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Teaching Experiences "from using" and Suggestions "for using" Online Teaching and Learning in the Views of Greek Teachers

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Abstract

With the suspension of the operation of school units due to the pandemic of the coronavirus in the educational systems of all developed countries, they were called upon to immediately implement the tele-educational process of implementing lessons, within the framework of formal education, in order not to disrupt the learning path of students. However, the implementation of Online Teaching and Learning (OTL) was not an educational possibility that had been sufficiently studied, both in terms of its implementation and its effectiveness in the educational and learning process. Therefore, questions were raised about what its impact on students might be. This question and, at the same time, this research question remains a strong educational and teaching concern, in order to show and also to prove whether similar processes could be used in the future as a new means of education and learning. In this context, the present research attempts to explore the limits and the didactic dynamics and perspectives of OTL in the teaching and learning process, by investigating the views of Greek

teachers who applied it as an "urgent" didactic necessity during the period of home confinement of students due to the coronavirus pandemic. The extracted findings contribute to the enhancement of the relevant literature, as well as scientific experience and knowledge about this particular educational method.

Keywords: Online Teaching and Learning, teaching experiences, teaching proposals, views, Greek teachers, Primary Schools

1. Introduction

The highly exceptional educational needs, created by the coronavirus pandemic since spring 2020, have confronted educational systems in all countries with an educational adversity (Chan et al., 2021; Jelińska & Paradowski, 2021), in terms of how to learn, teach, communicate and collaborate in educational structures. This has resulted in changes in educational and teaching methodologies, with the dominant outcome being the digitalisation of formal education teaching (European Commission, 2020; Padilla Rodríguez et al., 2021).

The rapid and effective solution that would immediately address the urgent conditions of the pandemic seemed to be the choice of Distance Education (DE) and, in particular, Online Teaching and Learning (OTL) (Karalis, 2020).

The Greek educational system, as it happened in the educational systems of other countries (Bates, 2020a; Hodges et al., 2021; Winthrop, 2020), attempted to respond to the new educational and teaching necessities created by the coronavirus pandemic. In this context, electronic platforms for implementing DE and communication between students and teachers were utilized.

However, from the implementation of DE, a report (Reimers & Schleicher, 2020), based on the findings of a study of responses from 98 countries, implemented at the end of March 2020, highlights several problems that have arisen from the suspension of the face-to-face education process and the actions countries have taken to address them.

In the majority of these countries, teaching was carried out using digital platforms, but without proper organisation and clear guidelines for students, teachers and parents. Similarly, other countries encountered several barriers and faced student attrition due to lack of experience in DE issues (Bubb & Jones, 2020; Jain et al., 2021).

In the context of the use of OTL, teachers faced similar issues, such as: limited access to technological equipment, the ability to connect to the internet, the use of available digital platforms for OTL and the creation of digital educational materials. At the same time, it was found that several teachers lacked basic digital skills for eLearning and lacked experience in DE. In addition to these elements, issues of privacy, copyright and data protection also emerged (Cedefop, 2020).

However, there were also countries that had no particular problems with the implementation of OTL. As an example, in Australia, school units used digital platforms that already existed

in their education system, while in Japan, a digital platform was developed to enhance learning with free educational materials, videos and best practices for use by teachers and students. Also, in England and Norway, teachers demonstrated effectiveness because of their prior experience in OTL (Bubb & Jones, 2020).

In this whole project of the urgent implementation of OTL, the positive attitude, interest, cooperation and constant mutual support of teachers played a decisive role (Beach et al., 2022; Lionarakis et al., 2020). Teachers were asked to operate in a completely digital context in a very short period of time. In this context, questions were raised in various studies (Abidah et al., 2020; Bates, 2020a; Bates, 2020b; Dhawan, 2020; Georgoulakou & Kostas, 2022; Reich et al., 2020; Reimers et al., 2020) that addressed not only their skills in handling new technologies, but also whether they had the appropriate and sufficient technological equipment to effectively respond to the demands and necessities of DE.

The above are decisive elements to investigate, due to the use of OTL in Primary Schools in Greece. In this context, the views and attitudes of teachers regarding their ability to respond to the urgent and different circumstances related to the utilization of OTL during the period of the coronal period are perceived as essential (Mishra et al., 2020). Based on this problematic, the main research aim of this study is to investigate the attitudes and views of Greek teachers regarding the teaching practice suggestions "by using" and "for using" OTL.

2. Method

2.1 The aim of Research

The main purpose of the present research is to investigate the attitudes and opinions of Greek teachers, with emphasis on primary school teachers, regarding the teaching potential of OTL as a practical teaching method. Primary school teachers are selected in this research process, because the question and issue of educational adaptation of students of this school grade is raised, due to their age level both in terms of their learning adaptation and the necessity of students of this age level for socio-emotional participation and activation.

2.2 Research Questions

The research questions of this study are formulated as follows:

1st research question: Are teachers sufficiently trained in the use of new technologies to meet the requirements of OTL?

2nd research question: Can face-to-face teaching be replaced by OTL data?

3rd research question: Does OTL maintain the interpersonal teacher-student relationship?

4th research question: Do students, during the OTL, feel "emotionally safe" to develop their emotions?

5th research question: Does OTL create conditions of "social security" for students?

2.3 Research Population and Sample

The population of the survey consists of all primary school teachers throughout Greece.

The sample was selected by "cluster random sampling" (Cohen et al., 2000) from a list of all primary schools in the whole country. More specifically, from the total list of school units, five hundred (500) school units were randomly selected. From these school units, a sample of teachers was selected to form the survey sample. The teachers were three hundred and eighty-one (381). Of these teachers, one hundred and twenty-eight (128) were male (33.6%) and two hundred and fifty-three (253) were female (66.4%).

2.4 Research Measurement Instrument

The measurement instrument of the survey was a structured questionnaire of closed questions. To conduct the proposed research and to collect data, a structured questionnaire with "closed-ended" five-point Likert scale questions was used as a research instrument, which facilitates the connection with the objectives and research questions of the proposed research (Robson & McCartan, 2015) and satisfies the following two parameters. 'Closed' type questions offer the possibility of more controlled standardization of the collected data and through this effective comparisons of responses, are easy to understand and specific in terms of answers (Friborg & Rosenvige, 2013, p. 1398). b) 'Closed' type questions offer the same answer possibilities to all survey participants, yield data that are easier to manage and statistically processable (Gaskell et al., 2016, p. 1039).

