

CHALLENGES FOUND IN TEACHING ACTIVITIES DURING COURSES 2019-2021: ADAPTING LEARNING SYSTEMS TO COVID-19 PANDEMIC SCENARIO

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Abstract

The disruption of teaching activities during the end of course 2019-2020 and then the transformation of different academic activities to comply with new distancing norms brought different challenges to academic staff and students. In this document is analysed the different alternatives performed for adapting to a pandemic crisis with a strict lock-down and the way new teaching equipment and sanitary protocols were introduced to modify the daily working routines in an attempt to create a different scenario of normality and learn the way social connections and work can be adapted to a pandemic scenario.

On-line learning and distance learning are not a new teaching idea. This type of strategy has increased adepts in recent years with the boom of better internet connections and improvements in information and data handling. What it was recognized as a necessity for different university centres to adapt to the new technological scenarios and generations of students fully digital, has become an abrupt reality when strict pandemic regulations were implemented.

The social distancing imposed in Spain in spring 2020 make all university services to be closed and the use of different teaching platforms was initiated by the teaching staff and students. This modification in the traditional way of teaching resulted in the learning of completely new skills. However, the average age of teaching staff in Spanish university is high which brought as result the realization of the difficulties in implementing the digital learning era.

In the present document is analysed the transition to a completely digital learning platform, the way it was undertaken by the university personnel and how it was experienced by the different integrating members of the Innovation Educative Group. It was also analysed the pros and cons associated with the course 2020-2021 which in the university of León was organized keeping an on-line component combining with learning activities performed on site in a blended-learning model which kept COVID infectious incidents low.

Keywords: COVID19, distance learning, e-learning, LMS, learning management system.

1 INTRODUCTION

During the last years, there has been a lot of work regarding digital experiences when incorporating different teaching scenarios in an attempt to catch up with the fully digital generations classrooms are receiving and the generation gap between students and teachers. This gap has been aggravated due to the low reposition rate experienced during the last decade in Spanish universities. Thus, the present scenario where university professors have an average age of 54 years, and the average age of university student can be easily set at around 21 may easily explain difficulties in interacting and understanding different classroom contexts and problematics.

One of the major issues that may be ringing a bell in the educational process is the common sentences usually heard and naturally accepted that classes are boring and studying of course, also is. As stated by Ronal A. Berk already in 2009 [1], dealing with digital native implies for teachers receiving students into their classroom where any stimulation similar to what they are daily used is lacking. Therefore, the answer to the question about how to deal with the cultural shock students experience when getting into 1 – 2 h classes full of PowerPoint slides is: We can't.

However, the implication of digital natives to be a generation of students well adapted to internet, social networks and computer devices does not necessarily imply that these students per se gain a high level of digital literacy. Research studies have shown that new generations do not develop the necessary skills regarding computational software use unless they are deliberately instructed to [2, 3]. What it is even more worrying, is the fact demonstrated by some authors that students may have the ability to find

information using digital technology, but they have clear difficulties in defining information problems. Deficiencies are reported when specifying proper search queries and an evident lack of skills when evaluating the information, they find [4]. In addition, a distinction should be made regarding the concept of learning with technology, which is usually confused with learning about technology or learning technology. These differences were remarked by Bozalek and Ng'ambi [5], indicating that the understandings associated with these different concepts affect the way educators approach teaching in relation to technology.

It is also often argued that digital natives expect to have similar interactions with course lectures just as the same way they usually do in their daily lives. There are several reports regarding the use of Twitter, smartphones and apps to improve the learning process in universities [6-8]. Communication with students is, of course, important, but the question is if is it not enough with the media already available in most universities? There is a new full deployment of mobile devices in learning which is called m-learning. M-Learning is defined by Cavus and Ibrahim [9] as the acquisition or modification of any knowledge or skill through the use of mobile technology, anywhere, anytime, which results in the transformation of behaviour. This concept implies an immediacy in communication pretending to implement strategies in education to obtain learning materials anytime, anywhere using mobile devices and the internet. Thus the information delivery media includes WhatsApp, Email, SMS, Twitter, and BBM to inform learners of the learning activities [10]. These concepts make anyone wonder if teachers really believe students are so eager for knowledge that they immediately search the information related after each class session. This immediacy in communication about programmed teaching activities may seem more linked to the lack of structure and availability of an adequate agenda.

