

INSPIRE XXVI

**Delivering Global Education and Impact
in Emergencies
Using E-Learning**

Editors:

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**Twenty Sixth International Conference
on
Delivering Global Education and Impact
in Emergencies
Using E-Learning**

INSPIRE 2021

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This volume contains the edited proceedings of papers from the twenty sixth International Conference on Software Process Improvement Research, Education and Training, INSPIRE 2021 held remotely, organised by Solent University and the e-Learning Specialist Group of the BCS, The Chartered Institute for IT.

The objective of this conference is to promote international co-operation among those concerned with e-learning by creating a greater understanding of e-learning issues, and by sharing current research and case studies through academic and industrial experience.

The conference organisers feel that this objective has been achieved. INSPIRE 2021 has attracted papers from international sources, covering a broad spectrum of practical experience and research. The topic areas include the use of e-Learning and tools for schools, HE and the wider public, augmented reality, social media, programming in schools, gamification, cyber security in teaching and learning, case studies in use of e-learning in 2021 in various countries, including Armenia, Bangladesh, Bosnia-Herzegovina, China, Cyprus, Denmark, Egypt, Finland, Greece, Ireland, Kazakhstan, Kenya, Northern Ireland, Romania, Russian Federation, Spain, Turkey, UK, and the USA.

We would like to thank the many people who have brought this twenty sixth international conference into being: the Organising Committee, the International Advisory Committee, particularly for all their hard work in reviewing both the abstracts and the final papers, and the committee members of the BCS's e-Learning Specialist Group.

The organisers would like to thank the BCS and Solent University for their support.

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The Impact of the COVID-19 Pandemic on the Learning and Wellbeing of Secondary School Students: A Survey in Southern Europe

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Abstract

The transition from the traditional model of learning and teaching to full online mode had to be implemented in many countries, in an extremely short time, as the 2020-2021 school year was in mid-stream. Secondary education, which includes students in the age range of 12-18, faced many challenges in this rapid change, as many research studies have shown. Researchers raise questions regarding the readiness of the secondary education community to transition to fully online learning. The pilot study reported in this paper deals with the impact of the transition to online learning on secondary schools in southern European countries. More specifically, this paper presents the results of a *literature survey* and an *empirical survey* using an *online questionnaire* which captured non-traceable responses from secondary schools that, voluntarily and anonymously, completed the questionnaire. The questions were mainly closed, with some open-ended questions for students to fill in. The study also aims to capture data on the socio-economic dimension, accessibility/ availability of the necessary technologies that enable online learning, as well as the

families' employment status and their ability to support students. A total of 90 students participated (62% female, 28% male) from three Mediterranean countries. The students' perspectives as seen by the students themselves along with the difficulties and the issues they faced are compared and contrasted. This investigation offers a pedagogical and socio-technical analysis and highlights the needs for wellbeing as well as quality learning and teaching in the new social distance reality.

Keywords: Covid-19 pandemic, questionnaire, e-learning, preparedness, secondary education, wellbeing, inequalities

1.0 Introduction: The New, the Old and the New-Old Problems

The new coronavirus (COVID-19), which in March 2020 was declared a pandemic by the World Health Organization, unexpectedly invaded our lives and the lives of millions of people around the globe. One year after its sudden appearance, the whole world is grappling with its impact on all aspects of life and life itself, undoubtedly experiencing unprecedented situations, which have significant social, psychological and economic consequences, the extent and duration of which cannot yet be accurately estimated.

According to the World Health Organization the confirmed cases until the second wave of the pandemic exceeded 130 million, with 2.5 million deaths and 63.5 million cases of patients having fully recovered [1]. In its weekly report the European Centre for Disease Prevention and Control describes that since the beginning of the pandemic in late 2019 until the 15th week of 2021, 141,805,956 cases of COVID-19 have been reported, including 3,026,902 deaths [2].

The impact on the education sector has also been unprecedented. UNESCO reported that COVID-19 pandemic affected nearly a billion and a quarter of learners worldwide, which corresponds to 67.7 % of the total number of students and learners [3]. The impact is multidimensional: economic, technical, political, environmental, social, cultural, legal, ethical and demographic. In this context, educational systems worldwide have been called upon to contribute appropriately to the management of this situation [4]. Initially they proceeded to suspend the operation of schools, universities and all other educational structures in order to reduce dispersion of COVID-19, in response to the recommendations of expert scientists. The extent of the suspension of the educational systems is shown in the map below (Figure 1) [4].

Education systems response to Covid 19: the current decision until when schools (ISCED 1-3) are closed in Europe

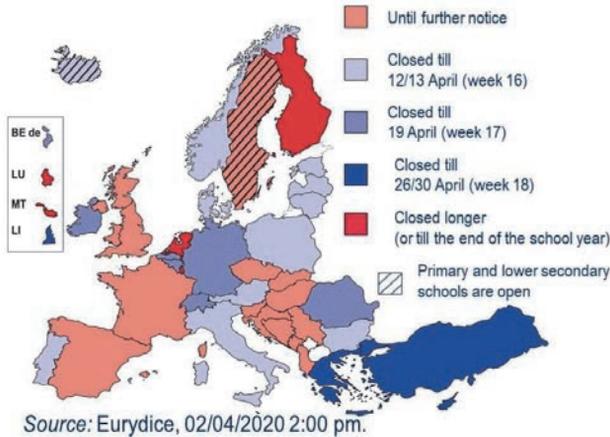


Figure 1: Extent of the suspension of the educational units

In the second phase, an attempt was made (in an extremely short period of time) to design ways and forms of distance education in order to respond to these emergency conditions.

The transition from the traditional model of learning and teaching to fully online had to be implemented in an extremely short time, since the academic session was in its mid-stream and with many researchers raising questions regarding the readiness of the educational community to transition to fully online learning. Sadly, the poor preparedness resulted in hasty and often inadequate decisions and actions being taken [5]. As the academics were required to ensure that online delivery was enabled within a very short period of time, they were in the front line of this transition. Many studies, including the one carried out by Georgiadou et al. (2020) [6], concentrated on the challenges faced mainly by educators in higher education.

The uncertainty caused by the pandemic and the long-term suspension of schools has affected students, parents and teachers. COVID-19 poses both direct and indirect threats to the wellbeing of individuals, either as a direct contributor to negative psychological states or as an important factor behind the reduced ability of students to experience social contact [7]. However, there has not, as yet, been any extensive exploration of how the pandemic affects students' wellbeing in these new online formal and informal learning environments.

Furthermore, it has been widely reported that the pandemic revealed and exacerbated pre-existing social and digital divides [8, 9, 10]. For example, Lai and Widmar [11] argued that in USA, the digital divide has limited the opportunities for those without ready access to the internet. In addition, due to the COVID-19 outbreak, many daily

activities transitioned to online, rendering internet services essential for many households. As a result, the impact of the digital divide and unequal access to the internet and technological devices were even more obvious.

The study reported in this paper deals with the impact of the transition to online learning on secondary schools. More specifically, this paper presents results of i) a literature survey that mostly comprises recent related research studies (and a few older) and ii) an empirical survey, using an online questionnaire, which captured non-traceable responses from secondary school and further education students who, voluntarily and anonymously, completed the questionnaire.