In the present research, five of the twenty-three questions of the questionnaire are analysed, because these questions investigate the opinion of the research subjects on the didactic potential of OTL in teaching, a dimension which is the main objective of the present publication.

At the same time, the measurement scale was varied from "1" to "5" of the Likert scale, due to the fact that it offers the possibility of a more controlled standardization of the collected data and through this, effective comparisons of responses.

The questionnaire used in this research was constructed on the Google Forms online platform because this allows it to be shared in a short period of time with the research subjects and allows us to have large samples of responses with relatively little additional effort (Robson & McCartan, 2015). In addition, this ensured the anonymity of the research subjects, which is a key element of the reliability of the research.

The link created corresponding to the questionnaire was emailed to the survey subjects. Upon completion of the questions and submission, the questionnaire database was updated in real time to allow immediate access to the research data for further statistical processing and analysis by the researcher. At the same time, uniqueness in the completion of the questionnaire for each survey subject was also ensured.

Regarding the "measurement instrument", the following are also noted: a) The questionnaire was sent electronically to the sample teachers in their personal emails and was accompanied by an information letter on the purpose of the survey and how to complete it. b) A telephone

contact was made with each teacher in the sample, where the teachers in the sample were contacted in case they had any questions regarding the completion of the questionnaire or the content of the questionnaire. The subjects were also informed that the questionnaire took between five and ten minutes to complete and that completion of the questionnaire was voluntary and anonymous. c) After fifteen days, from the initial mailing of the questionnaire, a second telephone contact was made with the sample teachers who had not completed the online questionnaire in order to reinforce the number of completed questionnaires.

2.5 Time Period for the Implementation of the Research

The research was conducted from the beginning of May to the end of June 2021.

2.6 Data Collection

The statistical analysis, processing and interpretation of the empirical data was carried out using the statistical package. More specifically, the analysis of the questions was performed as follows:

- first, the reliability of the questionnaire was checked using the Cronbach - Alpha index.
- then an analysis of the frequencies obtained from the recordings of the answers given was carried out.
- finally, a One-way Anova test of means was performed to determine statistically significant relationships between the variables. The independent variables were considered to be gender, age, speciality, employment relationship, studies, years of educational and teaching experience. The dependent variables were the views and attitudes of Greek teachers regarding their role in the use of OTL in the teaching process during the period of the coronal period. It is worth noting that no statistically significant correlations were found between variables such as age, educational experience, gender and specialization.

2.7 Reliability of the Research Tool

The reliability of the questionnaire was checked by Cronbach's Alpha reliability index and it was found that it has a value of a=0.931>0.7 in all twenty three variables (Table 1 and 2). Consequently, the questionnaire is considered reliable due to the satisfactory and high value of the index (5 variables - questions are analysed in this research).

Table 1. Case Processing Summary

		N	%
Cases	Valid	361	94,8
	Excluded[a]	20	5,2
	Total	381	100,0

Listwise deletion based on all variables in the procedure.

Table 2. Reliability Statistics

Cronbach's Alpha	N of Items
,931	23

2.8 Limitations of the Research

A key limitation of the research is the relatively limited number of the sample, which means that it is not possible for the findings to be generalisable.

Also, the measurement instrument of the survey is a structured questionnaire, with "closed-ended" questions, which can create a limitation in the number of responses, as well as grouping them into general categories to collect information. In order to limit these, in addition to the pilot - test survey, it was sought from the beginning to properly design and formulate research questions that are specific, observable on the variables and measurable (Creswell, 2014).

3. Results

3.1 Frequency Analysis of Data for 5 Variables - Research Questions

The following is an analysis of data in terms of frequency for 4 variables - survey questions with tables and a description of the results.

Table 3. The frequencies with respect to the question variable (1)

Variable (1)	**Frequency**	**Percent (%)**
Not at all	28	7,4
Slightly	126	33,2
Moderately	196	51,6
Very	25	6,6
Extremely	5	1,3
Missing Value	1	
Total	**381**	**100**

In variable-question (1): 'to what extent do you consider that teachers are sufficiently trained in the use of new technologies to meet the requirements of OTL?', of the 381 teachers who completed the questionnaire (Table 3), 28 (7.4%) answered "Not at all", 126 (33.2%)

answered "Slightly", 196 (51.6%) answered "Moderately", 25 (6.6%) answered "Very" and 5 (1.3%) answered "Extremely". Consequently, a fairly high percentage (84.8%) of teachers responded between "Slightly" and "Moderately". From the above data it can be concluded that the participating teachers are trained in the use of new technologies at a moderate level.

Table 4. The frequencies with respect to the question variable (2)

Variable (2)	**Frequency**	**Percent (%)**
Not at all	138	36,2
Slightly	163	42,8
Moderately	67	17,6
Very	11	2,9
Extremely	2	0,5
Total	**381**	**100**

In variable-question (2): 'to what extent do you think that face-to-face teaching can be replaced by OTL?', of the 381 teachers who completed the questionnaire (Table 4), 138 (36.2%) answered "Not at all", 163 (42.8%) answered "Slightly", 67 (17,6%) answered "Moderately", 11 (2.9%) answered "Very" and 2 (0.5%) answered "Extremely". Consequently, a high percentage (79%) of teachers negatively between the statements "Slightly" and " Not at all ". From the above data, it can be concluded that the participating teachers stated to a fairly high degree that face-to-face teaching cannot be replaced by OTL.

Table 5. The frequencies with respect to the question variable (3)

Variable (3)	**Frequency**	**Percent (%)**
Not at all	78	20,5
Slightly	185	48,8
Moderately	95	24,9
Very	20	5,2
Extremely	3	0,8
Missing Value	3	
Total	**381**	**100**

In variable-question (3): 'To what extent do you think that with OTL the interpersonal relationship between teacher and students is maintained in teaching?', of the 381 teachers who completed the questionnaire (Table 5), 78 (20.5%) answered "Not at all", 185 (48.8%) answered "Slightly", 95 (24.9%) answered "Moderately", 20 (5.2%) answered "Very" and 3 (0.8%) answered "Very much". Consequently, a high percentage (69.3%) of teachers responded between "Slightly" and " Not at all ". From the above data, it can be concluded that the participating teachers stated to a high degree that OTL does not maintain the interpersonal relationship between teacher and students in teaching.

