

# Monitoring and Evaluating a Distance Education Plan: A Case Study at a School in Portugal in Pandemic Context

## Part II of the Research

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### ABSTRACT

Following the publication of the article entitled “Designing and implementing a distance education plan: a case study at a school in Portugal in pandemic context”, this paper presents the second part of the research called “Monitoring and evaluating a distance education plan: a case study at a school in Portugal in pandemic context”. In general, this research allows to present the process of monitoring and evaluating the implementation of the Distance Education Plan (E@D) in an educational institution in Portugal. This process, lasting four months - from April to July 2020 -, required a deep knowledge of the educational practices implemented during this period. In addition to this aspect, it seems important to highlight the importance of the design of the E@D, especially with regard to the quantity and quality indicators that were vital to the process of monitoring and evaluating e-learning at school. It is important to mention that the case study methodology was adopted for this research. Based on the results obtained from the monitoring and evaluation process of the online teaching-learning process (e-learning) from the indicators - quantity and quality - a set of suggestions for improvement is presented in the three dimensions come from the theoretical framework Technological, Pedagogical and Content Knowledge (TPACK): technology, pedagogy and content. In addition to this aspect, this process required availability and collaboration by all the school's stakeholders (students, teachers and guardians) whose contribution was vital to the adjustments of the E@D and consequent improvement in the quality of the educational process.

**Keywords:** distance education plan, evaluating, pandemic Covid-19, monitoring, technological, pedagogical and content knowledge

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## 1 Introduction

With the confinement of many countries due to the Covid-19 pandemic, thousands of educational institutions (schools, polytechnics, universities, ...) around the world have closed and as a result millions of students have been without classroom lessons in schools. It is true that many of the schools managed to maintain their activity through e-learning, however for others it was not so linear due to difficulties in accessing the internet and computer equipment. Obviously, in addition to these obstacles, the lack of digital skills for both students and teachers also contributed to the initial difficulties in the teaching-learning process in e-learning.

While this process is something that is built with (and among) the stakeholders in the school but especially with students and teachers, it is clear that learning is always mutual in this kind of environments. This learning seems to occur at three levels - *technological, pedagogical and content* - because teaching using technology requires an understanding of the relationships of mutual reinforcement between technology, pedagogy and content. Thus, both students and teachers must understand the complex way in which these three domains, and the contexts in which they are formed, coexist and influence each other (Sampaio & Coutinho, 2013). These three dimensions refer us to the Technological, Pedagogical and Content Knowledge (TPACK) model, one of the most important theoretical references for research on the integration of technology in teaching worldwide (Koehler & Mishra, 2009; Voogt et al., 2013; Wu, 2013). Since TPACK is the theoretical framework of this research, it is important to present its concept in general. Basically, TPACK consists of: “(i) the appropriate use of technology; (ii) in a given curricular area; (iii) integrated into a specific pedagogical strategy; (iv) in a given educational context; (v) to develop students' knowledge about a certain topic or achieve a previously identified educational objective” (Cox, 2008, p. 65). Thus, “the basis of this theoretical framework is the understanding that teaching is an extremely complex activity that uses different types of knowledge” (Mishra & Koehler, 2006, p. 1020).

It is based on this assumption mentioned by Mishra & Koehler (2006) - *that teaching uses different types of knowledge* - that the E@D was carried out and presented in Part I of the research “Designing and implementing a distance education plan: a case study at a school in Portugal in pandemic context”. So, to understand how the teaching-learning process in e-learning worked and with a view to suggesting and implementing quality improvements it seemed it is important for us to develop research that would allow us to present the results of the monitoring and evaluation process of the E@D Plan. It should also be noted that this process is provided for by the competent Portuguese entities (Directorate-General for Education) in the Roadmap “8 Guiding Principles for the Implementation of Distance Learning (E@D) in Schools” (DGE, 2020). In general, this roadmap assumes the need for the process of monitoring and evaluating e-learning and presents the two ways of doing it (DGE, 2020):

- Creation of a team responsible for this work (maximum 3 people), with regular consultation with students;
- Definition of quality and quantity indicators, as well as collection frequency.

