Prospects of Dual Form of Teaching and Learning in the Realities of the Covid-19 Pandemic and the Post-pandemic Period

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Summary

The COVID-19 pandemic has posed significant community challenges towards higher education around the world. The urgent and unexpected request for full-time university courses to switch over to online teaching was a particular challenge. Online learning and learning imply a certain pedagogical knowledge content (PKC), mainly related to the design and organization for better learning and the creation of unique learning environments using digital technologies. With the help of the present academic paper, we provide some expert opinion on the PKC connected with online learning with the aim of helping non-university professionals (that is, those with lack of online learning experience) navigate these challenging times. Our findings point to the planning of learning activities with certain features, a combination of three types of presence (social, cognitive and facilitative) and the need to adapt the assessment system to new learning requirements. We will conclude by contemplating on how responding to a crisis can improve teaching and learning practices in the post-digital era.

Key words:
online learning, emergency, COVID-19, higher education, pedagogical knowledge content (PKC), instructional design

1. Introduction

The urgent necessity "to move to the Internet" caused by the recent COVID-19 pandemic [1] has added to the stresses and workloads faced by faculty and staff at the university who have already tried to balance teaching, research and work, not to mention balance between work and personal life [2; 3]. Teaching staff of all backgrounds and ages are forced to prepare and conduct lessons at home, with all the practical and technical problems entailed by the current situation, and often without proper technical support [4]. In addition, a significant problem for university teachers was their lack of knowledge about the pedagogical knowledge content (PKC) [5], necessary for online teaching [6; 7; 8]. Such PKC includes the technical and administrative aspects of online teaching (for instance, respectively, the use of platforms and tools and the organization of work processes). What is more important, it includes the pedagogical fundamentals and awareness of the principles required for designing and facilitating meaningful online learning.

The present academic paper deals with the pedagogical training of university teachers without or with little experience in online teaching. Recent investigations [8; 9] have shown that particular difficulties reported by university teachers regarding web courses have arisen due to the complexity of the learning situation and shortcomings in planning and organization. The COVID-19 crisis has fostered numerous tips for teachers [10]. Most of these pieces of advice focus on the tools and materials that teachers can use to replace their face-to-face lessons. In addition, educators have been offered hundreds of tips and tricks, largely without the contextual knowledge required to determine which training tactics are likely to be effective. Against this background, we have developed broader pedagogical guidelines for teachers and their supporters. The recommendations offered by us are based on investigations and long-term experience in online learning and teaching, that is, lessons, learned previously, but still relevant.

2. Literature Review

The term "online learning" is widely used; however, it has different meanings. For the purposes of the present academic paper, online learning refers to learning conducted through the Internet. It is broader than "networked learning"; while networked learning focuses on connections between people [11; 12], online learning lacks such specificity. It is more limited than "e-learning" and "digital education", which include the whole range of digital tools and resources, not just the Internet, and focus on the development of digital competencies. In addition, online learning does not have a built-in claim to improvement, which makes "training with advanced technologies" (TAT) [13; 14] a problematic phrase [15].

In our post-digital reality, it could be argued that the online is no longer a useful descriptor of real students' experiences [16], especially, in advanced world countries, where internet-connected devices are so commonly used and the boundaries between learning and other activities in everyday life have become so soft. However, the same cannot be stated about "online learning", which involves

intentionally supporting other people's learning through the Internet. The rapid cessation of face-to-face educational work in response to the COVID-19 pandemic has given teachers a strong sense of the difference between online teaching and other ways of working.

Online learning is a recognizable category of work practices of numerous teachers [17-19]. It refers to the type of teaching and learning situation in which (1) the student is at a distance from the tutor / teacher, (2) the student uses some form of technology to access learning materials, (3) the student uses the technology to interact with the tutor / teacher and other students and (4) students are given some support [20]. A large portion of online teaching and learning is similar to teaching and learning in any other formal educational context [21]. Online learning and teaching involves a diverse set of tools, resources, pedagogical approaches, roles, organizational mechanisms and forms of interaction, monitoring and support including many possible combinations of replacement and integration [22; 23; 24]. Among this selection angle, "the ability to change the time and place of educational interaction" [21] stands out as a valuable source of flexibility. From a post-digital perspective, online education has blurred the boundaries between material, digital and human experiences [16]. In order to maximize the opportunities provided by the online learning environment, design and organization of learning play a significant role [25].