The purpose of this paper is twofold: On the one hand it seeks to capture the way in which education systems internationally attempted to deal with the impact of the pandemic and on the other hand to highlight students' beliefs about and their experiences, in the new learning environment, of distance education. Therefore, this paper illustrates an overall picture of how students and teachers interacted and worked together during the lockdown in three Mediterranean countries with references to similar experiences through the literature review findings. The authors chose to describe how their and other schools around the world moved very quickly from traditional ways of education to online and distant mode education. Reading and reflecting on the experiences exposed in this paper one can find out how both students and teachers managed to tackle similar or different problems, communicate and learn how to use new technologies.

2.0 From Traditional Education to e-Learning: The Need for and the Transition

The pandemic has caused the biggest education system upheaval in history, affecting nearly 1.6 billion students in more than 190 countries and on all continents. The suspension of educational facilities affected 94% of the global student population [12].

During the period of the first lockdown (spring 2020) the solution in the majority of the countries was the transition from traditional teaching to distance education, with the exception of Sweden and Iceland [4]. In this phase emphasis was placed on ensuring direct access to the internet, the use of learning platforms and the training of teachers in new technologies, in order to support students in new learning environments [13]. However, during the second lockdown (autumn 2020) the percentage of countries suspending their schools and universities was lower [4].

Education during the pandemic period is more accurately described as a form of distance education called Emergency Remote Teaching (ERT). ERT is distinguished from online learning by the fact that it reflects a sudden and unplanned shift of lessons within the classroom to the model of distance education, due to unpredictable and unplanned factors [14]. An ERT approach may include the use of digital learning

platforms but also sending of homework and notes in traditional formats, such as "homework packages" sent to students' homes. This format was mainly adopted in the first weeks, which followed from the closure of schools at the beginning of the pandemic, for example, sending assignments by conventional mail or in-person delivery.

The transition from traditional teaching to online learning depends on national systems, culture and the level of knowledge and familiarity of the educational community with new technologies and the philosophy of Distance Education [15]. The data shows that around 80% of Europeans use the internet very often and 65% use social media. At the same time many students that drop out of school, join diverse society groups and select online learning [16].

Although distance learning is an innovative form of education for many teachers, it dates back several years. As described by Palaiodimou [17], the term refers to "any organized educational process provided remotely in both primary and secondary education. It meets the needs of students and is in harmony with the challenges of the modern age and the society of knowledge". In recent years, several countries have adopted institutional applications of distance education, including Germany, Austria, France, USA and Australia. In other countries, such as Greece, until recently adoption has relied on individual efforts and pilot programmes, mainly in primary and secondary schools [18].

Although there are several models of distance learning, what prevailed in the era of the COVID-19 pandemic is a model of online learning which involves working in synchronous or asynchronous electronic teaching environments. Students have "remote access" to various multimedia or can interact with them, for example in virtual learning environments or teleconferencing. In the literature we see the following forms described [18]:

- *Autonomous distance learning*: This is identical to the traditional education system. It is provided via online teleconferences either in real-time or asynchronously. Such training initiatives go back many years in America and Australia and are called virtual schools.
- *Complementary e-learning*: This format works in support of and in parallel with conventional education, through attendance at individual courses and teleconferences, school network collaborations, etc.
- *Mixed education*, which is the combination of conventional methods of learning and distance online forms of education.

3.0 The Impact of Distance Schooling and Learning in Students' Wellbeing

Between March and May 2020, schools in many countries closed in whole or in part. Children have not been left untouched by the dramatic impact of the COVID-19

pandemic, as there is a growing body of literature that clearly correlates exposure to stressful events and crisis situations with a child's psycho-emotional state [19]. During the quarantine period, children were forced to stay at home for long periods of time, move away from their normal educational environment and change their daily routine due to the suspension of schools.

Numerous studies are being conducted to research the effects of school closures on students. For example, studies in China's enclosed student population reported *increased rates of depression, anxiety, phobias and difficulty in coping* with situations [20, 21]. Saurabh and Ranjan [22] found that children in India experienced feelings of *helplessness, fear, and less tolerance of rules* in daily routines. In a study in Spain and Italy [23], the majority of parents reported significant *changes in the psycho-emotional state of children, such as boredom, difficulty concentrating, irritability and feelings of isolation*. In Italy, parents also reported cases of regression of children's behavior in earlier stages, such as *demanding physical proximity* to their parents at night, and over 50% showed *increased agitation, intolerance to the rules, excessive requirements on parents and whims* [24].

Caffo et al. [25] noted that 30% of participating parents reported that their children overused computer games in the period when schools remain closed, while a similar percentage (25%) showed significant changes in daily habits and sociability, for example sleeping and eating habits, physical exercise and mood, withdrawal and isolation from both peers and family being commonly observed. Reducing physical activity as a result of interrupting classes, eliminating sports activities and increasing screen time increases the risk of obesity in children and the onset of physical symptoms which may increase the risk of developing a severe form of COVID-19. Similar findings have been found in other studies, mainly in countries most affected by the pandemic [26, 27].

School is not just a place of learning, but also a place where children and adolescents develop their social skills and socialization, which are necessary for cognitive and socio-cognitive development. The closure of schools and the transition of the educational process to home schooling, which was often quite impersonal (e.g. closed cameras and microphones) increased the level of stress of students and their feelings of isolation and withdrawal [25]. In addition, the degree of commitment and learning motivation in these conditions, seem to be significantly affected, as it is known from the literature that stimulating and maintaining students' engagement is enhanced by collaboration and interaction during the learning process and is recognized as a very desirable goal for both teachers and psychologists [28].

School closure entails high social and economic costs for children, especially from vulnerable environments. These effects, recorded by UNESCO [29], are:

- *Interruption of learning*: Educational inequalities were highlighted during this period, as less privileged students tend to have fewer opportunities beyond school.

- *Confusion and stress for teachers*: With the sudden suspension of schools, teachers felt very insecure about their educational responsibilities. The transition from traditional teaching to distance learning has often been frustrating.
- *Parents are unprepared for distance and home education*: When schools close, parents are often called upon to facilitate their children's learning at home, which was extremely difficult for many parents.
- *Childcare gaps*: In the absence of alternatives, working parents often leave their children alone at home when schools close and this can lead to child neglect.
- *Increased pressure on schools and school systems that remain open*: Local school closures burden schools as governments and parents redirect children to schools that remain open.
- *Increased dropout rates*: It is a challenge to ensure that children and young people return to and stay in school when schools reopen after closing.
- *Challenges of measuring and validating learning*: Evaluation in these new conditions is a difficult process and raises concerns about equity. Distance assessment leads to stress for both students and their families.

Studies also show a significant negative effect on the wellbeing of parents and the whole family, where parents describe *mental burdens, emotional stress, irritability and unhealthy behaviour(s) such as increased alcohol use* [30]. Humphreys et al., [26] point out that the risk of domestic violence is high during a pandemic, due to restrictive measures and the increased time spent at home. In a British study by the Office for National Statistics [31] one third of the participating parents, i.e. about 30% concluded that home schooling was negatively affecting their wellbeing, while 50% said it was negatively affecting the wellbeing of their children.