Table 6. The frequencies with respect to the question variable (4)

Variable (4)	**Frequency**	**Percent (%)**
Not at all	101	26,6
Slightly	180	47,4
Moderately	80	21,1
Very	18	4,7
Extremely	1	0,3
Missing Value	1	
Total	**381**	**100**

In variable-question (4): "to what extent do you think that students in OTL feel "emotionally safe" to develop their emotions in teaching?" of the 381 teachers who completed the questionnaire (Table 6), 101 (26.6%) answered "Not at all", 180 (47.4%) answered "Slightly", 80 (21.1%) answered "Moderately", 18 (4.7%) answered "Very" and 1 (0.3%) answered "Extremely". Consequently, a high percentage (74%) of teachers responded between "Not at all" and " Slightly". From the above data, it can be concluded that the participating teachers stated to a fairly high degree that students in OTL do not feel "emotionally safe" to develop their emotions in teaching.

Table 7. The frequencies with respect to the question variable (5)

Variable (4)	**Frequency**	**Percent (%)**
Not at all	93	24,4
Slightly	183	48,0
Moderately	91	23,9

Very	13	3,4
Extremely	1	0,3
Total	**381**	**100**

In the variable - question (5): "to what extent do you consider that OTL creates conditions of "social security" for students in teaching?" from the 381 teachers who completed the questionnaire (Table 7), 93 (24.4%) answered "Not at all", 183 (48%) answered "Slightly", 91 (23.9%) answered "Moderately", 13 (3.4%) answered "Very" and 1 (0.3%) answered "Extremely". Consequently, a high percentage (72.4%) of teachers answered between "Not at all" and " Slightly". From the above data it can be concluded that the participating teachers state to a fairly high degree that OTL does not create conditions of "social security" for students in teaching.

3.2 Means and Standard Deviation of Variables

The table below (Table 8) presents the means and standard deviation of the variables, which is a measure of how much the values of the variable differ from their mean. In particular, a small deviation implies a high concentration of the values of the variable around the mean, while a large deviation implies a low concentration and a larger "spread".

A five - point Likert - type scale was used with the following options: 1= Not at all, 2= Slightly, 3= Moderately, 4= Very, 5= Extremely. Thus, the closer to 1 the average of a statement, the more negatively respondents rated it and the closer to 5 the more positively respondents rated it.

Table 8. Means and standard deviation of the 5 question variables

Question variables	**N**	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Question variable (1)	380	1,00	5,00	2,6132	0,77244
Question variable (2)	381	1,00	5,00	1,8871	0,83058
Question variable (3)	381	1,00	5,00	2,1732	0,84069
Question variable (4)	380	1,00	5,00	2,0474	0,83009
Question variable (5)	381	1,00	5,00	2,0709	0,82847

In the variable-question (1) (Table 8) the mean is 2.6132 (standard deviation 0.77244), i.e. it is below 3 and more specifically between 3 corresponding to the answer "Moderately " and 2 corresponding to the answer " Slightly". Therefore, the attitudes and opinions (or statements) of the respondents are approximately in the middle - neutral, i.e. neither positive nor negative. From the above data, it can be concluded that the participating teachers, on average, declare that they are neutral about their training in the use of new technologies.

In the variable - question (2) (Table 8) the mean is 1.8871 (standard deviation 0.83058), i.e. it is below 2 which corresponds to the answer "Slightly". Consequently, the attitudes and opinions of the respondents are negative. From the above data, it is concluded that the participating teachers state , on average, that face-to-face teaching cannot be replaced by OTL.

In the variable - question (3) (Table 8) the mean is 2.1732 (standard deviation 0.84069), i.e. it is slightly above the 2 corresponding to the answer "Slightly". Consequently, the attitudes and opinions of the respondents are negative. From the above data, it can be concluded that the participating teachers, on average, state that with OTL, the interpersonal relationship between teacher and students is not maintained in teaching.

In the variable - question (4) (Table 8) the mean is 2.0474 (standard deviation 0.83009), i.e. it is slightly above the 2 corresponding to the answer "Slightly". Consequently, the attitudes and opinions of the respondents are negative. From the above data, it can be concluded that the participating teachers, on average, state that students in OTL do not feel "emotionally safe" to develop their emotions in teaching.

In the variable - question (5) (Table 8) the mean is 2.0709 (standard deviation 0.82847), i.e. it is slightly above the 2 corresponding to the answer "Slightly". Consequently, the attitudes and opinions of the respondents are negative. From the above data, it can be concluded that the participating teachers, on average, state that OTL does not create conditions of "social security" for students in teaching.

4. Discussion

From the answers, as shown in frequency tables 3-7 and in table 8 - averages - to the above five questions, it is clear that the attitudes and opinions of Greek teachers are negative regarding the teaching potential of OTL as a teaching method/practice.

More specifically, in question (1) the attitudes and opinions of respondents are roughly in the middle - neutral, i.e. neither positive nor negative. Quite a high percentage (84.8%) of statements is found between the responses "Moderately" and "Slightly" (Tables 3 and 8). The data of question (1) is also in line with recent research where teachers point out their lack of training when using OTL during the pandemic period (Alea et al., 2020; Auma & Achieng, 2020; Giovannella et al., 2020; Hall et al., 2020; Kulan & Nayak, 2020; Sofos, 2021;Yang, 2020).

In question (2) a fairly high percentage (79%) of teachers answered between the statements

"Not at all" and "Slightly", i.e. their statements are negative (Tables 4 and 8). Similar answers have been given in related studies (Foti, 2020; Giovannella et al., 2020; Kanellopoulos et al., 2020; Lionarakis et al., 2020; Stahteas & Stahteas, 2020) where teachers state in high percentages that OTL cannot replace face-to-face teaching.