Instructional Design (ID) and Training Design (TD) can be characterized as "a process or series of suggested steps that teachers can use to plan, implement and assess their learning" [26]. Like any design process, ID and TD involve decision making and problem solving [27]. They involve choosing strategies for creating specific products, such as lesson plans or teaching materials, as well as implementing and managing the overall design process [28]. Teachers as designers should consider both product-oriented and process-oriented aspects of strategic planning [29]. According to Bates, quality design is associated with "clear learning objectives, carefully structured content, controlled workloads for teachers and students, integrated media, relevant students' activities, and assessment closely related to desired learning outcomes" [30].

In face-to-face teaching, theories and models of ID and TD are usually implicitly contained in the decision-making processes used by expert teachers [31]. However, when it comes to using online learning technologies as the primary or sole learning tool, explicit use of a certain type of design process is necessary [32]. This is especially true when the team is involved in the development and implementation of an online course: coordinated actions of different professionals require a common approach towards design [33]. Design approaches for online learning have been implemented in a variety of systems and models, based on a number of design principles. This differentiation also takes into account particular terminological advantages when the language of instructional design is currently used, when the emphasis is on learning and when a high level of normativeness is applied, as well as the language of training design [34] or techno-pedagogical design [35] is used when the focus is more on students' activity and responsiveness to context.

Regardless of the approach (ID, TD or technical-pedagogical), teachers work on "creating conditions under which students have a better chance to acquire knowledge" [36].

In the framework of this exploration, as in terms of "training" [37], teachers act as both constructors and actors. On the one hand, they should develop tasks, environments and resources that help students learn. On the other hand, they should follow the developed lesson plan, deftly moving between roles [25]. The message is a complex combination of such learning roles as "training", including training design and organization, promoting discourse and direct learning. Of these three components included in training, the design and organization of learning is probably the most problematic, forasmuch as the design-related presence of the teacher should be mediated and evident throughout the course development, not just during its "implementation" [38]. It is also under-explored as a pedagogical content of knowledge related to the teachers themselves, forasmuch as many online courses in the past have been developed by professionals in training design (that is, school designers) and conducted / introduced by tutors - teachers.

Within the conditions of the COVID-19 emergency, university educators were asked to become both designers and tutors, using tools that few teachers are fluent in.

The purpose of the academic paper lies in providing some expert opinion on the pedagogical knowledge content related to online learning, helping in planning educational activities and in adapting assessment to new learning requirements.

3. Materials and Methods

The interview of experts was the method used for the present research [39]. Experts, when considered as "crystallization points for practical insider knowledge", can provide useful ideas on new issues that can't be easily or quickly obtained by other means. Forced digitization of teaching and learning within the conditions of the COVID-19 pandemic is undoubtedly one of the new issues [40].

Participants were selected according to their proven expertise and in-depth experience in online teaching and learning. The answers to the interview questions were presented as if they were part of one discussion. The interview contained three questions and was sent by e-mail. The questions were as follows:

1. What do you think is the design of online learning? How is it different from teaching and learning face to face?
2. What do you think makes online teaching and learning successful?
3. What would you say to non-expert colleagues following online teaching, for instance, whether to share materials with students?

The choice of questions was based on some hidden differences between online education and distance learning in emergencies [4]. For instance, online education involves the availability of an existing organizational infrastructure that serves the purposes of online teaching and learning. In contrast, the emergency distance learning caused by the COVID-19 pandemic is often improvised quickly, without guaranteed or appropriate infrastructure support. Talking into consideration this lack of infrastructure, most the early pieces of advice and support for non-professional online teachers was focused on the technology tools available at every educational institution, and they were deemed sufficient to support the transition. However, this "tool-based approach" (question 4) does not provide sufficient pedagogical guidance on how, when and why to use each of the tools. In a similar vein, many inexperienced online teachers have chosen to focus on the materials / resources they will use to teach the content of their course in any case, whether it is face-to-face or online mode of training. Here again, this "materials-based" approach (question 3) is only half complete, taking into account the fact that it pays insufficient attention to contextualization and mediation. Although technology and resources are essential components of online teaching [20], students' support by teachers, including by monitoring their learning processes, is what makes learning effective - as in face-to-face situations. However, due to the lack of a common, widely understood pedagogical framework for online teaching and learning, it is unclear what additional pedagogical dimensions should be considered in an online situation [41].