A work team consisting of three people was then created (as recommended by DGE), namely, the Information Communication Technologies/E-Learning Coordinator, the Pedagogical Coordinator and the School Director. In general, this team was responsible for the process of designing and implementing the E@D Plan (Part I of the research) and for monitoring and evaluating the respective process (Part II of the research).

It is important to note that, as indicators of quality, the following were adopted: (1) Monitoring the degree of satisfaction of teachers, students and parents (guardians); (2) The quality of the feedback given to students, aiming at monitoring learning.

As for quantity indicators, the following were chosen: (1) Rate of completion of tasks proposed by teachers; (2) Number of tasks sent by teachers, depending on the work plan developed; (3) Availability of technological means of E@D; (4) Support for the

development of digital skills for teachers and students; (5) Development of support mechanisms, aimed at students without a computer and internet connection at home.

It should be noted that these indicators were suggested by DGE in the Roadmap, so we consider it important to use everyone to draw all the lessons from monitoring and evaluating the teaching-learning process in e-learning. These indicators are also a way of delimiting the research and clarifying its course. Subsequently, for the purpose of organizing the results, these indicators are grouped into the three dimensions derived from the TPACK model: technology, pedagogy and content.

The Methodology/Approach adopted for the development of this research is presented below.

## 2 Methodology

This research is supported by a case study, namely in a vocational school in Portugal. With this research we intend to demonstrate the process of monitoring and evaluating the E@D Plan designed and implemented during confinement time due to covid-19. In this investigation, quantitative and qualitative research techniques are used, with the aim of looking at both as complementary and not as opposites, because while the quantitative method aims, above all, to “explain and predict a phenomenon by measuring the variables and through the analysis of numerical data, qualitative research aims at a broader understanding of phenomena” (Fortin et al., 2009, p. 27). So this process - *monitoring and evaluating the E@D Plan* - was categorized into two parts that correspond to the types of this investigation – *quantity and quality*:

- *Quantity Indicators*

- [1] Rate of completion of tasks proposed by teachers;
- [2] Number of tasks sent by teachers, depending on the work plan developed;
- [3] Availability of technological means of E@D;
- [4] Support for the development of digital skills for teachers and students;
- [5] Development of support mechanisms, aimed at students without a computer and internet connection at home.

- *Quality Indicators*

- [1] Monitoring the degree of satisfaction of teachers, students and parents (guardians);
- [2] The quality of the feedback given to students, aiming at monitoring learning.

For a better organization of the information and presentation of the results, in the analysis of the data all these indicators were grouped in three great categories/dimensions - *technology, pedagogy and content* - derived from the TPACK model.

This set of indicators is evaluated using two data collection instruments: The questionnaire survey and participant observation (recorded in the investigator's diary).

Three surveys were created - *students, teachers and parents (guardians)* - which were applied in two phases.

- The first survey was sent to school stakeholders (teachers, students and parents) in May, that is, in the middle of the third period of classes. It should be noted that this survey aimed to monitor the teaching-learning process in e-learning in order to improve the quality of teaching in its various dimensions (technology, pedagogy and content).
- The second survey was sent in the last week of the third period of classes. This survey had as main objective to evaluate the teaching-learning process in e-learning mode so that in the

next school year, if necessary, the architecture of the distance learning plan will be closer to reality for all school participants. Evaluating means learning to improve the quality of education in all its dimensions.

The students survey had the following structure (students and teachers)

- Section 1 (Technological dimension) - includes seven issues related to the mastery of technologies by the stakeholders, the technical problems and the quality of the synchronous and asynchronous tools used in the course of e-learning.
- Section 2 (Pedagogical dimension) - consisting of nine questions that talk about involvement, collaboration/cooperation, online socialization, quality of the teaching-learning process, the adequacy of the weekly timetable and feedback from students/teachers.
- Section 3 (Content dimension) - composed of six questions related to the quantity and quality of educational content and the activities and tasks proposed.

It should be noted that the three sections of the questionnaire surveys (students and teachers) emerged from the TPACK framework - the theoretical model of the present research.