An equally important issue now is how education at home has affected children with learning and / or behavioural difficulties. These difficulties appear to be exacerbated in restrictive conditions at home, especially if support is not available. In particular, children with Attention Deficit Hyperactivity Disorder (ADHD) seem to experience this changed situation much more intensely than their peers and many of their existing "symptoms" are likely to intensify in the future [20, 32].

From all the above, it is clear that children's wellbeing is being affected during this period, especially when we consider that wellbeing is related to issues such as quality of life, positive emotions and engagement, relationships, meaning and purpose, and accomplishment [33, 34]. Hone et al. [35] argue that wellbeing is related to good mental health, physical health and good interpersonal relationships. All are factors that were significantly affected in "stay at home" periods.

4.0 Research Methodology

The related literature review in sections 1-3 demonstrates the importance of the need for further research and to take into account the perceptions of the students themselves on issues that directly concern them and to find suitable ways to research and study the impact and the consequences for them. For example, in the case of online distance education, if students' attitudes are negative, they are more likely to be reluctant to work with teachers to enable distance education in practice [36, 37]. At the same time, understanding how students' wellbeing operates, especially in a crisis situation such as this global pandemic, is essential for the implementation of new and adapted measures, so that students would have the best support for their education [38].

4.1 Research Aim and Context

Taking into consideration the need to further research the topics described in earlier sections 1-3 and in order to capture them in their national and regional contexts, we proceeded as follows: We conducted a survey on the impact of the COVID-19 pandemic on learning and wellbeing in secondary education schools in three southern European countries. The aim of the research study has been to identify and analyse the views and perceptions of secondary and further education students, from three different countries; Cyprus, Greece and Spain. The research study, through the survey, focuses on identifying the effects of both the period of forced quarantine and the transition from traditional to online distance learning on the learning, wellbeing and mental welfare of secondary education students.

4.2 Research Instrument

An anonymous online questionnaire was selected as the mean for data collection, as descriptive research has a prominent place in educational studies [39]. Questions were mainly closed (which makes the analysis of the data more consistent) but there were also some open ended questions for students to answer freely.

The first part of the online questionnaire consists of demographic information (gender, age, school grade) and data about socioeconomic issues, including the accessibility and availability of technologies which enable online learning, as well as the employment status of the family/supporting adults and their ability to support the students. In the next part the respondents are asked to reflect on the difficulties they faced/are facing and their problems of isolation and social interaction during the lockdown period. The last part of the questionnaire includes questions on cybercrime, fraud, fake news, misinformation and their consequences, given students might not have been prepared to deal with them. Finally, the respondents are given the opportunity to share their ideas and suggestions for improvement and future directions.

4.3 Data Gathering Procedure

The questionnaire link was distributed in March 2021 in various ways, e.g. via secondary schools' emails, teachers' emails, and in parental social networking groups. The questionnaire could be answered in approximately 15-20-minutes, was anonymous and the answers were treated confidentially. Participants had the opportunity to withdraw from the study at any phase. There was no reward for completing the survey, but participants were given the opportunity to be informed about the results of the study, if they wanted to, by leaving an email address.

5.0 Data Analysis and Research Findings

In this section the researchers and paper authors illustrate using tables and graphs some of the research findings, reflecting on possible explanations and critically reviewing the data.

5.1 Participants in Research – Demographical Data

The total, number of student responses was 90; 62 (69%) from Greece, 18 (20%) from Cyprus and 10 (11%) from Spain (Figure 2).

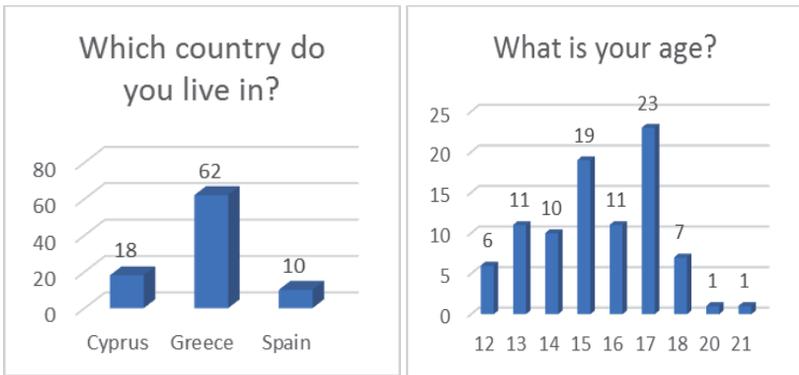


Figure 2: Country and age distribution

In total, 28 (31%) of the respondents were male and 62 (69%) were female. Most of the students were between 15 to 17 years old with average age being 15.55 (Figure 2). The usual age for secondary school students is 12-18. However, there are special schools for students with special educational needs and evening schools offering a second chance to adults who missed the opportunity of secondary education earlier, where the age of students exceeds the age of 18 years.

The percentage of parents or guardians working from home before the pandemic was 29% and 44% during the pandemic. A surprising result is that the unemployment rate of the respondents' parents/guardians decreased during the lockdown. The

percentage of unemployed parents / guardians before the pandemic was 21% (19) and 30% (27), compared to the percentage of those who declared themselves unemployed during the pandemic, i.e. 13% (12) and 19% (17) respectively. This phenomenon might be due to the employment type of the parents.

5.2 Access to Facilities (Section F of the Questionnaire)

In total, 89 (99%) of the students had internet access at home before the pandemic broke out.

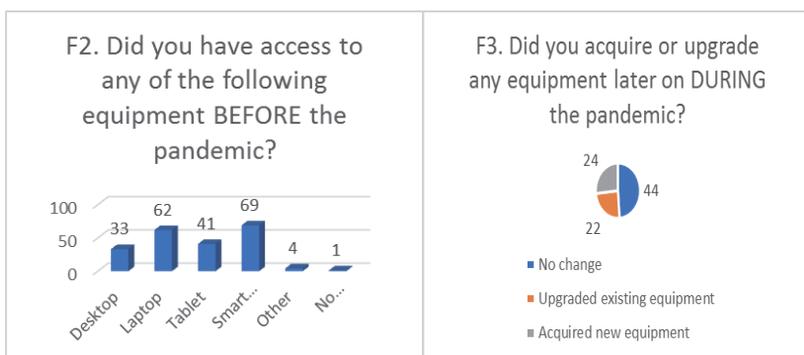


Figure 3: Access to equipment and need to upgrade.

Figure 3 (Question F2) shows that 69 (77%) of the students had access to a smart phone, 62 (69%) to laptop and 41 (46%) had a tablet. Several students had access to multiple devices. Only one student had no equipment at all.

From Figure 3 (Question F3) we observe that 44 (49%) of the students had access to satisfactory equipment and did not acquire new equipment or need to upgrade their existing equipment. However, in total 24 (27%) acquired new equipment and 22 (24%) upgraded their existing equipment. The expenditure was met mainly by families (33% - 30), followed by the students themselves (28% - 25). In 8 cases (9%), the school sponsored the acquisition of new equipment and in one case (1%) the municipality/local authority did.