In question (3) a high percentage (69.3%) of teachers answered between the statements "Not at all" and "Slightly", i.e. their statements are negative (Tables 5 and 8). From this it can be deduced that the participating teachers state to a high degree that OTL does not maintain the interpersonal relationship between teacher and students in teaching Similarly, in question (4) a high percentage (74%) of teachers answered between the statements "Not at all" and "Slightly", i.e. their statements are negative (Tables 6 and 8). From this it can be deduced that the participating teachers state to a fairly high degree that students in OTL do not feel "emotionally safe" to develop their emotions in teaching. Furthermore, in a similar question (5) a high percentage (72.4%) of teachers answered between the statements "Not at all" and " Slightly" i.e. their statements are negative (Tables 7 and 8). From this it can be deduced that the participating teachers state to a fairly high degree that OTL does not create conditions of "social security" for students in teaching.

In line with the above three questions (3,4,5), similar studies in the literature (Alqurashi, 2019; Mishra et al, 2020; Unesco, 2021) that interpersonal teacher-student contact is not maintained since the sense of isolation from the teacher and 'peers' is cited as a key disadvantage because there is no physical contact between them, as well as the lack of meaningful communication, spontaneity and emotions between teacher and students (Foti, 2020; Niemi & Kousa, 2020). In addition, in other studies (Galusha, 1998; Lionarakis et al., 2020) teachers state that with the use of OTL, the personal contact between the teacher and the learner and the "social security" is lost, which is much easier to maintain and enhance with face-to-face, live communication in the conventional classroom. Furthermore, in similar research related to the psychosocial domain of teaching, it was found that when teaching is carried out exclusively through technology, the emotional factor for learning is overlooked and interpersonal relationships between all members of the educational community are weakened (Carretero Gomez et al., 2021; Cardullo et al. Moser et al., 2021; Mouzakis et al., 2021).

5. Conclusions

From the results of the survey and the testing of the research questions on the factors investigated, some useful conclusions are drawn, which are coded as follows:

i) Teachers' attitudes and opinions on whether they are sufficiently trained in the use of new technologies to meet the requirements of OTL are neutral, i.e. neither positive nor negative. These findings point to the need to move from the urgent utilization of OTL, where the emphasis was on technological infrastructure, to a utilization of OTL based on a pedagogical and teaching perspective. At the same time, there is an inherent risk of perceiving OTL as an ineffective option, because this extraordinary shift from face-to-face teaching to it makes it difficult to plan teaching and pedagogical design based on the principles and methodology

underlying DE in order to fully exploit the potential that it is able to offer (Anastasiadis et al., 2022; Hodges et al., 2021). The effective use of OTL requires teachers to be trained (Doghonadze et al., 2020; Foti, 2020; Hayashi et al., 2020; Kocoglu & Tekdal, 2020; Lapada et al., 2020; Vlachopoulos, 2020; Zhao et al., 2020): a) on the methods and main principles of DE, focusing on the learner-centred approach, exploration and discovery of knowledge b) on the pedagogical use of asynchronous DE environments, such as the design of specialised educational materials and c) on the cultivation of appropriate skills for the use of modern DE environments.

ii) A high percentage of teachers state that face-to-face teaching cannot be replaced by OTL. This data confirms the fact that face-to-face teaching is not replaceable since any teacher, any class of students for any hour of teaching is unique. The group dynamics are different no matter how many times the teaching is implemented even with the same students (Lionarakis et al., 2020). Therefore, face-to-face teaching is a complex and multifaceted phenomenon with constant demands and continuous evolution, it is unique and unrepeatable (Fykaris, 2015) and is distinguished by more direct communication, cultivates concentration of attention and improves sociability (Kyriakou et al., 2021). As an extension of this problematic, OTL is not feasible to replace face-to-face teaching, but it is suggested to be used only as an auxiliary method (Jelińska & Paradowski, 2021; Lionarakis et al. 2020). However, even in the latter case, the preparation for the pedagogical use of digital technology in order to conduct an online course in order to result in effective OTL, requires a variety of knowledge and skills on the part of the teacher (Lionarakis et al., 2020; Stahteas & Stahteas, 2020).

iii) Quite a high percentage of teachers state that OTL does not maintain the interpersonal relationship between teacher and students in teaching. Furthermore, a high percentage of teachers state that students in OTL do not feel "emotionally safe" (or develop their emotions), as well as Tele-education does not create conditions of "social safety" for students. These results attest to the fact that the use of OTL does not maintain the personal contact between the teacher and the student and thus "social security", whereas in face-to-face teaching they are more easily maintained (Galusha, 1998; Lionarakis et al, 2020). As an extension of this problematic, it is found that by conducting instruction exclusively through technology, emotional learning is not built and interpersonal relationships are limited (Carretero Gomez et al., 2021; Cardullo et al. Moser et al., 2021; Mouzakis et al., 2021).

6. Teaching suggestions "for the use" of the OTL

From the extracted data of the research it is possible to say that the teachers of the sample, through the opinions they state regarding the didactic use of OTL, in essence, highlight the structuring of basic teaching proposals, regarding the level and the type and characteristics of teaching applications that can be used in OTL processes, In particular, the following can be highlighted as indicated teaching proposals:

i) The instructional design (planning and organization) of OTL, because it presents difficulties in terms of decision making, due to the absence of relevant specialization in the

Official Curricula of formal education, it is necessary to ensure the cooperation of students in the implementation of teaching and the overcoming of difficulties in accessing information (Lenar et al, 2014, p.116). In this regard, and as it can be seen from the present study, in a high percentage, the participating teachers state that with OTL the interpersonal relationship between teacher and students in teaching is not maintained, students do not develop their emotions in teaching, as well as OTL does not create conditions of "social security" for students in teaching.

ii) For the effective didactic implementation of OTL it is necessary to use appropriate participatory educational techniques, such as group work with the use of appropriate digital tools for the distribution of students in virtual work groups, conceptual mapping, simulation (Armakolas et al., 2019). In this context, it is necessary to formulate the necessary teaching conditions that allow the active involvement of students in teaching and learning processes, for the critical processing of the information received, as well as the transformation of knowledge for its use in similar situations that require the resolution of issues of students' everyday life (Armakolas & Panagiotakopoulos, 2020).