The study performed by Scott et al. [11] about the use of digital learning resources indicated that the use of any digital learning device was highly increased the Sunday before the written examination and that only 30% of students did not use the textbook. Trying to set immediacy in communication with students and course lectures may be considered to be suitable with the current time we are living in, which may also probably explain the persistent communication problems associated with constant clarification of ideas and misunderstandings. These frequent errors in communication may well set the alarm regarding if this is really the adequate direction teachers should be heading in learning strategies.

Having all these scenarios in mind, the crisis of COVID-19 hit hard on our daily activities. Study and working habits were changed, and people confronted a severe lock-down. In universities and all educational institutions, the educational system was changed to a complete digitalization and subsequently to a mixed model where some of the students alternated attendance to university activities and some others had to deal with 100% online class model.

The present manuscript analysed the transition to a fully digital learning platform, the way it was undertaken by the university personnel, and how it was experienced by the different integrating members of the Innovation Educative Group. It was also analysed the pros and cons associated with the course 2020-2021, which in the university of León was organized keeping an online component combined with learning activities performed on-site in a blended-learning model, which kept COVID infectious incidents low.

2 METHODOLOGY

The methodology of this manuscript is based on the collection of personal surveys and the obtaining of information derived from the teaching staff of the University of León that is part of the teaching innovation group. Information was also available at the different ULE centers concerning the purchase of digital media to implement online teaching. A survey of 60 students who experienced the mixed teaching model was performed, recording their answers and analyzing data derived using Excel software.

3 RESULTS

In Castilla y León, the social distancing and severe lockdown were established in spring 2020 with scarce indications to the different educational institutions on the way to proceed with teaching activities. Therefore, different alternatives were used based on the capabilities of the academic centres and skills of the personal. At the University of León, web resources and conference software were available. AVIP platform, google meet and Cisco Webex Meetings were the media frequently used by the personal belonging to the innovation teaching group. On the other hand, Microsoft team was less frequent in its use.

The University of León, by means of the staff associated with each individual centre, let available to the teaching personal, explicative videos and documents regarding tutorials were detailed explanations were indicated for the use of the different videoconference platforms. The use of AVIP was initially suggested and highly extended, but due to significant limitations in its connection capacity, it was only operative for a couple of weeks until the massive use of this system saturated the service, making it unavailable. The initial suggestion was the recording of classes to make them available to students at any time, but the results were the saturation of the storage capacity given the high volume of information recorded.

After consulting the personal of the different departments, several members indicated the use of google meet as the best and easy-to-use platform and presenting lower connection problems. However, it is essential to highlight the effect associated with the location from where access is intended. Therefore, many teaching personnel indicated the need to access university locations to have a better connectivity with students since, during the period of severe confinement, highly populated areas suffered continuous internet service outages.

A media frequently used by professors, which resulted very handy and amenable to students and teachers, was the of voice-recorded PowerPoint slides as a substitute of long teaching hours dedicated to the use of video conference software. These media have the advantage of requiring small storing space, thus traditional portals used in universities for up-loading classes content can be used without the need of additional modifications. To this advantage should be added the fact that students can select the moment and time dedicated to the lecture and repeat several times concepts they found most difficult to acquire. Appreciations regarding this technique were extremely positive in chemistry first course in engineering.

If we start from the premise that the excessive use of PowerPoint in traditional teaching classes results tiresome for students, then it is easy to understand difficulties found when teaching under the fully online model. For a student to stand several hours in front of a screen must be particularly difficult to keep up with 100% attention. This because of the attempt of making a literal translation of the agenda already prepared for face-to-face class to an online synchronous model, where in some courses it was decided to apply the same criteria for undertaking these types of lectures.

There are several reports indicating about the benefits of online classes and individualize resources where similar outcomes were obtained from both methods and some others even suggested a greater degree of satisfaction when a great portion of compulsory courses can be undertaken as online teaching [12-14]. However, it must be carefully considered the perception given by students and teachers, since the interaction they perceive from the course may be very different, with teachers reporting largely favourable views of the interaction and students generally viewing the interaction in opposing ways [15].