The survey - *students and teachers* - is identical to contrast the results of both. In general, the results of one validate the results obtained in the other, providing greater reliability.

In order to have uniformity for the respondents, the Likert scale, from five levels - *between very insufficient to very good* - was used in all questions/answer options. It should also be noted that in each section of the survey a control question was inserted to make the results more reliable and closer to reality.

The survey sent to parents was much simpler and shorter - as they were not present in class. In any case, the e-learning monitoring and evaluation team sought to learn from parents (guardians) the following aspects:

- The learning of your children (students) in e-learning mode.
- The weekly class schedule.
- The time of your children (students) in front of the computer.
- The use of technologies and access to equipment.
- The availability of teachers/class directors for meetings.
- Availability of other school services.

It should also be noted that two socioeconomic variables were considered, namely, gender and age group. These variables were useful to carry out the general characterization of the sample and to determine if there are differences with statistical significance for all sections / components of the questionnaires sent to the three stakeholders.

The participant observation also with the questionnaire survey was necessary to measure the indicators of qualitative character. All data from participant observation (investigator's diary) and questionnaire surveys submitted to students, teachers and parents (guardians) were properly analyzed in *Microsoft Excel* through a careful and rigorous analysis.

Below is the general characterization, by gender, of students and teachers at the school - our case study.

Table 1.

*General characterization of school students*

| Number | Percentage | Genre  |
|--------|------------|--------|
| 97     | 85,82%     | Female |
| 16     | 14,33%     | Male   |
| 113    | 100%       | -----  |

It should be noted that, based on the results obtained (Table 1), the percentage of female individuals is very high when compared to the male gender.

Table 2.

*General characterization of school teachers*

| Number | Percentage | Genre  |
|--------|------------|--------|
| 18     | 85,71%     | Female |
| 3      | 14,28%     | Male   |
| 21     | 100%       | -----  |

As in the previous table the same situation can be seen in the group of teachers (Table 2). These results may have to do with the fact that the courses offered by this school - *health and social sectors* - are more conducive to the participation/attendance of female individuals.

Table 3.

*General characterization of parents (guardian)*

| Number | Percentage | Genre  |
|--------|------------|--------|
| 48     | 85,71%     | Female |
| 8      | 14,28%     | Male   |
| 56     | 100%       | -----  |

Based on the results obtained, we presented in the next section the process of monitoring and evaluating the E@D Plan in the school.

### 3 Process of monitoring and evaluating in the school

The monitoring of the students was carried out by the e-Learning Monitoring Team, in conjunction with the Course Coordinators and Class Directors. The monitoring of the teachers was carried out by the same team, with the assistance of the Course Coordinators and Class Directors. Other elements that were useful for this task were the teacher attendance document and the summarized classes in the school management system (online platform).

#### 3.1 Quality Indicators

The quality indicators will allow us, on the one hand, to understand the degree of satisfaction of the stakeholders in the teaching-learning process in relation to e-learning and, on the other hand, to determine the quality of feedback from teachers given to students. It is important to mention that the degree of satisfaction is presented in the three perspectives: students, teachers and parents (guardians) given the importance of everyone in the educational process.

### 3.1.1 Degree of Satisfaction of Teachers, Students and Parents (Guardians)

- *Teachers*

According to the results obtained in the questionnaire survey, it appears that in general (in practically all its dimensions) the teachers considered themselves quite satisfied with the learning through e-learning.

