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From Regular Face-to-Face Teaching to A Transformative Classroom During the Pandemic of Covid-19

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Abstract

This study aims to describe a teacher's experiences at a Colombian private college in response to the Covid-19 contingency. The document will report how the institution faced the challenge of transforming face-to-face classes to emergency instruction mediated by technology through an intervention made. A new team was created to oversee the institutional Educational Technology and Pedagogical Innovation area. This team was responsible for the technological teachers' learning support so they could teach their online classes as a need created due to the lockdown for COVID 19. The main purpose was to identify the evolution of digital mindset, literacy, and competences within the group of teachers in the institution. All data has been collected through surveys, interviews, and class observations with teachers. In addition, in this paper it will be shown how the teachers' digital mindset and competences emerged maintaining high standards of quality. Finally, the document will report how the intervention carried out permitted these teachers to transfer their already-strong teaching skills to virtuality resulting in best instructional practices.

Keywords: Teacher training, teacher professional development, digital mindset, digital literacy, digital competences, Covid-19, educational tech tools

Resumen

Este estudio tiene como objetivo describir las experiencias de una universidad privada en respuesta a la contingencia del Covid-19. Los investigadores mostrarán como esta comunidad enfrentó el desafío de transformar las clases convencionales presenciales a instrucción de emergencia mediada por tecnología. Un nuevo equipo de Tecnología Educativa e Innovación Pedagógica fue responsable del entrenamiento en tecnología educativa y apoyo a los docentes para que pudieran hacer sus clases en línea dentro del Programa de Desarrollo Profesional. Además, se mostrará cómo surgió la mentalidad digital de



toda la comunidad y los profesores, que antes hacían sus clases tradicionales, realizaron sus clases en la virtualidad con altos estándares de calidad. Por último, se reporta como la intervención que se llevó a cabo permitió a los docentes transferir sus ya sólidas habilidades de enseñanza a la virtualidad con las mejores prácticas instruccionales.

Palabras clave: capacitación docente, mentalidad digital, literacidad digital, Covid-19, herramientas tecnológicas

Introduction

Institución Universitaria Colombo Americana-ÚNICA (henceforth ÚNICA) is a nonprofit teachers' college in Colombia that specializes in bilingual education (English and Spanish). This institution has offered an undergraduate program in a face-to-face modality for the last 18 years, and virtuality had not been considered whatsoever. The Covid-19 pandemic started, and this pushed the university transition into a fully virtual instructional model. ÚNICA had to prepare overnight to teach all the classes through a screen and train both teachers and students in this matter.

On March 16th, 2020, teachers at Institución Universitaria Colombo Americana -ÚNICA attended the first training session organized by the Educational Technology and Pedagogical Innovation Committee (ETPIC) from the same institution. It is important to define how teacher training is conceived at this stage of the study. According to Breen (2014) teacher training refers to all courses and any kind of qualifications that teachers at institutions take and or receive that are designed with a short-term or immediate objective. In this sense, the teacher training given at the beginning of the pandemic aimed at support teachers on the immediate urgency of giving their classes through virtual sessions.

In this stage, professors who had been used to only teaching their classes face-to face and with little to no technology at all, learned to use Microsoft Teams for the first time and with the purpose of



teaching all the courses virtually through this platform. This was the first of many actions ÚNICA proposed to respond to the contingency emerging from COVID19. Since that day on, the ETPIC at ÚNICA has supported the institution in its pedagogical, strategic, managing and implementing role to ensure the quality of education offered at the institution regardless of the abrupt change in modality.

In 2020, the ETPIC, a modest group of teacher-researchers, was consolidated to face the challenge of preparing the community for a rapid change. Soon, a system of training sessions, and customized in-house training made the community feel technology implementation was not an impossible task. Likewise, the administration response to these emerging needs approving funding for the investment in technology namely software and hardware aided the transition. This new environment helped everyone, including the more orthodox professors, develop a growth mindset towards technology use. As Haimovitz and Dweck (2017) define, growth mindset refers to students' beliefs that intelligence and abilities are malleable and can be "developed through hard work, good strategies, and instruction from others" (p. 1849), so in this scenario, teachers' abilities can be developed through the implementation of strategies so their technological knowledge and competences can grow. The whole process presented both positive and negative situations that enlightened the researcher on the teachers' needs.