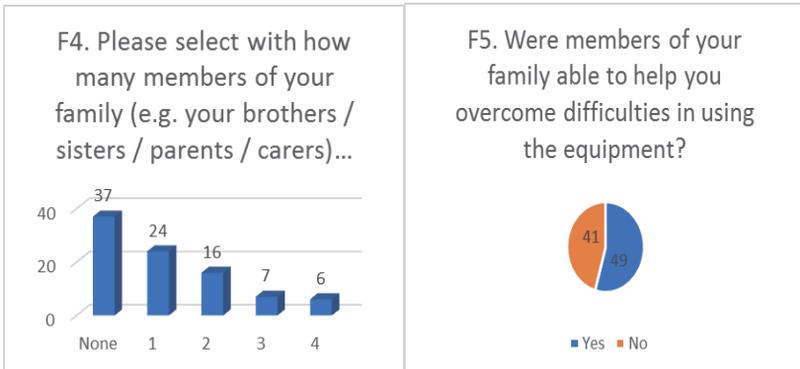


Figure 4: Number of family members sharing same equipment and possibility of help by family members.

From Figure 4, we note that most of the students (41% - 37) did not need to share the equipment with any other family members. However, 24 (27%) of the students had to share equipment with one other family member, 16 (18%) with two other family members, 7 students (8%) with another three family members and the remaining 6 (7%) with four family members. In 49 (54%) of the cases, family members were able to help students overcome difficulties in using the equipment.

In Table 1, students’ most commonly used software platforms are displayed. It is worth noting that students used multiple platforms.

Table 1: Most commonly used software platforms by students.

Platform	Frequency
Webex	61 (68%)
Zoom	50 (56%)
Skype	40 (44%)
Google Classroom	35 (39%)
Microsoft teams	24 (27%)
Viber	24 (27%)

5.3 Teaching Mode Preferences

In total, 53 (59%) of the students prefer face-to-face learning, 26 (29%) a mixed approach and only 11 (12%) of the students prefer online learning. In total, 54 (40%) of the students believe that face-to-face teaching will not disappear in the next 10-20 years, while 36 (40%) believe that it will.

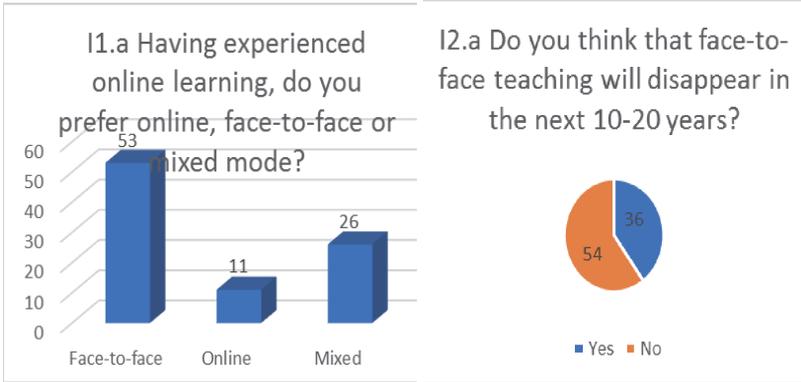


Figure 5: Learning mode preferences and how students see future learning modes.

5.4 Experiences of Distance Mode Teaching during the Lockdown

Courses that are recognized as the most difficult to attend by distance mode are science, like mathematics and physics (table 2).

Table 2: Most difficult subjects to follow while in distance mode

Subject	Frequency
Mathematics	58 (64%)
Physics	42 (47%)
Chemistry	35 (39%)
History	31 (34%)
Biology	30 (33%)
Language(s)	30 (33%)

In total, only 7 (8%) reported that they always used a webcam, 41 (46%) sometimes and 42 (47%) never. 79 (88%) reported that their teachers sent them notes and exercises at home. The majority (27%) of students answered that they enjoyed learning from home moderately and that they missed their school friends very much (60%). Only a few of the respondents had attended lessons which used radio (2%) or TV (7%).

As seen in figure 6, teachers provided most help to students in all classes followed by family members.

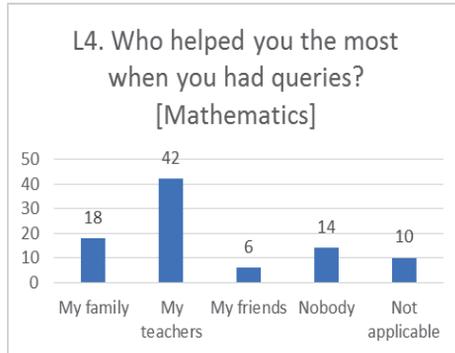


Figure 6: Who helped when queries regarding mathematics arose.

5.5. Interaction with Teachers and Friends

Based on Figure 7 we conclude that interaction with teachers was worse during the lockdown than before, which it is a quite expected finding.

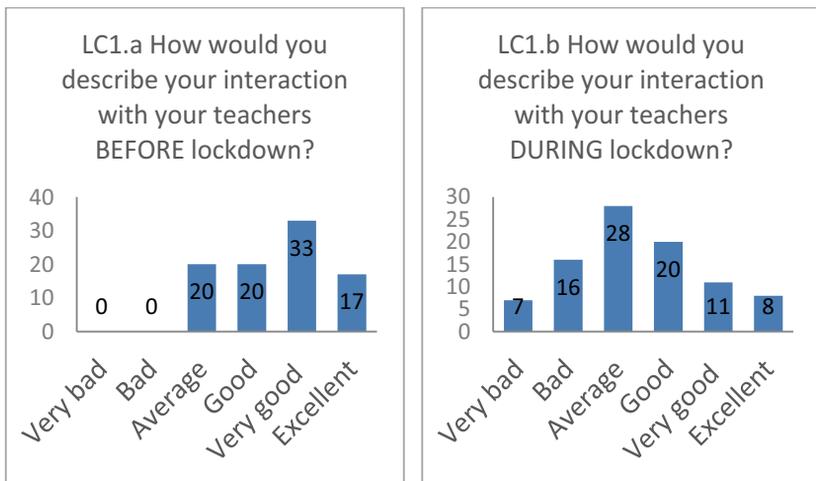


Figure 7: Interaction with teachers before and during lockdown

87 (97%) of the students lived at home with parents/guardians. Table 3, shows the time that the students spent communicating with their teachers before and during the lockdown, while Table 4 shows the time spent communicating with fellow students. Just a small percentage of students reported longer communication sessions while the majority reported communication sessions of less than 15 minutes during the lockdown.

Table 3: The average time students spent communicating with their teachers before and during the lockdown.

	Before Lockdown	During Lockdown
Less than 15 minutes	28 (31%)	49 (54%)
15-30 minutes	23 (26%)	16 (18%)
30-45 minutes	24 (27%)	12 (13%)
45-60 minutes	6 (7%)	5 (6%)
More than 1 hour	9 (10%)	8 (9%)

Table 4: The average time students spent communicating with their fellow students before and during the lockdown.

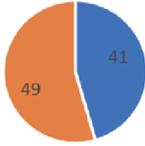
	Before Lockdown	During Lockdown
Less than 15 minutes	6 (7%)	21 (23%)
15-30 minutes	13 (14 %)	21 (23%)
30-45 minutes	14 (16%)	14 (16%)
45-60 minutes	14 (16%)	6 (7%)
More than 1 hour	43 (48%)	28 (31%)

5.6 Security and Privacy

Security and privacy are considered a part of wellbeing and social welfare for educational communities and wider society. Learners' safety is a significant part of general social welfare. Being able to learn and interact safely affects the mood and feeling and disposition of human. The data captured in southern European distance mode schooling and learning is given in the figures that follow and it is important for providing information on the levels of readiness of schools and trust to the internet-based facilities.