Another relevant factor that should be carefully addressed is the sense of isolation sometimes experienced during online courses, these either may be synchronous or asynchronous. The evaluations and the applications of this online methodology to different studies and courses lectures should be carefully adapted to the age of students, their working activities and the type of engagement to the course, if it is a partial time or full career. Many participants in the study performed by Cameron-Standerford et al. [16] regarding the performance of moving to an online/distance teaching platform due to COVID measurements, indicated that the people surveyed communicated concerns related to faculty and student stress uncertainty, anxiety, and general mental and emotional health.

3.1 Problems frequently described by teaching staff during online activities

Given the different platforms available for undertaking the experience of online/distance teaching activities, the common problems communicated by the integrands of the Educative Innovation group are listed in table 1. These comments compile the online-exclusive model and the mixed-model experienced in 2020/2021 course, where a mirror class modality was incorporated.

The course, just following after the pandemic measurements experienced several changes with regard to the teaching media that needed to be available to comply with social distancing. The capacity of the classroom was highly reduced to one-third of their current capacity, which implicated that in some faculties, the more numerous, had to continue with online systems. In contrast, others implemented an alternating system where students initially rotated to assist to face-to-face classes. This latter system received an initial concern regarding the teaching staff about the practical implementation of such a rotating scheme. The outcome was that in many classes, it was frequent to observe that alternation was not always kept and some students decided to take the whole course under the online modality. In addition, some professors indicated that students were connected but not following the class at all on

the online synchronous modality, thus when a particular question was stated, many accounts were not active.

Mirror classrooms were also implemented in some faculties where students assisted to a parallel session with image and sound transmitted synchronously. This model caused several difficulties in connections regarding the use of a microphone, the volume and noise also transmitted with the connection. Problems led to waste in many cases more than 10 minutes of class until this situation was solved.

The investment in material was considerable taking into account the acquisition by many faculties of microphones, speakers, and graphic tablets for each class. In many cases, the online/distance model and the mixed model, in reality, were a translation of how face-to-face classes are done. Therefore, the teacher activity was similar to that of a conventional lecture.

Many video resources available on the internet are offered in a different language to that of the teaching course. Master classes may take some advantage of this type of material, but for an undergraduate level, at least at present, this material is not commonly used and not fully applied in these courses since these students have a clear preference for learning resources available in their same native language.

Table 1. Problems experienced during distance learning and advantages of the system.

| <i>School</i> | <i>Common Problems to all schools</i> | <i>Advantages experienced</i> |
|---------------------------------------|---|---|
| Biology faculty (Biotechnology grade) | Outage in internet connection | Attempts to keep students contact |
| Engineering schools | Problems in communication with mirror classroom: sound quality poor, noise associate to microphone and wire connections | Low COVID-cases reported |
| Maser degrees | Room ventilation. Excessive low temperature | Frequent use of personal laptop to follow the teachers explanations |
| Food sciences and technologies | Confined students had problems in connecting to the class | Digital media (graphic tablets) allowed new capabilities in the use of PowerPoint |
| Environmental sciences | Graphic tablets were available with delay | Maintenance of interpersonal students relationships |

3.2 Survey of students

A survey was performed on 60 students who experienced the mirror classroom model. The first question was “How was their personal experienced with the mixed model: face-to-face and mirror class/online synchronous classes?” most of the students indicated that connection problems in the mirror class resulted frustrating and discouraging, making difficult to keep up with the class and maintain concentration during the whole session. Some indicated that the noise of the speaker was annoying. Connections problems with the mirror class were frequently solved by the use of laptops by students, so they could connect to the class but also keep in contact with their mates. In general, the answer to the question was positive, with some of them indicating that this was the case because they were in the face-to-face class.

The second question was if “the degree of concentration attained in an online/mirror class was similar to a face-to-face class”. Here students indicated that for them, it was easier to keep the pace of explanations with face-to-face classes. The mirror class was not the same as the face-to-face modality. For some students, it was better than staying on their own at home, but for the majority, the connections problems and background noise made the mirror class a bad alternative, preferring staying at home and assist with online synchronous class. Some even indicated to be more comfortable with their mates without the presence of the teacher in class, but this is just the case of one particular answer. In general, the mirror class did not have many adepts. An adjective used for one of the students to describe the performance in mirror classroom was “soporific”: therefore, explaining the great difficulties in concentrating, but this same student indicated a greater level of concentration when staying at home and taking the online modality if compared with the mirror class. Similar answers were also reported, by other 8 students, finding it easier to follow online classes if they were on their own at home where they have the additional advantage of not wearing a face mask. However, one relevant point described by

several students, is that just hearing explanations without eye contact with the professor makes it more difficult to keep full attention.