iii) It is necessary for the teacher to use all the possibilities of digital applications during OTL, on the one hand, in order to be able to respond more effectively to the emerging conditions of teaching. On the other hand, to be able to change the design of teaching in accordance with the interests and needs of the students. This flexibility provided by digital applications helps to reduce the level of "transactional distance" between teacher and students (Kousaki, 2021, pp. 31-40). In this context, the teacher must create an educational context where a quality educational experience is offered to students. In this way, the interpersonal teacher-student relationship is strengthened during the teaching and learning process, students are encouraged to develop their emotions in teaching, and conditions of "social security" are created for students.

iii) It is necessary for the teacher to use all the possibilities of digital applications during OTL, on the one hand, in order to be able to respond more effectively to the emerging conditions of teaching. On the other hand, to be able to change the design of teaching in accordance with the interests and needs of the students. This flexibility provided by digital applications helps to reduce the level of "transactional distance" between teacher and students (Kousaki, 2021, pp. 31-40). In this context, the teacher must create an educational context where a quality educational experience is offered to students. In this way, the interpersonal teacher-student relationship is strengthened during the teaching and learning process, students are encouraged to develop their emotions in teaching, and conditions of "social security" are created for students.

iv) In line with the above, the teacher, during the utilization of OTL, it is necessary to emphasize two-way communication in order to reduce the gap of distance between the learner and the teacher (Garrison & Shale, 1987). More specifically, he/she should emphasize the development of the following four types of interaction (Garrison, 2000; Hillman et al., 1994; Mavroidis et al., 2014; Moore, 1989):

-the student-teacher interaction to ensure motivation and psychological support.

-the interaction between student and other classmates to achieve creative exchange of ideas through fruitful dialogue, which leads to knowledge building.

-the interaction between the learner and the learning content, provided that the learning content has those elements which provoke the active involvement and reflection of the learner on this learning content;

-the learner-user interaction with modern and asynchronous technological communication tools.

v) During OTL the teacher needs to take into account additional factors that can contribute to the creation of an attractive learning environment. More specifically, the teacher needs to plan each teaching "step" that he/she will implement and each activity that he/she will distribute to students during the teaching. Also, to plan the ways of utilizing modern and asynchronous forms of communication during the teaching, in order to achieve the teaching objectives of his/her teaching more effectively (Manousou et al., 2020).

vi) It is important for the teacher to emphasize, when using OTL, the selection of appropriate educational material, which is the main driver of the educational process in distance learning (Garrison, 2000; Giossos et al., 2009; Giossos, & Koutsouba, 2020; Lionarakis, 2001; Lionarakis et al., 2020). The educational material can vary. Therefore, it can be printed or have other forms with the assistance of Information and Communication Technologies (ICT), such as: audiovisual material, digital material, radio and television course broadcasts, digital text (Vasala, 2005; Giossos, & Koutsouba, 2020). It can also be based on the guided instructional discussion approach (Holmberg, 1983). This approach utilizes individual approaches, such as: planned learning, cybernetic teaching, conversation theory or cognitive theoretical approaches (Sofos & Kron, 2010). In particular, in guided instructional discussion, the learner is able to access a text more effectively in case it is formulated in an interactive format (Athanatou & Yfantopoulos, 2021; Mavroidis et al., 2014). In other words, based on guided instructional discussion, there is learner - content (instructional material) interaction in which students interact with the instructional material (Holmberg, 1983; Mavroidis et al., 2014).

7. As Epilogue

In conclusion, the priority of the teacher in the use of OTL should not be the "instrumental" or "wooden" technological transformation, but the pedagogically and didactically enshrined use of OTL from the perspective of each scientific field (Sofos, 2021, p. 50) that will focus on the student, will be based on the collaborative nature of those involved in the process, on interaction and on the construction of knowledge at a distance. In order to achieve this, it is deemed necessary to enrich teachers' knowledge and skills by opening new horizons of teaching and learning (Reich et al., 2020) with an emphasis on the pedagogical dimension of distance learning (Anastasiadis, 2020; Kounatidou, 2021; Lionarakis et al., 2020). Also, through the differentiation of teaching practices and methods utilized by teachers, it is possible to formulate a supportive learning environment (Masten & Motti - Stefanidi, 2020).

References

Abidah, A., Hidaayatullaah, H. N., Simamora, R. M., Fehabutar, D. & Mutakinati, L. (2020). The Impact of Covid-19 to Indonesian Education and Its Relation to the Philosophy of "Merdeka Belajar". *Studies in Philosophy of Science and Education*. 1(1), 38-49. https://doi.org/10.46627/sipose.v1i1.9

Alea, L. A., Fabrea, M. F., Roldan, R. D. A. & Farooqi, A. Z. (2020). Teachers' Covid-19 Awareness, Distance Learning Education Experiences and Perceptions towards Institutional Readiness and Challenges. *International Journal of Learning, Teaching and Educational Research*. 19(6), 127 - 144. https://doi.org/10.26803/ijlter.19.6.8

Alqurashi, E. (2019). Predicting student satisfaction and perceived learning within online learning environments. *Distance Education*. 40(1), 133-148. https://doi.org/10.1080/01587919.2018.1553562

Anastasiadis, P. (2020). The School Distance Education in the Covid-19 era: the example of Greece and the challenge of the transition to the "Open School of Exploratory Learning, Collaborative Creativity and Social Solidarity". *Open Education: the journal on Open and Distance Education and Educational Technology*. 16(2), 20-48. https://doi.org/10.12681/jode.25506

Anastasiadis, P., Kotsidis, K. & Synnefakis, Ch. (2022): The Contribution of the University of Crete E.D.I.B.E.A. in Teacher Education (March 2020 - March 2021). In A. Lionarakis (Ed.), *Proceedings of the 11th International Conference on Open & Distance Education* (vol. 2, part A, pp. 16 - 24). Athens: Hellenic Open University: Hellenic Network for Open & Distance Education.

Armakolas, S., & Panagiotakopoulos, Ch. (2020). Distance teaching through videoconferencing: the effects of technological factors. *Open Education: the journal of Open and Distance Education and Educational Technology*, 16(1), 22-43.

Armakolas, S., Panagiotakopoulos, C. & Fragoulis, I. (2019). The educational design of videoconferencing using and utilizing participatory-living techniques. In A. Lionarakis, E. Manousou, V. Ioakeimidou, M. Niari, A. Angelis, K. Sfakiotaki & V. Koutzeklidou (Eds.), *Proceedings of the 10th International Conference on Open and Distance Education. Shaping the Future of Education Together* (pp. 140-149). Athens: Hellenic Open University, Hellenic Network for Open & Distance Education.