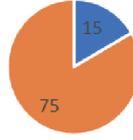
Obviously the need for distance online learning decreased the level of related training in secondary education. Thus, as figure 8 shows, 49 pupils of the 90 respondents had no training regarding cybercrime before the pandemic while, during the pandemic, 75 of the 90 respondents had no training related to cybercrime awareness.

SP1.a Have you had any training about cybercrime BEFORE the pandemic?



■ Yes ■ No

SP1.b Have you had any training about cybercrime DURING the pandemic?

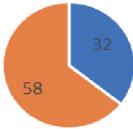


■ Yes ■ No

Figure 8: Training Provision about Cybercrime before and during Covid-19

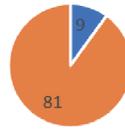
According to Figure 9, awareness regarding protection measures taken for private data was not high since only 58 students replied that they were not aware but 32 pupils considered that they were. The majority of the students; 81 out of the 90, reported that they experienced no problems caused by cybercriminals before the migration to online learning.

SP2. Are you aware of any measures taken by your School/College about the protection of private data?



■ Yes ■ No

SP3. Have you experienced any problem caused by cybercriminals BEFORE the migration to online learning?



■ Yes ■ No

Figure 9: Problems and Measures for Privacy Protection and Students' Awareness

In the related question regarding additional problems experienced after migrating to fully online learning, from the 90 in total students, 71 replied no while only 19 replied yes (Figure 10). Interestingly (and perhaps justifiably), among the 90 in total, more than half (48 out of 90) show medium level trust in the information they find in the internet. Furthermore (Figure 2), for the same question, 21 out of 90 students responded that their level of trust is low and 4 pupils said that they do not trust at all the information found on the internet! Amazingly (but again justifiably), a small number of them, that is only 17 out of the 90 in total replied that their level of trust for the related question is high.

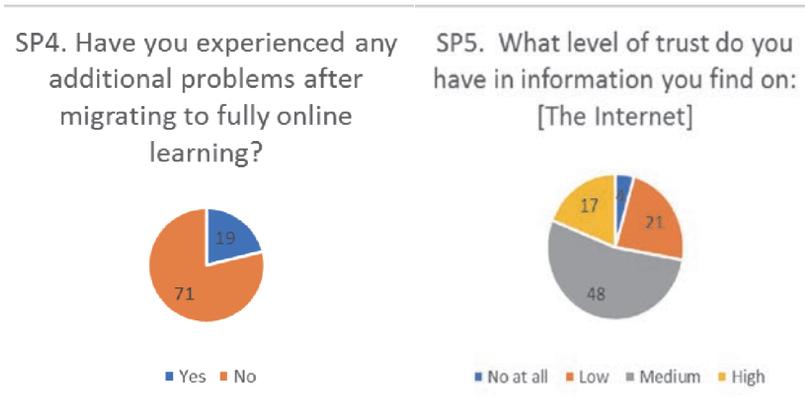


Figure 10: Problems in Online Learning and Levels of Trust

Another rather intriguing issue revealed from this study is illustrated in Figure 11 (SP5) as regards the level of trust the students exhibit for information found on social media, such as Facebook or/and Twitter. Comparing and contrasting the SP5 responses (see Fig 11), one can clearly see that 35 out of 90 pupils, that is less than half, have medium level of trust of social media and 26 out of 90 students have a low level of trust. Moreover, 21 students do not trust such information at all, while only 8 out of 90 students highly trust information found in social media.

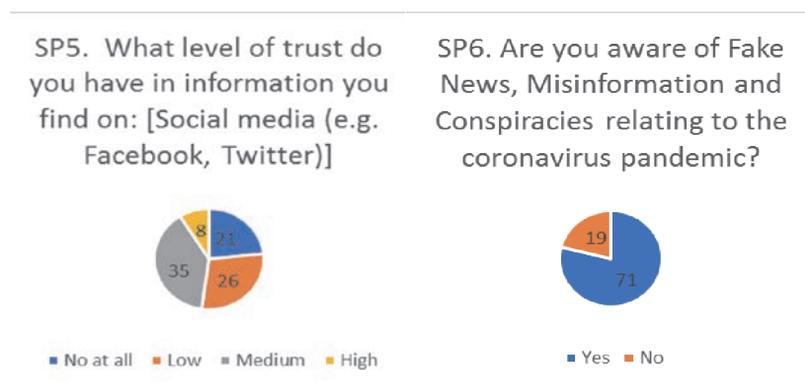


Figure 11: Trust and awareness regarding online (mis)information

A further question (SP6, Fig. 11) asked about awareness of fake news, misinformation and conspiracies related to the Covid-19 pandemic. The majority of students (71 out of 90) responded yes, that is they were aware of these while only 19 out of 90 responded with no as their answer.

The authors consider the above findings on online privacy and security significant in regard with the reality of students' cyber-security and social awareness and their feelings of safety while learning online. Further investigation will need to take place to find out more by scrutinizing the data provided and the beliefs of students in the three countries that participated in this research study.

Similarly to online privacy and security, the authors next examine the data by country on two important issues that are also related to students learning and wellbeing. These are the *concentration* and *interaction* of students in a cross-national and cross-cultural comparison.

5.7 Concentration and Learning: Cross-national and Cross-cultural Comparison

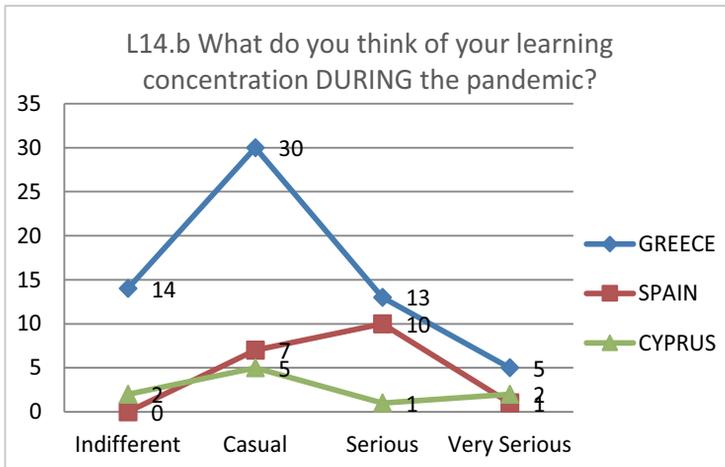


Figure 12: Concentration and Learning during the pandemic – Comparative Findings

Due to the differing numbers of respondents from each country the chart can be misleading. Thus the table below which takes into account the ratios of responses from each country (to the nearest whole number), might provide a better basis for comparison.

Table 5: Concentration & Learning during the pandemic – Comparative findings

Learning concentration during the pandemic	Greece %	Cyprus %	Spain %
Casual	48	32	50
Indifferent	22	0	20
Serious	20	56	10
Very Serious	10	2	20

5.8 (Online) Interaction with Teachers before and during the Pandemic

From Table 6 it can be seen that in all three countries interaction between the students and their teachers deteriorated during the pandemic. Responses from Spain were better both before and during the pandemic, but it should be noted the sample is very small.