Theoretical framework

For this research it is important to think of the implications of transforming what has been the nature of an institution in its face-to-face practice to a remote and/or virtual practice (synchronous and asynchronous classes online). To start it is important to define online and blended learning. Singh and Thurman (2019) establish that online learning is any learning experienced through the internet/online computers in a synchronous and asynchronous classroom where students interact with other students and teachers, the sessions do not depend on any physical location for participating. On the contrary,



Blended learning “incorporates face-to-face, teacher-led instruction along with digital technology using actionable data to provide students with a personalized educational path” (Horn & Staker, 2011).

Guardiá et al (2021) pinpoints that moving classes online or either blended or fully online can be done rapidly, but it represents variations in quality, acceptance, completion, and learning. It can be said that not everybody can have this transformation as desired. This also implies that despite the advantages associated with pedagogical innovations supported by technology, challenges exist, and it shows that technology has been implemented in a slow way in previous moments (Marshall, 2018). Technology has been present before but had not had the importance it deserved. Therefore, the researcher who developed this study described three important aspects in the institutional transformation at ÚNICA, and they were Digital Mindset and Literacy, Digital competence and Professional Development that impacted the way the training program could be affected. In this line of thought, the focus of the document is based on digital mindset and literacy, digital competence and teacher training that has to do with what happened in almost all schools and universities in which all the classes were shifted from the face-to-face sessions to online ones.

Digital mindset and literacy

It is necessary to define what Digital Mindset means in the context of educational environments. According to Benke (2013) in her thesis discussion, Digital Mindset refers to a “set of mental knowledge-experience structures which are formed due to living a digitalized society and which are recognized and used by an individual in order to become successful in the digital environment” (p. 30). In addition, Kamath (2019) defines it as a set of attitudes and behaviors that allow people foresee possibilities within the use of technology. Finally, Knorr (2022) determines that “digital mindset can be defined as personality



traits or behavioral dispositions that are not directly observable and significantly structure and channel thinking, feeling and acting in the social and instrumental contexts of digital transformation” (p.2). Having said this, the concept of digital mindset in teachers plays an important role because it implies that teachers do not only need the knowledge of technology as such but also some abilities and attitudes to deal with it and be willing to act according to the needs presented while using technology in their regular contexts. Nowadays, teachers in all areas and levels require some knowledge in technology and digital resources for basic tasks like sending e-mails or assigning virtual work to students, they require to have skills on these kinds of activities that for many can be taken for granted as we are living in a technological era. However, the digital mindset is not present in all educators since many still perceive technology as not necessary in their current practice or daily activities, instead, it is a tool that they interact with not quite often so they cannot see the relation with the educational purposes, or they perceive it as quite of fashion. For ÚNICA, this digital mindset has become part of its vision and mission, acknowledging the importance of the XXI Century Teachers as professionals capable of interacting, using, and creating educational environments with the proper understanding of technology as an aid in the class.

On the other hand, Hankey et al (2017) describe digital literacy as the representation of a person’s knowledge of and skills in using ICTs and the ability to do complex tasks using them effectively and efficiently in digital contexts. This term shows that people nowadays require the skills to deal with any kind of technology to retain information, develop any personal activity, communicate with the world, get jobs, and many other activities that are inconceivable without technology. Educators are not the exception, as educational trends require technology from accessing calendars to develop learning activities in virtual environments. Understanding what digital literacy means makes a huge impact to



It is important to mention that there's a strong relationship between age and the use of any technology. The OECD (2015) suggests that older adults (56-65) use technology less intensively than younger adults. The most common activities are computer-oriented due to their work like writing texts, creating presentations that do not require advanced knowledge of tech. This is the reality of many of the teachers in different institutions. Not all teachers have the same knowledge and abilities to deal with technology at different levels of complexity. This was evident for teachers at ÚNICA, not all the teachers were skillful at using technology inside the classroom from very basic things like using presentations or even including any digital tool for their activities.