Athanatou, M. & Yfantopoulos, N. (2021). Distance Education during the COVID-19 pandemic and the views of primary school teachers. In A. Sofos, A. Kostas, G. Fouzas & V. Paraschou (Eds.), *Proceedings of the 1st International Conference "From the 20th to the 21st century in 15 days: The abrupt transition of our educational reality to digital environments. Attitudes-Attitudes-Scenarios-Prospects-Prospects-Recommendations* (pp. 401-413). Hellenic Documentation Centre.

Auma, O., & Achieng, O. (2020). Perception of Teachers on Effectiveness of Online Learning in the wake of Covid-19 Pandemic. *Journal of Humanities and Social Science*, 25(6), 19-28.

https://doi.org/10.9790/0837-2506111928

Bates, T. (2020a). *What have we learned from Covid-19 about the limitations of online learning – and the implications for the fall?* [Blog post]. Retrieved on 15 November 2021, from URL: https://www.tonybates.ca/2020/07/04/what-have-we-learned-from-Covid-19-about-the-limitations-of-online-learning/

Bates, T. (2020b). *Advice to those about to teach online because of the corona-virus*. Retrieved on 15 November 2021, from URL: https://www.tonybates.ca/2020/03/09/advice-to-those-about-to-teach-online-because-of-the-corona-virus/

Beach, P., Minuk, A. & Favret, E. (2022). Teachers' self-directed online strategies and experiences: A longitudinal study. *Online Learning*, 26(4), 5-30. https://doi.org/10.3102/1881493

Bubb, S. & Jones, M. A., (2020). *Learning from the C*ovid-*19 home-schooling experience: Listening to pupils, parents/carers and teachers. Improving Schools*. 23(3), 209-222. https://doi.org/10.1177/1365480220958797

Cardullo, V., Wang, C.-H., Burton, M. & Dong, J. (2021). K-12 teachers' remote teaching self-efficacy during the pandemic. *Journal of Research in Innovative Teaching & Learning*, 2397-7604. https://doi.org/10.1108/JRIT-10-2020-0055

Carretero Gomez, S., Napierala, J., Bessios, A., Mägi, E., Pugacewicz, A., Ranieri, M., Triquet, K., Lombaerts, K., Robledo Bottcher, N., Montanari, M., & Gonzalez Vazquez, I. (2021). *What did we learn from schooling practices during the Covid-19 lockdown?* EUR 30559 EN. Publications Office of the European Union, Luxembourg. https://doi.org/10.2760/135208, JRC123654

Cedefop - Centre for the Development of Vocational Training (2020). *Digital gap during Covid-19 for VET learners at risk in Europe*. Retrieved on 15 November 2021:https://www.cedefop.europa.eu/en/toolkits/vet-toolkit-tackling-early-leaving/resources/digital-gap-during-Covid 19-vet-learners-risk-europe

Chan, R.Y., Bist, K., & Allen, R.M. (2021). *Online Teaching and Learning in Higher Education during Covid-19*, Routledge. https://doi.org/10.4324/9781003125921

Cohen, L., Manion, L., & Morrison, K. (2000). *Research Methods in Education* (5th ed.). Routledge Falmer, London.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed method approaches* (4th ed.). Thousand Oaks: CA, Sage.

Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology*. 49(1), 5-22. https://doi.org/10.1177/0047239520934018.

Doghonadze, N., Aliyev, A., Halawachy, H., Knodel, L. & Adedoyin, A. S. (2020). The

Degree of Readiness to Total Distance Learning in the Face of COVID-19 - Teachers' View (Case of Azerbaijan, Georgia, Iraq, Nigeria, UK and Ukraine). *Journal of Education in Black Sea Region*. 5(2), 2-41. https://doi.org/10.31578/jebs.v5i2.197

European Commission (2020). *Digital Education Action Plan 2021-2027. Rethinking education and training for the digital age*. Retrieved on 19 May 2021, from URL: https://eur-lex.europa.eu/legal-content/EL/TXT/?uri=COM:2020:624:FIN

Foti, P. (2020). Research in distance learning in Greek Kindergarten schools during the pandemic of COVID-19: Possibilities, dilemmas, limitations. *European Journal of Open Education and E-learning Studies*. 5(1), 19-40. https://doi.org/10.5281/zenodo.3839063

Friborg, O., & Rosenvinge, J. H. (2013). A comparison of open-ended and closed questions in the prediction of mental health. *Quality & Quantity*, 47(3), 1397-1411. Doi:10.1007/s11135-011-9597-8

Fykaris, I. (2015). *Themes of Pedagogical Science*. Thessaloniki: Despina Kyriakidis Publications.

Galusha, J. (1998). Barriers to Learning in Distance Education. *International Computing and Technology*. 5(3-4), 6-14.

Garrison, D.R., & Shale, D. (1987). Mapping the boundaries of distance education: Problems in defining the field. *The American Journal of Distance Education*, 1(1), 7-13. https://doi.org/10.1080/08923648709526567

Garrison, R. (2000). Theoretical challenges for distance education in the 21st century: A shift from structural to transactional issues. *International Review of Research in Open and Distance Learning*, 1(1), 1-17. https://doi.org/10.19173/irrodl.v1i1.2

Gaskell, G., Hohl, K. & Gerber, M. M. (2016). Do closed survey questions overestimate public perceptions of food risks? *Journal of Risk Research.* 20(8), 1038-1052. https://doi.org/10.1080/13669877.2016.1147492

Georgoulakou, I. & Kostas, A. (2022). Obstacles to the implementation of Distance Education during the pandemic - Views of special and general education teachers in high school. *Open Education: the journal for Open and Distance Education and Educational Technology*. 18(1), 129-150.

Giossos, I. & Koutsouba, M. (2020). The educational material in distance education. In E. Manousou, A. Chartophalika, I. Giossos, & M. Koutsouba (Eds.), *Thematic Module ETA52: The educational material and the design of teaching and learning* (pp. 1-22). Patras: Hellenic Open University.