The third question was for students to “indicate if they have experienced differences in the capacity of learning”. Some of them indicated no great problems, but made notice about short periods where they found themselves in low mood and spirit. Some others indicated, that this course was harder due to stress symptoms and anxiety therefore experiencing difficulties studying the subjects. The majority of students reported that distractions during mirror class made them dedicate more time to understand on their own lectures. Thus, the time needed for study, in general, was longer because of the lower concentration kept during these lectures. Difficulties in connection are frustrating for students, which in time translates into lower performance, lower motivation and a negative disposition for learning.

One relevant aspect is the fact that distancing was considered a negative aspect when following teachers’ explanations, since small doubts are usually resolved within the close circle of companions who are sitting nearby. Keeping close contact with partners gives the class stimulus making students be in a better mood and more receptive to learning, thus distancing was experienced as a negative factor.

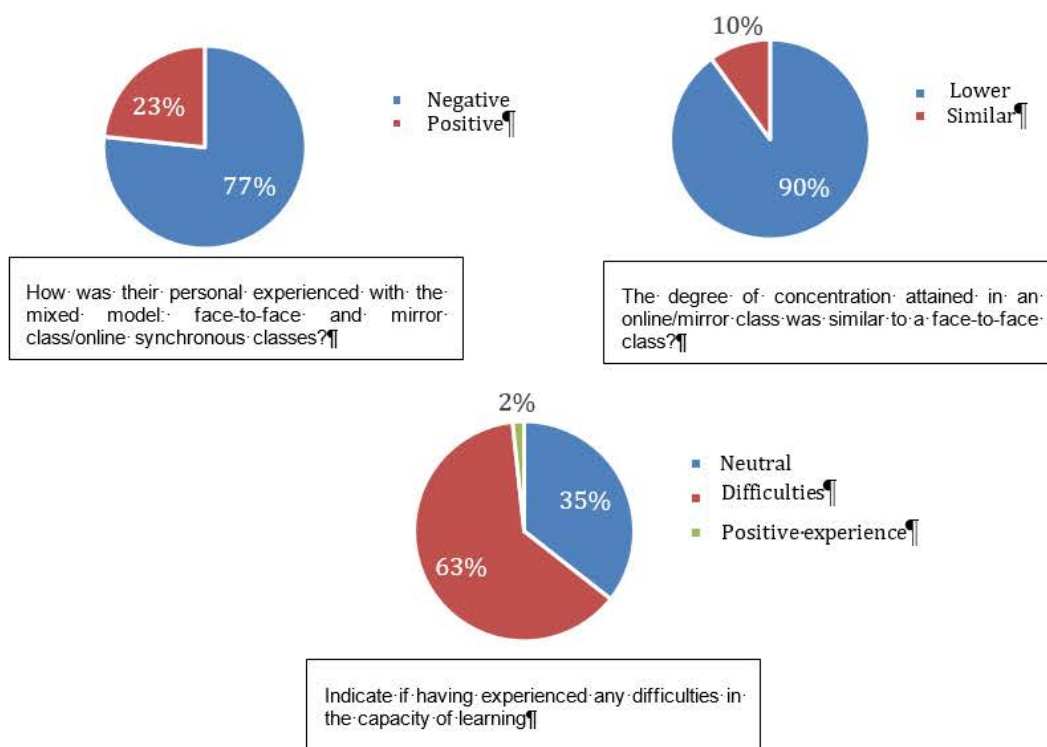


Figure 1. Graphic representation of responses expressed by alumni regarding the different questions stated about distance learning modalities

4 CONCLUSIONS

The process experienced during the last two courses regarding the year 2020 of severe lock-down and the subsequent course (2020 – 2021) where a mixed modality was implemented demonstrated that several deficiencies became notorious when trying to adapt traditional teaching systems to an online system. Disregarding connection problems which may be solved in future experiences, the main disadvantage of the system was the literal translation of a model where the professor is keeping close contact with students in face-to-face classes into a modality where only the voice is acting as media to connect with the student attention, following fixed PowerPoint images. Therefore, the class becomes in some cases “soporific”, as stated by one of the surveyed students.

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