4. Results

Each expert answered questions, answering only the interviewer (the first author). Only after the first author wrote the first version of the scientific article, the other authors had the opportunity to read each other's answers and contribute to their interweaving in the present academic paper.

Question 1. What do you think is the design of online learning? How is it different from teaching and learning face to face?

Online learning is based more on materials (reading, video, exercises, etc.) than on direct personal interaction (discussion, presentations, etc.). On the one hand, it makes it possible to integrate more media (video, images, audio, etc.), however, teachers should create or find quality materials and be able to use them; on the other hand, it forces students to read more autonomously (which means "reading" all the media).

Online learning relies on indirect communications, both synchronous and asynchronous ones. In both cases, teachers' instructions should be set out very clearly and carefully, forasmuch as progressive improvement through interaction is hardly possible. Here again, students should be more autonomous both in understanding instructions and in working without micro-scaffolding. In light of the necessity for good communication and attempts to encourage greater students' autonomy, online teaching requires more careful design. In addition, design is conducted more often prior to the course than during the course. This involves another way of organizing the teacher's activities. If I were to name one more point, I would mention the assessment: finding corrections for classic large-scale assessments (written exams, interviews) on the Internet is unpleasant. Online assessment and certification require rethinking the assessment, and, in some cases, this also implies a different course setup.

There is a great diversity in online teaching and learning, as well as in face-to-face teaching and learning practices, that it is difficult and perhaps a little dangerous to draw sharp contrasts between them. Each of them is quite heterogeneous. For instance, using a pre-recorded online lecture without live contact with students is very different from conducting an online lesson via video conference or chat. In a similar vein, an individual face-to-face textbook is very different from a face-to-face lecture in front of a class of hundreds of students. With this caveat in mind, I would like to offer the following suggestions to university teachers who have had to adapt very quickly to online teaching, namely: try to open additional communication channels in order to securely get the message key to your students; be very attentive to what they need (for instance, why they find difficult to learn in this way; what they need more or less) and do not forget to keep asking and listening, forasmuch as their needs and their ability to formulate their needs will develop; and make it easier for students to communicate with each other, share experiences, pieces of advice, etc. (make at least one channel or chat room private for students with no teacher's access). The main point here is that conventional face-to-face teaching methods often provide opportunities for communication (especially

between students), which we, as teachers, are not always aware of and which may disappear with the transition to online training mode. For instance, students in face-to-face lectures tend to read subtle clues to see if a new idea they find difficult is also difficult for their peers (for instance, "Am I just stupid, or is this idea really complicated?").

Developing an online course is a student-centered approach. The role of the teacher is more focused on facilitation and on supporting students in the development of competencies.

The student's role lies in being the owner of his or her learning process and being more autonomous. Online learning makes it possible to learn on one's own and think. Students can review learning resources and improve performance several times, and teachers can monitor their progress throughout the process. It is more flexible. In this sense, the student-centered approach is more focused on evidence-based learning and continuous assessment. The face-to-face model is still too teacher-oriented. Another advantage of online learning over face-to-face learning is openness, search, especially in this scenario of the COVID-19 pandemic, ensuring the opportunity for every citizen to develop his talents and feel part of a common future.

While developing online and distance learning, I have discovered three key differences between face-to-face and online learning as follows: space and presence, self-presentation, and interaction.

The concepts of space and social presence become apparent when we change modalities. Technology has a way of changing time and space, metaphorically compressing them. In face-to-face classes, teachers and students are physically and temporarily together (synchronously). On the other hand, in online learning, students may be physically distant but temporarily present (synchronously; audio or video conferencing), or they may be physically and temporarily remote (asynchronous; surface mail, text messaging, text conferencing, or pre-recorded audio or video sharing).

The way we present ourselves using different technologies can be very different. For instance, during text-based communication, a student may spend more time creating and rounding out the quality of his written expression in order to look more literate and competent.

Question 2: What do you think makes online teaching and learning successful?

From the students' point of view, the most important things are accessibility (availability of appropriate devices / connections / software) and autonomy (that is, the ability to set goals, manage time, and avoid distractions). However, I think the focus here is on teachers; consequently, I mention three elements related to design and teaching, namely: student-centered design, social engagement, and peer collaboration.