Giossos, I., Koutsouba, M., & Mavroidis, H. (2009). Basic principles of designing educational materials in distance education: a general perspective. In M. G. Argyriou & P. G. Kampylis (eds.), *Teaching Material and its Contribution to Educational Practice: from Theory to Application in Music Education, Proceedings of the 3rd International Conference* (pp. 187-192). Athens: Greek Association of Primary Music Education Teachers.

Giovannella, C., Passarelli, M. & Persico, D. (2020). The effects of the Covid-19 pandemic on Italian learning ecosystems: The school teachers' perspective at the steady state. *Interaction Design and Architecture(s) Journal* 45: 264-286. Retrieved on 10/05/21 from URL: http://www.mifav.uniroma2.it/inevent/events/idea2010/doc/45_12.pdf

Hall, T., Connolly, C., Ó Grádaigh, S., Burden, K., Kearney, M., Schuck, S., Hustinx, W., Evens, M., Koenraad, T., Makridou, E. & Kosmas, P. (2020). Education in precarious times: A comparative study across six countries to identify design priorities for mobile learning in a pandemic. *Information and Learning Sciences*. 121 (5-6), 433-442. https://doi.org/10.1108/ILS-04-2020-0089

Hayashi, A., Chen, C., Ryan, T., & Wu, J. (2020). The role of social presence and moderating role of computer self efficacy in predicting the continuance usage of e-learning systems. *Journal of Information Systems Education*. 15(2), 5.

Hillman, D.C., Willis, D.J., & Gunawardena, C.N. (1994). Learner interface interaction in distance education: An extension of contemporary models and strategies for practitioners. *The American Journal of Distance Education*, 8(2), 30-42. https://doi.org/10.1080/08923649409526853

Hodges, C. B., Moore, S., Lockee, B. B., Bond, M. A. & Jewett, A. (2021). An instructional design process for Emergency Remote Teaching. In D. Burgos, A. Tlili, A. Tabacco (Eds.), *Radical solutions for education in a crisis context. Lecture notes in educational technology.* Singapore: Springer. https://doi.org/10.1007/978-981-15-7869-4_3

Holmberg, B. (1983). Guided didactic conversion in distance education. In D. Seward, D. Keegan, & B. Holmberg, (eds.), *Distance education: International Perspectives* (pp. 114–122). London: Routledge. https://doi.org/10.1201/9781003033950-10

Jain,S., Lall, M. & Singh, A. (2020). Teachers' Voices on the Impact of COVID-19 on School Education: Are Ed Tech Companies Really the Panacea? *Contemporary Education Dialogue*. 18(1), 58-89. https://doi.org/10.1177/0973184920976433

Jelińska, M., & Paradowski, M. B. (2021). Teachers' engagement in and coping with emergency remote instruction during C*ovid*-19-induced school closures: A multinational contextual perspective. *Online Learning Journal*. 25(1), 303-328. https://doi.org/10.24059/olj.v25i1.2492

Kanellopoulos, A., Koutsouba, M., & Giossos, I. (2020). Audiovisual Learning and Videoconferencing in Distance Education. *Open Education: the journal for Open and Distance Education and Educational Technology*. 16(1). 44-63. https://doi.org/10.12681/jode.22976

Karalis, T. (2020). Planning and evaluation during educational disruption: Lessons learned from C*ovid*- 19 pandemic for treatment of emergencies in education. *European Journal of Education Studies*. 7(4), 125-142. https://doi.org/10.5281/zenodo.378902

Kocoglu, E., & Tekdal, D. (2020). Analysis of distance education activities conducted during

Covid-19 pandemic. *Academic journal.* 15(9), 536-543. https://doi.org/10.5897/ERR2020.4033

Kounatidou, Θ., Mavroidis, H. & Marouki, P. (2022). The school distance education in the era of Covid -19: The role of the pedagogical dimension of the distance education in the construction of an "Open School". Case study in 12th grade students in Thessaloniki. In A. Lionarakis (Ed.), *Proceedings of the 11th International Conference in Open & Distance Education (ICODL 2021) entitled: "Open and Distance Education in the Era of Pandemic: Experiences, Challenges and Perspectives"* (Vol. 4, Part A, pp. 151 - 166). Athens: Hellenic Open University, Hellenic Network for Open & Distance Education. https://doi.org/10.12681/icodl.3465

Kousaki, Z. (2021). *Educational strategies for online teaching in the midst of a pandemic (COVID19) in primary education - A case study of the Municipality of Thermi. Master's Thesis. School of Humanities*. Master's Degree Programme: Adult Education. Hellenic Open University, Patras.

Kulan, A. & Nayak, A. (2020). A study on perception of teachers and students toward online classes in Dakshina Kannada and Udupi District. *Asian Association of Open Universities Journal*. 15(3), 285-296. https://doi.org/10.1108/AAOUJ-07-2020-0047

Kyriakou, K., Stephanidou, K., Mandrikas, A., Stavrou, I. & Skordoulis, K. (2021). Distance teaching of science during the COVID -19 pandemic: capturing the satisfaction level of first grade students. *Pedagogical Review*. 38, 31-49.

Lapada, A., Fabrea, M., Roldan, R. & Farooqi, A. (2020). Teacher's Covid-19 Awareness, Distance Learning Educational Experiences and Perceptions toward Institutional Readiness and Challenges. *International Journal of Learning*, 19(6), 127-144. https://doi.org/10.26803/ijlter.19.6.8

Lenar, S., Artur, F., Ullubi, S. & Nailya, B. (2014). Problems and Decision In The Field of Distance Education. *Procedia – Social and Behavioral Sciences*, 131, 111-117. https://doi.org/10.1016/j.sbspro.2014.04.088

Lionarakis, A. (2001). Open and distance multimodal education: reflections on a didactic approach to designing teaching materials. In A. Lionarakis (eds), *Views and Reflections on Open and Distance Education* (pp. 33-52). Athens: Propobos.

Lionarakis, A., Manousou, E., Hartofilika, T., Papadimitriou, S. & Ioakeimidou, B. (2020). Editorial. Declaration on Open and Distance Education. *Open Education: the journal for Open and Distance Education and Educational Technology*. 16(1), 4-8. https://doi.org/10.12681/jode.23741.