The previous definitions set the ground for the revision of the current literature on this matter. There are few studies that frame the digital mindset and digital literacy in the educational setting. Cementina (2019) suggests in her study that teachers' beliefs are associated with technological integration in their daily lives that directly impacts their teaching practice either in a positive or negative way. The study developed in a school in the Philippines with 50 teachers in different levels (elementary, primary and high school) and with varied years of experience, participated in this research and it was found that physical and human constraints can impede the integration of technologies in teaching. Cementina (2019) also mentioned that the human constraints such as the lack of training, experience and confidence in the use of software, applications and devices added to the limited exploration of digital technologies in the classroom, makes it difficult to deal with technology in the classroom. Teachers were not able to examine how teaching practices may change and student engagement with more technologies. Another important finding suggests that teachers' assumptions about web 2.0 technologies seem inconsistent with their pedagogical beliefs and teaching practices or irrelevant to the language courses they were teaching, further impeding the integration of digital literacies in the classroom.



It's crucial to think now that teachers require all their experience in their areas of expertise and the pedagogy they have for their students. However, this is not the only characteristic needed for the XXI century teacher. It is also a must to be able to integrate technology into their teaching practices. As Haines (2015) describes, “teachers must have both technological and pedagogical knowledge” (p. 165) to use technologies in the classroom the best way and to identify the opportunities and problems when it comes to dealing with what new tools bring.

Considering all the above, it is possible to say that for the purpose of this study, the concepts digital mindset and literacy are crucial to support what was developed at the institution while the whole implementation was done. Teachers at ÚNICA have highly qualified profiles, according to the requirements of the institution, it is expected that within these profiles, teachers develop technological skills, however it does not apply in all the cases.

Digital competence

Digital competence and digital literacy are concepts that are widely confused and sometimes used as synonyms. According to Ilomäki et al (2011), the word competence is more related to more than just the knowledge and skills a person has, this requires the ability to meet complex demands to extract and organize psychosocial resources in any context. In this line of thought, digital competence can be defined as not only the digital skills as such but also social and emotional characteristics for the use and understanding of any technological device or digital resource. On the other hand, Sanders and George (2017) describe that digital competence implies for teachers to being able to use the technology themselves, they require to meta-reflect on the use of technology in relation to the pedagogy and what it can represent to students' learning processes. In other words, teachers not only need to know the



technology but to be able to curate, choose and integrate according to their specific needs in the classroom.

In addition, it is possible to mention that digital competence relates also to a “sensible and healthy use of ICT (Information and Communication Technologies) that requires knowledge and attitudes regarding legal and ethical aspects, privacy and security, as well as understanding the role of ICT in society and a balanced attitude towards technology” (Janssen et al., p. 480). Finally, Skov (2016) defines digital competence as “the combination of knowledge, skills and attitudes with regards to the use of technology to perform tasks, solve problems, communicate, manage information, collaborate, as well as to create and share content effectively, appropriately, securely, critically, creatively, independently and ethically” (p. 1).

Now that the concept of digital competence has broadened it is important to see what other authors consider about this. Gudmundsdottir and Hatlevik (2017) found that this “digital competence” in teachers is growing of importance in classrooms since digital media and digital resources are becoming part of everyday practice. They developed a study in Norway where they explored how newly qualified teachers are prepared to use ICT in their initial teacher education. The results showed that these teachers report fairly poor quality and contribution of ICT training during their preservice training. It means that even if we are currently living in a technological era; it does not mean that all teachers have a developed digital competence. Gudmundsdottir and Hatlevik (2017) suggest that there is need for more research on how to prepare student teachers for using ICT in their classrooms. For the purpose of this study, it can be said that teachers at ÚNICA are like the ones presented by Gudmundsdottir and Hatlevik (2017), most of them do not have a developed digital competence and struggle somehow to incorporate any technology into their daily practice.