- At the *technological level* teachers assume the technologies have enabled good communication between the various educational actors and the other services of the school. They also highlight the mastery of technological tools adopted at school, however it is important to mention that all teachers had several training sessions on the use of these technologies in their classes due to the weaknesses initially detected. Regarding the Educational Resource Center - *a place for sharing (uploading and downloading) files* -, teachers assume that it has contributed to a better organization of educational documents. They also consider that the tools adopted by the school were adequate to the process of communication and collaboration with educational agents. Finally, most teachers highlight the ability to solve the technical problems that they had during classes and meetings.
- At the *pedagogical level*, although the teachers recognize the need for improvement, they consider that their approach in synchronous sessions (*Microsoft Teams*) favored their students' learning. In addition to this aspect, they highlight the involvement and collaboration between all students, but are divided in relation to socialization between them. Regarding the weekly calendar, teachers consider that it did not favor student learning. They also admit that students were available to participate in classes, however they recognize the need for students to have more personalized accompaniment. They highlight the importance of having obtained feedback from the students regarding the way they taught the classes. Finally and also very important, they assume that e-learning classes require more commitment and organization on their part. This means that teachers are aware that e-learning cannot be just a transposition of classroom teaching to online. There must be a change in practices at different levels of knowledge and performance. It is essential that it be so.
- At the *level of content*, teachers recognize that sometimes the content of classes could be better suited to e-learning, however they advocate that they tried to do the best possible. Also the quality, in digital format, could be improved for a better perception and understanding of the students. In addition to these aspects, teachers consider that most students did not complete the proposed tasks within the established deadlines. This question has to do with the excess of work and tasks proposed by the teachers. In fact, this is not only confirmed by the participant observation and the results obtained in the survey sent to students, but also by the survey sent to teachers where they clearly admit that the amount/workload was relatively high for students. This topic will also be addressed in the quantity indicator in point 3.2.1 (Rate of completion of tasks proposed by teachers and number of tasks sent by teachers, depending on the work plan developed). Finally, it is important to mention that despite the difficulties and obstacles to learning supported by technologies, teachers consider that students were able to obtain knowledge in the content taught.



- *Students*

Like their teachers, students also believe that the online teaching-learning process (in e-learning mode) was adequate.

- At the *technological level*, the dominance of the technologies adopted stands out, namely the tools in *Office 365* (*Microsoft Outlook* (E-mail), *Teams* (videoconference classes), *SharePoint* (File sharing between peers) and *WhatsApp* (exchange messages and calls). In addition to this aspect, the fact that most of the students (85%) have managed to solve in a timely manner the technical problems they encountered during e-learning classes. it was also attested - *participant observation* - by the researcher who was also present in many of the classes taught.
- At the *pedagogical level*, although students considered that there was online participation, involvement, collaboration/cooperation and socialization between their colleagues and teachers, they assume that the weekly class schedule was not the most appropriate for learning. They therefore recognize improvements in the distribution of classes per week.
- Regarding the *content level*, although they assume that they understood the activities, exercises and tasks proposed by the teachers, they emphasize that the amount of work was quite high considering the number of subjects they had.

Still with regard to students, it is also worth mentioning that students had the notion that e-learning requires more commitment and autonomy on their part in terms of activities and tasks proposed by teachers. This highlights the importance of responsibility and teamwork (distance) between group colleagues in the development of activities.

Finally, as previously mentioned in the methodology section, the results obtained in the survey sent to students seem to corroborate and agree with those of teachers. This means that there is a balance and agreement with the way the teaching-learning process took place in e-learning mode.

- *Parents (Guardians)*

According to the results obtained for this indicator, in general the parents (guardians) were quite satisfied with the way the e-learning period went. As positive aspects, they highlight their children's motivation for learning mediated/supported by technologies and, consequently, the acquisition of new digital competences important for the job market. In addition to this, they emphasize the school's initiative in providing computer equipment for the most needy students and the availability of the e-learning team and technical support for all the school's stakeholders. The availability of teachers/class directors for online meetings with parents (guardians) and other school services are also positive aspects that they identify.

As negative aspects, they highlight the weekly class schedule because - many daily classes - and with that a lot of time in front of the computer. We recognize that it is a problem but that it does not seem to be easy to get around since the students have to attend in person or online a certain set of course hours, under penalty of not being able to take the subjects. However, it seems to us that the number of synchronous hours can be reduced, giving way to autonomous work, research and the development of collaborative activities (among peers).

Finally, it is important to remember that the parents (guardians) were very cautious with the fact that the school works completely online immediately after its closure (confinement due to covid-19), enabling the continuity of the teaching-learning process.