Table 6: Interaction between students and teachers before and during the pandemic

	Greece (N=62)		Cyprus (N=18)		Spain (N10)	
	Before	After	Before	After	Before	After
Very Bad	0	9	0	5	0	0
Bad	0	19	0	11	0	20
Average	19	33	11	28	0	20
Good	19	16	33	33	20	40
Very Good	31	11	44	11	50	20
Excellent	19	9	11	11	30	0

6.0 Teachers reflective comments

In this section the personal experiences and reflections of teachers and professionals in secondary education from Cyprus and Greece are given in their own words.

6.1 Reflections on the integration of distance learning in Special Education from the perspective of a School Psychologist- by Maria Panteri

A year ago, none of us would have imagined that schools would remain closed for so long and all children would stay at home for an unusually long time. The extent of the issue is reflected in the numbers: According to UNISEF [40] more than 200 million students, at all levels of education, in 23 countries on all continents, have lost at least three-quarters of their total teaching time, in its traditional form, since the early spring of 2020. More specifically over 50% of schools remained suspended for about 100 days. According to the latest UNICEF data [40], by February 2021, 53% of countries worldwide have fully or partially opened schools, while 13% remain suspended.

Obviously, we are all facing an unprecedented educational crisis and although experts have assured us that students will adapt very quickly to the new everyday conditions, the educational reality has been very difficult for everyone. Students lost their classes and teachers were forced to immediately acquire new technical and functional skills, related to digital media, to respond to the emerging needs. It is of concern to note that the suspension of schools is expected to exacerbate the pre-existing educational crisis, affecting more the most vulnerable students [40]. Among vulnerable students are those who come from financially difficult environments and those presenting learning difficulties.

Most countries have offered distance education, through the use of various applications and platforms, through programs on educational television and others through mass media. But was there any special provision for special education?

The operation of special schools during the COVID-19 era

In Greece, special education followed partly the course of general education in distance learning. During the first period of the suspension of the operation of special schools, the asynchronous form of education was chosen, mainly by sending notes and exercises (via e-class, e-mail, skype). In the second wave of the pandemic, special schools in Greece did not close. Nevertheless, many special schools were closed in whole or in part, due to COVID-19 cases among members of school community. In this case, synchronous distance teaching was used, as required by the Greek Ministry of Education. The Ministry of Education provided for the creation of fully online classes for students belonging to groups vulnerable to COVID-19.

Special education is a sensitive part of education, as it has to manage great inequalities. These inequalities stem mainly from the lack of resources, financial, technological and educational, as well as financial and educational difficulties for parents and families [41].

During the COVID-19 era, in Greece, school coordinators sought to meet the needs of teaching staff, with frequent training seminars on the basic principles of distance education, new platforms and the role of digital tools in synchronous and asynchronous distance learning and the objectives of teaching and the parameters that affect its effectiveness. The transfer of teaching from its traditional form to remote modes requires continuous self-training, needs analysis, searches for appropriate tools and revised methods for reflection, goal setting and lesson planning [42], which seem to have been realized by special education teachers. Online training has also facilitated the dissemination of good practices applied by schools, other educational structures and other scientific bodies or community support structures.

Additionally, the Greek government provided for the treatment of the inequalities issues in the provision of distance education, through lending or free provision of electronic devices, while access to the educational platforms was free for all, students and teachers.

The role of Educational and Counseling Centers was emphasized during the suspension of the operation of special schools, but also throughout the pandemic. More specifically, professionals were invited to plan and organize remote counseling support for parents and students of all schools, as well as to coordinate the staff of special schools in order to provide corresponding distance services.

Reflections from a special gymnasium and lyceum from Greece

Special vocational gymnasiums and lyceums are secondary schools, where students are diagnosed mainly with issues such as intellectual development disorders, autism,

severe learning difficulties and behavioral problems. Classes usually consist of students with great differences, in terms of their educational, cognitive, emotional and social needs. Differentiated/ individualized teaching takes shape in a special school; otherwise the learning process becomes difficult or almost impossible. A key element for the smooth integration and cooperation of a student in a special school is cooperation between school and family, as well as the support of the school mental health specialists (psychologists and social workers).

Working as a school psychologist in a special secondary school, I found that the main goal of our work in the COVID-19 era is to reduce inequalities in the provision of education to our students [43]. In addition, due to the gap created in the educational process due to frequent lockdowns, the main goal set in the special school is to maintain the skills that students have already acquired and to continue their contact with the school. Fixation and regression of skills are processes that we often encounter in a special school and the current situation favors them greatly, since the normal flow of learning is interrupted.

Last year, our school adopted the model of Emergency Remote Teaching, using a combination of synchronous and asynchronous actions. Webex was used as a synchronous distance learning platform and the electronic School Classroom (e-class) of the Pan-Hellenic School Network, as a platform for asynchronous distance learning.

To ensure effective adaptation by all of us to the new conditions, an individualized framework of actions was formed, addressed to the special needs and capabilities of each family. With the cooperation of the teaching staff and the mental health professionals of the school, the following steps were followed:

- ✓ Communication with families to explore the needs and available technology resources.
- ✓ Formulation of an educational program, individualized as much as possible.
- ✓ Sending a folder with material and educational activities via mail, Microsoft Teams, viber etc.
- ✓ Individual or group support of students and their families for mental stimulation, learning mobilization and connecting the school and family environments.

Listening to the voices of children

In recent years, in order to improve the school, we have come to the conclusion that the voices of our own students must be taken seriously and by referring to the voices, we mean the words of the children, their feelings, their views; a variety of expressions within and outside the school [44].

In our effort to listen to the psychological footprint of the pandemic period in the lives of our students, we carried out a program of emotional expression and discharge of negative emotions. The children were given the opportunity to express

their feelings about the pandemic, the difficulties they faced and to identify new sources of help and mental strength. In the meetings with our students we listened to many of their concerns and made an effort to reframe many of them.

"I have learned to use the tablet to talk to my friends. Now how I can learn with this, I still wonder" (20 year old boy, autism)

"I feel so angry when I have to wear the mask that I am always looking for somewhere to break out" (17-year-old girl, intellectual development disorder)

"I did not enter the Webex much. I did not like my teachers to come into my room and see my things. I was ashamed to see my house" (22 year old girl, intellectual development disorder)

"I'm bored of school anyway. At least while we were closed I played PlayStation all day. "Nobody was telling me anything because everyone was either watching the news or were occupied with their cell phones." (15 year old boy, ADHD)

"I was seeing my parents distressed, sitting all day in front of the television and made me feel even more crap. I did not want to talk to my teacher or psychologists" (15 year old boy, emotional difficulties)

"What I felt during quarantine was boredom ... great boredom. I was bored doing housework, I did not go out at all because none of my friends went out and I was constantly fighting with my brother" (18-year-old girl, autism)

"My parents used to tell me that if I do not want to join the online class, it doesn't matter, it is not obligatory. That's why I was more involved with Instagram" (14-year-old girl, ADHD)

Emerging concerns from our experience at school

This unprecedented disruption caused to the daily lives of millions of students, created very big problems, especially for students with difficulties in life and learning. However, according to Tam & El-Azar [45], it is too early to weigh the benefits and disadvantages of this change in the educational process, as well as to judge how the education sector may be affected in the future.