Moreover, Falloon (2020) discusses in his study a conceptual framework in which an expanded view of teacher digital competence (TDC) is introduced. He describes that digital competence moves beyond technical literacies conceptualizations, emphasizing on more holistic and broader-based understandings that identify the boosting complex knowledge and skills young people require to function ethically safely, and productively in different digital environments. Falloon (2020) also pinpoints the need to expand teacher education in terms of the competences required for today's needs. It is necessary to educate young people in building the capacity to leverage advantage from digital resources and information in safe, secure, and sustainable ways.

Professional development

It is important to differentiate training and professional development. On the one hand, training itself is operational, it teaches people to be competent at their jobs; professional development is strategic, it teaches people to excel in their areas of expertise (Kresl Consulting, 2018). Professional development implies that learners put an effort into how to apply what they learned. Kresl Consulting (2018) mentions "Training gets people to be compliant. Professional development gets them committed" (p.1). In this line of thought, both concepts are connected to teacher training and teacher professional development at ÚNICA, where training becomes a part of professional development programs designed to excel the profiles of the staff.

First, the OECD (2005) described in the report Teachers Matter that teacher quality is the most important factor in the education system and the second most important factor affecting student achievement. On the other hand, Barber and Mourshed (2007) in their report concluded that certain education systems achieve better results due to three factors: getting more talented professionals to be teachers, developing these teachers into better instructors, and in ensuring that these educators deliver consistently for every



child in the classroom. Having said this, it is important to mention that teacher training and professional development plays an important role in the success of educational systems.

Kárpáti (2009) defines in her book chapter that the primary aim of teacher training is to develop educational skills that are compatible with education policies and to enable teachers to deliver these policies. Connecting the previous ideas with Darling-Hammond's et al (2017) report on teacher professional development, they established that TPD (Teacher Professional Development) is of increasing importance as one way to support the growing complex skills students need to learn in preparation for further education in the 21st century. Díaz-Maggioli (2004) mentions that effective professional development needs to be understood as a job-embedded commitment that teachers make to boost the purposes of the profession as well as addressing their needs. Diaz Maggioli (2004) also describes that TPD is a career-long process that teachers shape to meet their students' needs, this tackles their teaching styles and requires them to make decisions when mediating students' learning. All in all, Teacher Professional Development is a holistic process in which not only the teachers receive an update or new skills on pedagogy or teaching trends, but it requires an ongoing commitment from teachers and the institutions. In this line of thought, it is necessary to differentiate these concepts. Although they seem to be the same, they represent different processes.

Having said this, it is worth mentioning that today's teachers require to be updated not only on policies that frame institutions but also on the current students' needs that address the education of the 21st century. Advanced forms of teaching are needed to develop student competences, for example: mastery of challenging content, critical thinking, problem solving, effective communication and self-direction and technological skills. Professional Development is needed to promote the reshaping of teachers' current pedagogy knowledge so they can address the skills previously mentioned.



In addition, Darling-Hammond (2017) established seven categories in which PD can be addressed: content focused, active learning incorporating, collaborative support, effective practice model use, expert support and coaching, feedback, and reflection. These authors mention that depending on the needs, teachers can access different kinds of PD programs. First, the content focused PD relates to teaching strategies associated with specific curriculum content, this includes intentional focus on the discipline itself and pedagogies in areas such as math, science, or literacy.

Second, active learning incorporating engages teachers directly in the designing and trying out teaching strategies giving opportunities to engage in the same style of learning teachers are designing for the students. This PD focuses on the use of artifacts, interactive activities, and other strategies to provide contextualized professional learning. Thirdly, high-quality PD creates spaces for teachers to share ideas and collaborate in their learning. Teachers can create communities that positively change the culture and instruction of their grade level, department, institution, and region.