### *3.1.2 The Quality of the Feedback Given to Students, Aiming at Monitoring Learning*

With regard to feedback on learning, the students highlighted the fact that they always obtained fee feedback from the teachers in view of their performance, in view of their activities, projects and tasks and in view of their performance in classes, however they recognize that there was a lack of personalized/individual support. In fact, this is an aspect that can also be attested by the researcher, however it seems to be justified by the teachers' lack of time and not by a possible lack of interest. As it is public knowledge, the lack of teachers' time is associated with the conditions inherent to the teaching career in Portugal due to the “multiple relationships and interactions (students, parents, educational authorities and community institutions) and the contours it has been assuming in the different education reforms, acquiring, in this way, an increasingly complex set of roles and functions” (CNE, 2016 p. 3). Obviously, if in face-to-face education these problems already exist then in e-learning they naturally tend to worsen as there is a lack of training for teachers to teach online.

## **3.2 Quantity Indicators**

Quantity indicators are essential to be able to monitor and evaluate the teaching-learning process in e-learning. In general, we seek to determine the rate of completion of tasks by students as well as the number of tasks proposed by teachers, the availability of technological means of E@D, support for the development of digital skills and the development of support mechanisms for students most needy.

### *3.2.1 Rate of Completion of Tasks Proposed by Teachers and Number of Tasks Sent by Teachers, depending on the Work Plan Developed*

As previously mentioned in the methodology section, teachers consider that most students did not complete the proposed tasks within the established deadlines. This question has to do with the excess of work and tasks proposed by the teachers of the various subjects to their students. In fact, this is not only confirmed by the participant observation and the results obtained in the survey sent to students, but also by the survey sent to teachers where they clearly admit that the amount/workload was relatively high for students. This leads us to the question of the importance of interdisciplinarity in e-learning. It is important for teachers to gather and clearly define activities/tasks that can be developed and evaluated in more than one discipline. Only in this way it seems possible that students will be able to finish their activities within the established deadlines and probably with more quality.

The students also considered that there was an overload of the number of activities during the e-learning period. The activities should have a longer time for their development because, due to issues related to the lack of availability, they were unable to complete the educational tasks as well as they would like. Perhaps the number of tasks per subject had not been much, but all of them together resulted in a high workload for students. Again, as previously mentioned, this question leads to the need for teachers to proceed with interdisciplinarity.



In addition to reducing the number of activities proposed by teachers and interdisciplinarity, it is suggested that work in e-learning be developed in groups (homogeneous or heterogeneous according to the type of activities to be developed). The assertive, equitable and clear distribution of tasks among the members of a group tends to substantially decrease individual work and encourages debate, the discussion of ideas, sharing, involvement and socialization and collaboration among peers. It is important to emphasize that the development of group activities requires greater participation and availability of teachers to clarify doubts.

### 3.2.2 Availability of Technological Means of E@D

Regarding the availability of technological means of E@D, the school adopted a set of digital tools for communication, interaction and collaboration between the actors in the educational process. Thus, in addition to the *School Management Platform* that allowed to manage the entire administrative-pedagogical process, three technological tools from the *Office 365* package were adopted, namely *Microsoft Teams*, *Outlook* and *SharePoint*. For more direct contact between the stakeholders, *WhatsApp* was adopted.

- *Microsoft Teams*: is a synchronous tool from *Office365* that allows the creation of virtual rooms for real-time communication, through videoconferencing, but also asynchronous as we have to use chat.
- *Microsoft Outlook*: institutional e-mail was the formal means of internal communication between the entire educational community. It was used to clarify doubts to students, send/receive documents or information among the other services and bodies of the school and provide/receive technical support in other technological tools. The email allowed access to all *Microsoft Office 365* tools.
- *Microsoft SharePoint*: was the cloud storage service that allowed the upload and download of documents between those involved in the teaching-learning process. *SharePoint (Educational Resources Center)* was organized by course, subjects and each member (student and teacher) had only access to its contents, having no privilege to access contents from other subjects.
- *WhatsApp*: was the tool used for “quick responses” among the stakeholders, namely, to clarify specific doubts, feedback between peers and technical support.