Nevertheless, based on my personal experience from school, as well as the evaluation of the views of our students and teachers, important concerns are raised about the application of online distance learning in special education:

- *How can the digital classroom even temporarily replace the physical classroom, especially for children in special education, whose cornerstone is interaction and physical contact?*

- *Do all children have the appropriate, supportive environment at home, but also the resources to participate equally in the online educational process?*
- *How will it be verified that the children who acquired free digital media (tablet, PC) from the Ministry of Education actually used them for the purpose of learning?*
- *Is it possible for the specialist educator to differentiate his / her teaching for each child individually in the online classroom?*
- *Who is responsible for overseeing the education of a child growing up in a dysfunctional family environment?*

6.2 Reflections from Secondary Education teachers – Cyprus – by Georgia Lambrou & Annita Zirki

The COVID pandemic had a dramatic effect on life across the world. Cyprus was no exception. The education sector experienced major disruption which needed to be addressed.

The University and College sector were already offering several degree and postgraduate programmes online, but primary and secondary schools had no prior experience or plans for offering distance, online learning and teaching. This lack of preparedness made the sudden problem more acute. It required the co-operation of government, school management, teachers and parents.

Kafa & Pashiardis [46] provide a summary of government policies and actions during the early days of the 2020 COVID outbreak. The actions were to:

- Provide access codes for specific online programmes for over 110,000 students across Cyprus,
- Provide both parents and students with all the relevant information through the schools about the new e-learning environment and how students could participate,
- Help school principals, in collaboration with teachers, to develop a plan, based on the school curriculum which would be adapted to the new circumstances,
- Provide training for all teachers in the Microsoft Teams application (MS Teams) throughout Cyprus via the services of the Pedagogical Institute, whose main activities focus on teachers' in-service training.

Despite these decisions at a high level, the actual implementation proved quite difficult. Even a year after the first lockdown there are still problems of accessibility and need for further innovations. The challenges are impacting on the teachers, the students and their families.

The transition from traditional methods of teaching and learning to online was not easy. Both teachers and students were completely unprepared. Microsoft Teams entered our lives and everybody had to learn how to use it. Teachers with little

knowledge of computers had to study the instructions and watch online seminars on how to use Teams. Also they needed to change their teaching methods and the way they prepare their materials in order to keep their students engaged.

During the pandemic primary and secondary schools in Cyprus remained closed for several months. In April 2021 all students went back to their schools. If a student was COVID positive or was in contact with someone who was COVID positive, he had to stay at home and follow online lessons. In every secondary school in Cyprus both students and teachers had to have a rapid test every week and wear face masks all the time.

Quarantined students have to wake up early in the morning and start lessons at 7:30 and connect to teams until 13:30. They then continue with their extra private lessons in the afternoon. They have to download the material posted by their teachers and do their homework. The quarantined students do their tests after they return to their school.

Equipment was, and still is, one of the major problems the schools, the teachers and the students had to face. In many schools in Cyprus the computers are outdated and very slow. Their internet connection is often interrupted. The result is that the teachers cannot always connect with the students who are at home.

The job of a computer teacher is not only to teach programming or office applications but to change speakers, Ethernet cables microphones try to connect computers to the internet if the connection is down, connect projectors and solve other problems. If the problems cannot be solved on time the teachers cannot connect with their quarantined students. Also the time teachers spend connecting with their quarantined students means they leave their students who are in the classroom to work alone. The teacher's lesson time must be equally shared and this is not an easy task.

Foreign language teaching and learning is present in all levels of education in Cyprus. English is taught from very early age and French is introduced in the last years of primary school. English is one of the major courses in the first two years of secondary education and is taught till the end of it.

One of the major tools a foreign language teacher has and always uses in a traditional classroom is the e-book. With the e-book the foreign language teachers can keep their students' interest vivid, since it helps them follow the flow of the lesson by watching it on the board through the projector. In the same way, the students can see the page of their book with all the exercises and the reading texts or hear the listening texts or watch videos by "share screen" during online classes. On the other hand, e-books are one user and thus only the teacher can interact with the book, hence the teachers had to either prepare material for the students to work with or ask the students to scan or photo their work and send it to them. This made correction and evaluation of their work much more tiring and timing consuming.

On Monday 10th May 2021 schools will open again and students who have COVID-19 or were in contact with someone who had COVID-19 will stay at home and follow online classes. For the first three years of secondary education exams are cancelled. They will continue their classes until June and they will have written and oral assessments. The last three years will continue their revision classes and attend final exams. Final year students will attend both final and university entrance exams.

As the questionnaire reveals, the students are accustomed to electronic applications. As far as their studies are concerned, in order to complete their homework or study for a test they can ask for help from their teachers, members of their family or their friends. They use the Microsoft Teams platform or Viber or Messenger to communicate and exchange notes. The teachers send additional study material by using email or by uploading material in Teams.

During the three lockdowns some students were unable to meet their friends or go out to coffee shops or playgrounds. They felt isolated. Many of them played PlayStation games to pass their time and justifiably wondered why their parents complained about spending much time on gaming when they had to spend all morning at online school. They used Instagram and other social media applications to communicate with other people.

Some other children enjoyed staying at home because they got plenty of rest as they did not have to go to school in the morning and private lessons until 20:00 at night. Education in general is highly prized and respected throughout Cyprus, and this generates a competitive atmosphere.

School children from a young age attend their normal school hours but supplemented with private lessons, which even the poorer in society strive to provide for their children. This places even more demands on the children.

All their lessons were done online. Of course they missed going out during weekends, for socialising and meeting their friends. Many of them spent weeks at home without going out and were really tired of the confinement.

In this difficult situation everybody is trying to cope by doing the best they can. The teachers have acquired some experience on how to teach online and how to develop and deliver adequate material to all their students. The psychological comfort they offered their students was equally important.

7.0 Ethical Considerations and Research Limitations

Before presenting some concluding remarks on this research study, it is worth mentioning some important ethical and rules that were followed, as well as reminding the reader about this research survey's limitations.

7.1 Research Ethics: Ethical Considerations and Steps Followed

Every study has to handle ethical issues, especially during the research process (data gathering, anonymity, etc.), of which the researchers/authors and readers should be aware.

A signed approval letter was obtained for the application for ethical clearance for this particular research study, as part of a bigger project that also included similar research aims for primary and higher education. The submitted documents were approved by the Research Ethics Committee of Middlesex University in February 2021 and data collection took place in March 2021.

The rest of the section summarizes the important research points we considered and the action taken to assure ethical research was followed in this study.

First, the researchers must protect the participants from any danger and harm that participation might cause to them. In this study, we informed the participants that they can stop participating at any time, participation was voluntary and no reward was offered. We also informed the (potential) respondents early enough and clearly as to the purpose of this study and what participation required from them. For example, how much time they need in order to fill in the online questionnaire. Special attention was paid to the design of the questionnaire to ensure that it was easy to understand and easy to answer. We used simple words and questions as well as options that the secondary education students would easily understand. In addition, we emphasized that nobody outside of the research group will know who participated in this study.

Second, the results from the study must be honest. That is, the results have to be transparently shown without hiding negative findings or selecting only positive findings. Perceived or real conflicts of interest such as financial interests may influence the findings. For example, in sponsored studies the authors might be under a pressure (or even threat) to present only favourable, positive findings and neglect some not so favourable, negative or undesirable findings. This study was not sponsored by any external funding source. For this reason, external funding sources did not and could not influence the research findings and final research results.