Subsequently, in the use of models of effective practice PD, the curricular models and modelling of instruction give teachers a clear vision of what best practices look like. The ones in charge may give examples of lesson plans, unit plans, samples of student work, observation of peer teachers, etc. Connecting this category, we can mention that expert support and coaching is necessary, here it involves the sharing of experiences and evidence of best practices that address the teachers' needs. This can lead to feedback and reflection from both sides, the teachers, and the trainers. It is possible to identify the ways in which teaching can be improved and the opportunities for innovation in the classroom.

This is the case at ÚNICA, although the institution has a highly qualified teachers' staff in different areas like pedagogy, bilingualism, linguistics, and many other areas, it is necessary to keep such quality through permanent teacher training in different topics that relate to innovation, new methodologies, educational



technologies, etc. This teacher training must evolve into a continuous Teacher Development Program that becomes part of the institutional mission and enhance what teachers do in their classes. In addition, it is not only necessary to train on methodologies but also to provide the opportunities to reflect and to receive support from different experts and clear examples on how to improve the teaching practices for the benefit of the students and the program at ÚNICA. Although, at the institution there is a clear path for teacher development sessions, there was not a program itself focused on the technological needs. The pandemic urged this to be created, teachers required from one day to another a way to face the challenges the lockdown presented. Experienced teachers from the same staff could face this emergency but it required more than a short training session on the use of a platform that could lead to a remote class with regular practices of the face-to-face sessions. In this line of thought, this research project helped the institution to support teachers in the best way for a meaningful transformation of the classes. In the next sections, it will be described the methodology in which this project was based.

Methodology

This research reports about an intervention done at ÚNICA with 21 teachers during the pandemic for Covid-19, with the purpose of facing the urgent needs on the use of technology. This intervention was made by the technological team. The epistemological approach of this project is the hermeneutic method and the type of study developed is Participative Action Research. The population of this research is the teachers at Institución Universitaria Colombo Americana-ÚNICA. All data has been collected through surveys, interviews, class observations, focal groups with teachers and students. A thematic analysis technique will be used to answer the research question. This method is a way for identifying, analyzing, organizing, describing, and reporting themes found within data (Braun & Clarke, 2006). It is important to consider this method since it gives a clear view and information of the data collected.



Research question and objective

Research question: How does the professional development (PD) and instructional design technology program influence teachers' digital competences?

Objective of this research: To identify the possible effects of the teacher's development program in digital literacy and competences of teachers at ÚNICA after a year of forced technological integration due to the Covid-19 quarantine.

The development of this project started immediately after the pandemic began since the response to it needed to be quick and effective. There were many needs to be tackled, for instance: how the classes would be developed, what technological needs teachers had, which platform to use and many others that the institution had to solve from one day to another. All the previous were a huge concern from the administration, the coordination, and teachers as well. There were hundreds of questions that had to be solved as they came up. The committee decided to create different ways to communicate like the use of institutional e-mails and chats, so all the information and questions were in one place.

Some of the main actions taken to aid professors make the transition from face-to-face teaching to remote teaching mediated by technology were the offering of practical workshops on digital tools, webinars on best practices in online learning, asynchronous courses on the SAMR model (Substitution, Augmentation, Modification and Redefinition) by Puentedura (2006), it describes the steps in which technology can be integrated in the class, and the design and construction of HyperDocs which is a digital lesson plan that creates a learning activity by interacting with other digital tools and that students can interact with at their own pace (Highfill et al, 2016), as well as the creation of a digital tool hub for all teachers to use at their discretion, and one-to-one sessions, among others. These initiatives



allowed the ETPIC to share some conceptual information to help professors inform their practice theoretically and soundly. As well as to aid professors in the development of a profound understanding of the implications of teaching virtually, asynchronously, and synchronously.