In addition to these *Office 365* tools, both teachers and students could use other tools available in this package (*Office 365*) as long as they meet the content taught and the practical tasks requested by the teachers. Examples of these tools are *Microsoft Word*, *Excel*, *PowerPoint*, *OneNote*, *ClassNotebook*, *Sway*, *Forms* and many others.

Finally, it should be noted that these technological means were always fully available during the period in which e-learning took place.

### 3.2.3 Support for the Development of Digital Skills for Teachers and Students

The information circuit was essential for the school, namely all online processes to function fully and with organization. Thus, in order to manage all information and tasks, an e-learning monitoring and evaluation team was created with the respective functions:

- Design, implement and execute the E@D Plan;
- Coordinate and supervise the planning, execution and evaluation of training;

- Coordinate the pedagogical issues inherent and arising from the educational process;
- Promote the updating of all support materials for the completion of classes;
- Evaluate and monitor the teaching-learning process, as well as the students' performance results;
- Guarantee and encourage the participation of teachers, ensuring work that is productive and motivating;
- Promote innovative teaching practices and encourage the use of educational technologies;
- Find out if the pedagogical conduct of teachers has benefited the learning process;
- Management of the information circuit on other platforms;
- Training teachers, staff and students in other digital tools;
- Preparation and organization of documents and supports for e-learning;
- Technical monitoring of classes and stakeholders in the teaching-learning process;
- Management and updating of the e-learning platform;
- Monitoring and evaluation of the process.

These functions clearly demonstrate everything that was done during the e-learning period. One of the concerns was the need to provide training on the technological tools adopted (by the school) to all stakeholders (students, teachers, employees and in some cases to parents). Several training sessions were held in order to explain the operation of the technologies but also as a way for the stakeholders to clarify their doubts, desires and difficulties. Certainly more than five general trainings were carried out by groups of stakeholders, but more personalized sessions were also held with groups that had more difficulties in dealing with the technologies adopted by the school.

In addition to these trainings, the e-learning team was fully available to answer questions through institutional e-mail, mobile phone and *Whatsapp*. A group for technical support and support in *Microsoft Teams* was also created - one for each class, another for employees and another for teachers - in this way it was possible to keep the information properly organized and respond in a timely manner to all questions raised by the stakeholders.

### *3.2.4 Development of Support Mechanisms, Aimed at Students Without a Computer and Internet Connection at Home*

The diagnosis of the situation of the students' computer resources was carried out by the class directors as well as by completing a questionnaire survey in which we obtained a total of 113 responses, of which 85,80% correspond to the female gender and 14,20% to the male gender. Of the respondents, 92,00% had access to the technological equipment necessary to participate in e-learning classes and only 8,00% did not have the necessary conditions to participate in e-learning classes. The school, together with its partners and the educational community, made efforts to guarantee the necessary conditions for the participation of students without technological resources. These efforts resulted in the acquisition of new equipment (portable computers and broadband pen) that were subsequently distributed to the students most in need by the criteria defined by the *School Psychology Office* in conjunction with the *Administrative and Management Services*. All students without exception had technical conditions to attend classes either via computers and laptops or via mobile devices (mobile phones, tablets and smartphones).

In the evaluation process, the teacher took into account students who had more difficulties in accessing the internet and the necessary equipment to communicate and interact in e-learning mode. All teachers ensured that the self-assessment was carried out in a synchronous session so that it was possible to have a closer and direct contact with the student. For students who, for various reasons, are unable to attend the session, the teacher contacted them to present their opinion regarding the work they developed.

#### 4 Conclusion

Based on the results obtained from the monitoring and evaluation process of the online teaching-learning process (e-learning) from the indicators - *quantity and quality* - a set of suggestions for improvement is presented in the three dimensions created: technology, pedagogy and content.

– *In terms of the Technological Dimension*

It is essential to continue to train teachers to acquire technological skills. These trainings can occur during the beginning of the next academic year, providing teachers with greater technological skills for the effective practice of ICT in e-learning/b-learning. It is very important to use the latest, appealing and intuitive technologies that encourage students to participate and actively collaborate in classes in e-learning mode. In this sense, it is recognized that it is essential that teachers choose the most appropriate tools for each learning moment. Also the evaluation of all students using the technologies adopted (and based on the content) and ensuring that self-evaluation is carried out in a synchronous session is essential.