Third, there might be some ethical issues concerning with whose voice is heard and not heard enough in the study. For example, in some studies, less influential and marginalized groups might have difficulties to be heard. This study included, within the secondary education students' context, voices from three different countries of southern Europe, and also students with special needs from one country.

Fourth, current research studies usually refer to (most) recent studies. However, there might arise some ethical issues concerning how appropriately relevant published studies were searched and selected. That is, how well researchers managed to consider the impact of potential search bias, such as availability bias, database

bias, or citation bias, and the impact of potential publication bias such as methodological bias or outcome bias. For example, already completed studies, to which other studies refer, might be more likely to be published and cited, when they use certain methodology, certain sample size, certain language, certain publication fora, or emphasize significant positive rather than negative effects. In this study, we included published research studies which were conducted during the pandemic. In addition, we did not limit our search and selection to just research studies written, reported or/and published in English. Our multidisciplinary and international research group was able to include studies that were published in many languages, among them in Greek, Finnish and Swedish.

7.2 Research Survey's Limitations

A study cannot cover everything that exists. For this reason, there are some limitations which the readers and the authors of this paper should be aware of.

First, this research survey/study had been designed to focus on secondary education students' experiences of distance education (including teaching, learning, studying, concentration, interaction and wellbeing) during the pandemic. Thus, primary education students' and higher education students' views were not included. The research focus of this paper was on teenagers as learners during the pandemic, rather than adults (more than 18 years of age) as learners or children as learners.

Second, the researchers were interested in secondary education students' experiences of distance education, not teachers' nor other school support staff members or parents' views.

Third, this research study was contextualised to *formal* (e.g. state-based) learning rather than *non-formal* (e.g. training) and *informal* (e.g. accidental) learning settings. That is, the distance education was organised around formal learning following the school's curriculum even though the students' were at home.

Fourth, the formal learning context and physical/virtual settings were located in southern Europe, and only three Mediterranean countries (Spain, Greece, Cyprus) were included, not every single southern European and/or Mediterranean country.

Fifth, the data sets collected for this study from two of the chosen countries (Spain and Cyprus) were relatively small while the data from one (Greece) of the three countries was over-represented. For this reason, the conclusions from the research results are, at best indicative, in the absence of representative data as hard evidence. However, the results and the conclusions drawn from the research outcomes make a notable contribution leading to understand how secondary education students' experienced distance education during the pandemic; and, naturally, that picture will be confirmed or challenged by other current or further studies.

Sixth, this study reviewed and referred to published empirical studies, which have been conducted during the pandemic, not before. There are many studies conducted before the pandemic that tackle students' experiences on distance education. But in this study those studies were not included. The focus of this study was particularly on this very early/immature era of distance education mode during the pandemic.

8.0 Conclusions and Future Work

From the first observations, it can be seen that this study confirmed that for students, school is much more than just a place for learning and studying factual information. School is a safe playground to learn not only relevant factual information but also a space (or place!) to develop necessary skills and experiences and to collaboratively identify and resolve current problems. The pandemic challenged the school systems' ability to fulfil this broad purpose. The very rapid transition from traditional face-to-face teaching and learning mode to online learning had an impact on the students' lives by forcing them to stay at home for long periods of time. For this (and other) reason(s) related to learning and wellbeing, students must change their daily routines and adapt to a new learning environment. How well did students manage to do this?

The immediate impact of the pandemic for students learning and wellbeing varied. This variation from small, temporary and easy to fix discomforts to big, long-lasting and complex difficulties depended not only on how the students' learning and wellbeing was before the pandemic but also on what kind of resources the students have had available, at home in particular, during the pandemic. This raises the question as to how ready schools, family homes and students themselves were for rapid transition.

Clearly levels of readiness and preparedness were not the top ones; did not even reach the optimum, in many cases all over the world. On the contrary, several negative issues and feelings increased. For example cognitive overload, stress, tiredness, boredom, tensions between family members, fears of domestic violence, difficulties coordinating distance schooling and parent(s)' working as well as shrinking social support networks.

Thus, attempting to organize teaching, learning and studying in a new way very quickly had an immediate impact on students' opportunities to learn equally and equitably. Unfortunately, for many students this meant inadequate support for learning. Distance learning and studying requires well developed readiness from students, such as self-directed learning skills and self-discipline. However, not all students were ready for this demanding independent (and sometimes self-directed) learning and studying. One of the main challenges for students has been to improve those necessary skills in order to cope successfully with distance learning and studying. For teachers and parents one of the main challenges has been to guarantee well timed and communicated support, guidance and feedback to improve students learning. For schools a key task has been to develop and improve teaching and learning practices as well as to find and design the best practice(s) for their particular

school. During the pandemic, many schools might have been forced to experiment to find the best methods of teaching, learning and studying for their specific context, as well as ways to support students' learning in distance mode.

The long term impact of the pandemic on students learning and wellbeing is still an unknown factor. On one hand, the answer depends on what countries, schools, teachers, parents and students really learned from their own experiences. On the other hand, the answer depends on how enthusiastically countries, schools, teachers, parents and students want to improve the level of readiness and preparedness as well as using digital devices for supporting teaching, learning and studying. However, while the answers are not yet available, it is possible to point to some indications of what the long term impact of the pandemic for students' learning and wellbeing will be in the future. Firstly, the dropout rates are a possible indicator. How many students felt that learning and studying became too demanding and decided to stop attending school? Has the attraction of specific subject(s) and/or field(s) dropped dramatically? Secondly, how many students felt that their studies did not progress as well as before the pandemic, and/or their results have decreased during the pandemic? Was their school graduation postponed? Was there a need to take extra courses/subject lessons in order to fill some (if any) knowledge gap? Thirdly, how many students could not start higher or further education or start at their working lives after school graduation?

By combining and examining both pupils' responses and teachers' personal reflections in this Covid-19 related research study, the researchers aimed to present the two groups' opinions in a learning-centered and well-being framework. Educating students requires that one should be very well acquainted with their opinions, feelings and problems. Educating the reflective teacher (or other practitioner) requires the educator to become acquainted with their reflective and critical thinking. This can be a rich source of facts, social reality, subjective and/or objective opinions, values, norms, strengths, limitations and feelings.

We consider this an original contribution because shapes a holistic managerial approach to handling educational crises that are not, necessarily, externally triggered. Beyond Covid-19 needs and rapid migration to online education, the process followed in this research study is a case study in using formal research processes for evaluation and improvement. The research methods followed (literature survey, questionnaire and teachers' reflections) can be used as a combined research instrument to find, analyse, compare and contrast and reflect at any time when there is a need for educational crisis management. The latter, if it is wisely performed, should enable progressive change and lead to educational transformation.

In conclusion, there is a need to further and deeper research into the effects of the Coronavirus era longer term and in each of the countries that participated in this research study. Comparing and contrasting this study's outcomes with other research

outcomes from EU and Mediterranean countries could provide more reliable results for the future of learning and wellbeing of secondary education students.

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The online questionnaire used in this study can be found online at the following website:

<https://forms.gle/PKAU9KEgPVempigi7>

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