ÚNICA had to make decisions regarding instructional guidelines in this new environment. Considering that both teachers and students reported increasing levels of stress and workload associated to online instruction. Teachers were reporting to the institution that they were struggling with the amount of work they had due to the preparation of their materials, tasks and revision required for the virtual classes. In this sense, it was necessary to intervene with actions that mitigated this reality. First, the community reached an agreement regarding synchronicity and asynchronicity of lessons (See table 1). Thus, each subject was given a suggested scheme for classwork dividing the hours assigned into synchronous and asynchronous work depending on the number of hours allotted: type 1 subjects with 8 or more hours a week, type 2 subjects with 4 hours a week and type 3 subject with only two hours a week. Having a unified view of timing impacted the amount of direct instruction opening room for flipped-learning practices in the syllabi and reducing the time students had to be connected just listening to instruction as it were a regular face-to-face class.

Table 1.

Suggested class time distribution.

	Type 1	Type 2	Type 3
Synchronous	50%	66.6%	100%
Asynchronous	50%	33.3%	

Summer 2020



More recent actions in this matter include class observations, training in Flipped Learning, which is an approach that transfers some specific processes outside the regular classroom (Santiago, 2021), and then follow-up training sessions in SOFLA (Synchronous Online Flipped Approach) (Marshall, 2020) The series of steps suggested by SOFLA allowed teachers to structure their lessons in a more systematic fashion. This new element permitted the community to think of virtuality beyond the use of tech tools being able to focus on instructional approaches in remote teaching. Although these actions have been implemented for about a year, it requires more support to teachers so it can be implemented successfully in all areas of knowledge.

Context and participants

This project was developed with 21 teachers at Institución Universitaria Colombo Americana-ÚNICA in Bogotá, Colombia. These teachers are high qualified in different areas like pedagogy, linguistics, English teaching, mathematics, administration, and others, however not many of them were using or integrating any tech tool in their daily teaching practice. Haines (2015) describes, “teachers must have both technological and pedagogical knowledge” (p. 165) to use technologies in the classroom the best way and to identify the opportunities and problems when it comes to dealing with what new tools bring. So for this project, having this particular situation with the teachers, it became important to implement a series of training so both skills were accomplished. The teacher training project started in March 2020 and finished in June 2021. Nevertheless, in this report, the information evaluated only covers the first year.

Data collection tools

For this research, it was decided to use as data collection tools: questionnaires, interviews and class observations. First, the questionnaires were implemented at different times during the project. The questionnaire was implemented at the end of the first semester in 2020. This was designed in order to



gather all the perceptions from teachers towards the training developed in the institution. As Wilson and McLean (1994, as cited in Coen et.al, 2011) describe questionnaires as an instrument that allows to collect information, providing structured, numerical data, and that can be administered without the presence of the researcher, and often being comparatively straightforward to analyze. This tool let the researchers identify themes and patterns regarding the research question and possible issues that could not be seen in or identified in other contexts of the project.

On the other hand, interviews were conducted during the first semester 2021. The main purpose of the semi structured interviews was to provide contexts for all the data gathered and to hear from their own voice what they felt and did during the project. As Coen et.al (2011) state, “interviews enable participants, be the interviewers or interviewees, to discuss their interpretation of the world in which they live, and to express how they regard situations from their own point of view” (p. 349). In the case of semi structured interview, it is a verbal interchange where the interviewer attempts to collect information from another person by asking questions that were prepared previously and it unfolds a conversation in a way to explore different issues (Clifford et al, 2016). From this view, researchers wanted to see what teachers experienced during the technological training. The interviews were essential to the study because they allowed to evidence from each teacher’s perspective, their thoughts and opinions throughout the project.

Finally, the class observations played an important role during the project because they showed how teachers implemented what they learnt during the training. Marshall and Rossman (1995, as cited in Coen et.al, 2011) mention that observations are more than just looking. It refers to “looking (often systematically) and noting systematically (always) people, events, behaviors, settings, artifacts, routines and so on” (p. 396). This observation allows the researcher the opportunity to gather ‘live’ data from



natural situations, in this case, the classes developed at ÚNICA. Observations allowed the researcher to see how teachers were implementing strategies, resources, and tools that were included in the training sessions. This tool was key to the project and provided with relevant information.