– *In Terms of the Pedagogical Dimension*

It is vital to enhance, through the implementation of more collective activities, the involvement and participation of students in e-learning classes so that, thus, the teaching-learning process is more inclusive and participatory. It is also very important to promote the sharing of knowledge and experiences between the group, as well as reflection and debate between the actors in the teaching-learning process - teachers and students. In addition to these, it is essential to contribute to the implementation and adequacy of an evaluation model in the other disciplines that allows an equitable evaluation taking into account the students' technological limitations, as well as the current pandemic conjecture - covid-19.

– *In Terms of the Content Dimension*

It is essential to reduce the number of activities and workload in online education, as students, due to their own constraints related to access to technological means, are not available to carry out a large number of tasks. In the same vein, it is necessary to improve the quality of the content produced, facilitate its understanding and create more pedagogical activities that provide students with greater participation and involvement in the course. It is important to contribute to improving the way the content and organization of the proposed activities are explained. It is also suggested that, to the detriment of theoretical activities, create more technical activities that motivate students to acquire knowledge and skills. Last but also important is interdisciplinarity in e-learning. It is vital for teachers to gather and clearly define activities/tasks that can be developed and evaluated in more than one discipline. Only in this way can the student develop more skills and be able to finish the activities within the established deadlines.

Finally, it is important to note that the results obtained with the implementation of the monitoring and evaluation process of the Distance Education Plan (E@D) - presented in the first part of the research “Designing and implementing a distance education plan: a case study at a school in Portugal in pandemic context” - continue to point to the urgent need for teacher training to teach online. If we look carefully at the literature in the area, talk to our students and peers, we quickly realize that practically all suggestions for improving the teaching-learning process (in e-learning) go through the need to change teachers' practices, but for them/we to change it is essential that there are opportunities for training and not multiple functions, numerous skills and tasks. It is essential that there is a clear commitment to teacher training for effective practice in the use of technologies for educational purposes (classroom, e-learning and/or b-learning). Because we all have the (mandatory) experience of teaching online does not mean that we are prepared to do it again in case we are confined again. Yes, we learned from experience, yes we did what we could, but we are still not prepared to teach online! In fact, it seems to me that we are still far away ...!

This is a unique opportunity for change, will we take advantage of it?

## 5 References

- CNE. (2016). Recomendação sobre a condição docente e as políticas educativas. Retrieved from [http://www.cnedu.pt/content/noticias/CNE/Recomendacao\\_Condicao\\_Docente\\_final.pdf](http://www.cnedu.pt/content/noticias/CNE/Recomendacao_Condicao_Docente_final.pdf)
- Cox, S. M. (2008). A conceptual analysis of technological pedagogical content knowledge.
- DGE. (2020). Roteiro | 8 Princípios Orientadores para a Implementação do Ensino a Distância (E@D) nas Escolas. Retrieved from [https://www.dge.mec.pt/sites/default/files/roteiro\\_ead\\_vfinal.pdf](https://www.dge.mec.pt/sites/default/files/roteiro_ead_vfinal.pdf)
- Fortin, M.-F., Côte, J., & Filion, F. (2009). Fundamentos e etapas do processo de investigação. *Loures: Lusodidacta*, 4–568.
- Koehler, M., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education*, 9(1), 60–70.
- Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.
- Sampaio, P., & Coutinho, C. (2013). Ensinar com tecnologia, pedagogia e conteúdo. *Revista Paidéi*, 5(8).
- Voogt, J., Fisser, P., Pareja Roblin, N., Tondeur, J., & van Braak, J. (2013). Technological pedagogical content knowledge—a review of the literature. *Journal of Computer Assisted Learning*, 29(2), 109–121.
- Wu, Y. (2013). Research trends in technological pedagogical content knowledge (TPACK) research: A review of empirical studies published in selected journals from 2002 to 2011. *British Journal of Educational Technology*, 44(3), E73–E76.