Manousou E., Hartophalika T., Ioakeimidou V., Papadimitriou S. & Karagianni E. (2020). *Instructional design of courses in distance school education*. Massive Open Online Course (MOOC): training of Primary & Secondary Education teachers in distance education. [E-book]. Hellenic Open University, Institute of Educational Policy. Available upon registration at: https://learn.eap.gr/mod/url/view.php?id=9151

Masten, A. S., & Motti-Stefanidi, F. (2020). Multisystem Resilience for Children and Youth in Disaster: Reflections in the Context of C*ovid*-19. *Adversity and Resilience Science 1*: 95-106. https://doi.org/10.1007/s42844-020-00010-w

Mavroidis, H., Giossos, I. & Koutsouba, M. (2014). Overview of theoretical concepts in distance education. *Open Education: the Journal of Open and Distance Education and Educational Technology*, 10(1), 88-100. http://dx.doi.org/10.12681/jode.9814

Mishra, L., Gupta, T. & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of C*ovid*-19 pandemic. *International Journal of Educational Research Open*, 1, 100012. https://doi.org/10.1016/j.ijedro.2020.100012

Moore, M. G. (1989). Three types of interaction. *The American Journal of Distance Education*, 3(2), 1-6. https://doi.org/10.1080/08923648909526659

Moser, K., Wei, T. & Brenner, D. (2021). Remote teaching during C*ovid*-19: Implications from a national survey of language educators. *System*. 97, 102-131. https://doi.org/10.1016/j.system.2020.102431

Mouzakis, Ch., Koutromanos, G. & Tsoli, K. (2021). Emergency Distance Teaching during the Pandemic: Teachers' Beliefs and Experiences. In Th. Bratitsis (ed.), *Proceedings of the 12th Panhellenic and International Conference "ICT in Education"* (pp. 108-115). University of Western Macedonia, Florina, 14-16 May 2021.

Niemi, H. & Kousa, P. (2020). A case study of students' and teachers' perceptions in a Finnish high school during the C*ovid* pandemic. *International Journal of Technology in Education and Science (IJTES)*. 4 (4), 352-369. https://doi.org/10.46328/ijtes.v4i4.167

Padilla Rodríguez, B., Armellini, A. & Traxler, J. (2021). The forgotten ones: How rural teachers in Mexico are facing the C*ovid*-19 pandemic. *Online Learning*. 25(1), 253-268. https://doi.org/10.24059/olj.v25i1.2453

Reich, J., Buttimer, C. J., Fang, A., Hillaire, G., Hirsch, K., Larke, L. & Slama, R. (2020). *Remote Learning Guidance from State Education Agencies during the Covid-19 Pandemic: A First Look*. Retrieved on 15 November 2021, from URL: http://eduteka.icesi.edu.co/articulos/1038/1

Reimers, F., Schleicher, A., Saavedra, J., &Tuominen, S. (2020). Supporting the continuation of teaching and learning during the C*ovid*-19 Pandemic. Annotated resources for online learning. OECD, Retrieved on 15 November 2021, from URL: https://www.oecd.org/education/Supporting-the-continuation-of teaching-and-learning-during-the-C*ovid*-19-pandemic.pdf

Robson, C. & McCartan, K. (2015). *Real World Research* (4th Ed.). Wiley.

Schleicher, A. & F. Reimers (2020). *Schooling Disrupted, Schooling Rethought: How the COVID-19 Pandemic is Changing Education*, OECD, Retrieved on 15 November 2021, from URL: https://read.oecd-ilibrary.org/view/?ref=133_133390-1rtuknc0hi&title=Schooling-disruptedsc

hooling-rethought-How-the-Covid-19-pandemic-is-changing-education

Sofos, A., & Kron, F. (2010). *Effective Teaching with the Use of Media. From primary and face-to-face to quaternary and digital media*. Athens: Grigoris.

Sofos, A. (2021). Education under exceptional circumstances or distance schooling? Reflections and issues for the educator and perspectives for the future. In A. Sofos, A. Kostas, G. Fouzas & V. Paraschou (Eds.), *Proceedings of the 1st International Conference "From the 20th to the 21st century in 15 days: The abrupt transition of our educational reality to digital environments. Attitudes-Attitudes-Scenarios-Prospects-Recommendations* (pp. 38-50). Electronic version. Retrieved on 15 November 2021, from URL: https://eproceedings.epublishing.ekt.gr/index.php/online-edu/issue/view/132

Stahteas, H. & Stahteas, F. (2020). Tracing Teachers' Views on Teacher's Views on Distance Learning at the Beginning of the Pandemic. *Education Sciences*, (2), 173-194.

Unesco (2021). *UNESCO figures show two thirds of an academic year lost on average worldwide due to Covid-19 school closures*. Retrieved on 21/10/21 from URL: https://en.unesco.org/news/unesco-figures-show-two-thirds-academic-year-lost average-worldwide-due-Covid-19-school

Vasala, P. (2005). Distance education. In P. Vasala, I. Giossos, M. Koutsouba , A. Lionarakis, M. Xenos, & Ch. Panagiotakopoulos (Eds.), *Open and distance education. Pedagogical and Technological Applications* (pp. 53-80). Patras: Hellenic Open University.

Vlachopoulos, D. (2020). COVID-19: Threat or opportunity for online education? *Higher Learning Research Communication* 10(1), 16-19. https://doi.org/10.18870/hlrc.v10i1.117.

Winthrop, R. (2020). *How has the coronavirus impacted the classroom? On the frontlines with Dr. Jin Chi of Beijing Normal University. Center for Universal Education Senior Fellow -Global Economy and Development*. Retrieved on 19/05/ 2021 from URL: https://www.brookings.edu/blog/education-plus-development/2020/02/27/how-has-the-coronavirus-impacted-the-classroom-on-the-frontlines-with-dr-jin-chi-of-beijing-normal-university/

Yang X. (2020). Teachers' Perceptions of Large-Scale Online Teaching as an Epidemic Prevention and Control Strategy in China. *ECNU Review of Education*. 3(4), 659–677. https://doi.org/10.1177/2096531120922244

Zhao, N., Zhou, X., Liu, B. & Liu, W. (2020). Guiding Teaching Strategies with the Education Platform during the C*ovid*-19 Epidemic: Taking Guiyang No. 1 Middle School Teaching Practice as an Example. *Science Insights Education Frontiers*. 5(2), 531-539. https://doi.org/10.15354/sief.20.rp005