Successful online learning requires student-centered design, that is, careful consideration of what students actually need to do in order to learn. If we focus on content, we get bad and cheap video or multimedia production that doesn't reach its goal. If we focus on what students will do, we launch them and have the opportunity to help them actually learn. Certainly, from among the scope of activities students should do, we can include listening to a podcast, reading a text or watching a video. This entails conducting a proper analysis of the task, that is, thinking through the practical activities. For instance, we should avoid sending 30-page text if students cannot easily print it.

Ensuring success in online learning involves excellent communication skills, careful design and active involvement of students. Clear communication with students implies clarity over expectations - well-explained tasks with well- explicated rationales (what they need to do and why you ask them to do so). Listening carefully to what students say about their experiences, what works well for them, and what doesn't, is also an important part of good communication. Teachers also should devote enough time to careful design, by shifting their time "up" forasmuch as careful design pays off. Finally, they should allow and encourage students to collaboratively design and / or reconfigure learning activities and environments. Students change the tasks set by their teachers, and they readjust the learning environment, recommended tools and resources, working relationships, etc.

There are various ways which can be applied by instructors to help make online learning experiences more enjoyable and effective, namely: effective planning, students' training, and enhanced interaction. To begin with, effective planning includes dividing content into parts and pace, scheduling task dates, and setting a regular schedule. It is desirable to gain some knowledge about the needs and abilities of students. Holding a welcome forum or event can help teachers get to know students and help the group establish mutual understanding. Taking into account the different possible types of interaction, the teacher can think in advance about how students will interact with, for instance, reading, video, or podcasts. Based on knowledge of students' needs and abilities, the teacher can create guiding questions and hints for discussion to encourage research, questioning, criticizing, and relating to the content of other students.

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Question 3: What would you say to non-expert colleagues following online teaching, for instance, whether to share materials with students?

At the lesson, good teachers are intermediaries between the content and the students. This means creating ways for everyone to learn, forasmuch as each of us is different in cognition, motivation, self-esteem, etc. When we are on the Internet, the materials alone cannot provide mediation. For example, we may interfere with students with specific learning preferences (such as visual or audio) due to the fact that we rely solely on texts, or we cannot provide an alternative way to knowledge for those who don't get it the first time, which can happen in a lesson by telling a new example. Moreover, materials alone do not provide space for implementation. When we teach, we are in a certain way what we teach; we provide a living model of how what we teach becomes real. Materials alone cannot do this, unless very indirectly (that is, the teacher's personality is manifested through his / her choice of materials).

The experience of successful online learning as well as reading literature shows that we always need a mix of materials and communications. If the course is offered entirely on the basis of prior preparation of materials, without dialogue or feedback or the opportunity for the teacher to adapt, then the risks of fatality are unacceptably high, and students may also find it very difficult.

Online learning cannot focus on delivering content reproducing lecture-oriented, teacher-centered, face-to-face models. In my opinion, taking into consideration that this scenario no longer makes sense for traditional education, it makes even less sense for the online learning model. The traditional face-to-face model relies more on traditional lecture content and classroom learning activities.

A student-centered approach is a key issue in online learning models. A student-centered environment promotes greater collaboration. The teacher should design meaningful learning activities based on authentic learning, maximally contextualizing learning situations.

The choice of a material-based approach will be highly dependent on the course. For those just starting working in online teaching and learning, a material-based approach can create problems by shifting the focus from the learning process to the end products. Another problem can arise if a student does not have access to the proper bandwidth or the three required programs to access the materials. For the reason outlined, file types and file sizes require consideration, as well as quick tests to see if materials from a wide range of common devices can be accessed and delivered at low cost.

5. Discussion

Striving to ensure access and continuity of education, teachers confidently master online teaching. Currently, when the initial shock has passed, it's time to see how best to invest time and resources in the course development.

What all four experts focus on as the first "part" of pedagogical knowledge [7] is a thorough action plan. According to the viewpoint of Carr-Chellman and Duchastel [42], the essence of an online course is the organization of learning activities that allow the student achieving certain learning outcomes. These actions or tasks should be based on a combination of design approaches (synchronous, asynchronous, online, offline). They should be described and represented in an accurate and comprehensible form, have a sufficient level of complexity for students' opportunities and expectations, be linked to an authentic context in order to increase students' interest and be accessible to all, taking into account the various practical aspects underlying, for instance, having a stable Internet connection, printing facilities or access to resources.

The second new issue is the presence of the teacher: how do teachers actually teach their courses, for instance, establish relationships with their students? Taking out presence and its ways can be rethought in the current situation with COVID-19, in which there are teachers, designers, mentors and evaluators of the learning experience; from the interviews it follows a tripartite structure with three main components of taking out (see Fig. 1), namely:
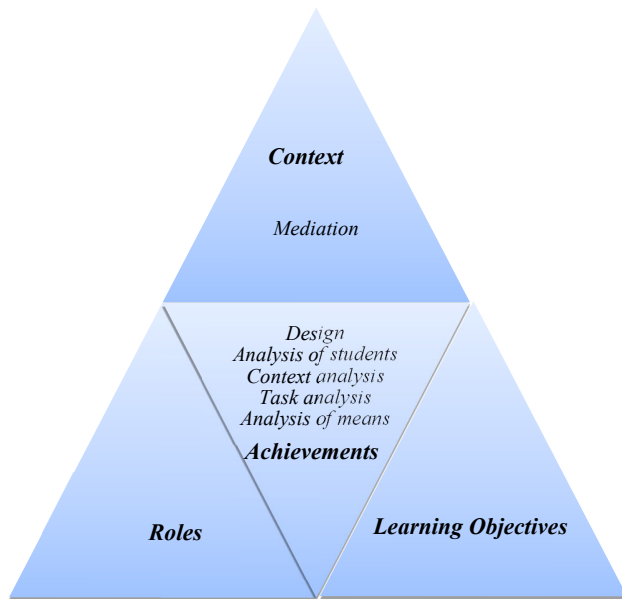
Fig. 1. Aspects of online learning with an emphasis on teachers as the main actors

Most universities have found their own way of teaching online and their own response to emergencies. However, the worst thing that can happen is not learning from the crisis we have experienced. In the hustle and bustle of emergencies, many decisions were made at the institutional and personal level, and many practices changed, but little time was devoted to reflection in action [43]. We hope that now we can find time to reflect on the action, and we hope that the present academic paper contains some useful indicators and scaffolding to guide it. The results of such consideration about design, teachers' presence, and assessment in online learning constitute the basis of pedagogical preparation for a potential retaliation from a virus or any other situation that will lead us to a new lockdown. In this connection, the current pandemic can be understood as a catalyst that has highlighted the need for changes in education towards more flexible models and practices that better respond to the complexity and unpredictability of today's fast and interconnected but still fragile society.

6. Conclusion

According to the above-mentioned rationale, the limitation of our research is the origin of all four experts from wealthy parts of the world (for instance, Switzerland, Canada, Australia and Northern Spain), where certain expectations from teachers and students are clearly defined and certain infrastructures exist that make such expectations reasonable. Although all experts have been carefully selected based on experience criteria transcending social-economic barriers (for instance, they all have reported about the experience in the Global South), there are still limitations to designing a monofocal lens of view of the education reality. The last consideration concerns the "lessons learned" from this collective experience study and how they may affect research and practice after the COVID-19 crisis.

Although the origins of this academic paper should be traced back to the COVID-19 pandemic, it is certainly too late. While we are writing the present research, most universities have already found their way of teaching online and will not be able to use the knowledge presented in the present academic paper (along with many others) in order to develop their response to an emergency. Nevertheless, although everything goes back to (either "old" or "new"), at least, in our countries, the worst thing that can happen is not to learn from the crisis we have experienced. In the hustle and bustle of emergencies, many decisions have been made at the institutional and personal levels, and many practices have changed, but little time has been given to reflection. Hopefully, we can now take some time to think about action, and we hope the present academic paper contains some helpful indicators and scaffoldings to guide it. The results of such reflection concerning design, teachers' presence, and assessment in online learning form the basis of pedagogical preparation for a potential retaliation from a virus or any other situation that will lead us to a new lockdown. Taking all the above-mentioned into consideration, the current pandemic can be understood as a catalyst that has highlighted the need for changes in education towards more flexible models and practices that best match the complexity and unpredictability of today's fast-paced and interconnected but still fragile society.From this section, input the body of your manuscript according to the constitution that you had. For detailed information for authors, please refer to [1].

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