Data analysis

The data collected for this study was qualitative and the method of analysis was a process of triangulation. This means that information was collected from three sources (questionnaire, interviews, and class observation notes). Data analysis began by looking in detail at teacher's responses in the questionnaire, interview, and information from the observation journal. Data triangulation uses a variety of sources to enhance research effectiveness (Guion, et al, 2011). So, for the purpose of this study, a triangulation matrix was designed to analyze better the information gathered and to foresee the validity of the data to help answer better the main inquiry, see Annex 1. The analysis in detail is described as follows:

Questionnaire

The questionnaires collected data from teachers at ÚNICA about their competences, perceptions about technology, professional development program and its usefulness in their teaching practices. These were structured into sections that focused on: first, the use of technological tools and electronic devices in the virtual classroom. The second section was about how they were structuring their sessions and the good practices they were implementing for virtuality. Finally, the last questions were about the methodology for asynchronous sessions and how they managed time and participation. The objective to implement a questionnaire in this study was to objectively collect information about teachers' knowledge, beliefs, attitudes, and behaviors (Boynton & Greenhalgh, 2004).



Considering the first questions that related to the use of technology in general, it is possible to evidence that teachers at ÚNICA were using different devices and technological tools for their classes. Most of them used laptops, cellphones, desktops computers, and digital boards, laptops and desktops being used the most. They had basic tools for connecting to their classes. On the other hand, in terms of platforms and digital resources to develop the classes, they answers were varied. Although they all used a platform, they used the ones they chose due to their urgent needs. In the first place, teachers implemented Teams from Microsoft (Institutional suite), this was the first tool teachers were instructed to use the day before the lockdown. On the second place, teachers used Google Classroom and the GSuite as the virtual space for the classes; other teachers used Blackboard or Edmodo instead.

This data shows that teachers at the beginning of the pandemic could deliver their classes remotely. They resorted to different devices and platforms to support their sessions, and this allowed them to continue with the learning processes that had already started prior to the lockdown. Following this, teachers were asked about the use of other tools like Zoom, Meet, Teams for synchronous sessions, although ÚNICA established that Teams was the institutional tool for the sessions, some teachers resorted to other similar ones due to the technological problems presented during the use in their classes. Many teachers mentioned the inconveniences Teams presented and that how this affected their classes negatively.

Additionally, there were other kinds of tools that teachers used to complement the activities planned. Teachers were more into using the Apps that Google provides, these are: Google Drive, Google presentations and Google docs. These tools were the most used by teachers in their activities for class. Nevertheless, teachers chose to include tools that helped them to foster participation (immediate



response tools) like Mentimeter, Kahoot or Quizzis. There were other teachers interested in promoting reading habits and they integrated Perusall or ActivelyLearn. These previous tools were used with different purposes according to the comments given by teachers. It is important to mention that one or two teachers used these last tools. Teachers demonstrated to be curious about the fact of incorporating resources that could help the development of their classes. This is the case of interactive videos, slides presentations, phone calls and other resources that complemented their classes.

Class observations

Class observations were implemented to see firsthand whether teachers at ÚNICA were implementing any of the strategies or technological tools recommended during the training sessions. To develop these observations, the members of ETPIC were assigned some of the teachers to be observed. A format was designed to depict the areas of interest for the study. The researchers were interested to see how teachers integrated technological tools in their activities, how the strategies for virtual sessions were used, and how they could solve problems regarding technology.

The observations took some weeks, and teachers were informed they were going to be observed. It is important to mention that these observations did not have the purpose of evaluating or reporting performance to administrators. The main objective was to see if teachers were able to deliver their classes according to the suggestions and recommendations given during the first technology training sessions.

The observations could show right away that first, teachers could indeed deliver their classes using a few of the tools available, and second, they were doing their best to teach the classes assigned. However, there was also evident that they had some issues with technological and methodological components of their classes. As it was mentioned before, ÚNICA has a great team of teachers, they are



experts in their areas, but not all of them had technological and methodological skills to deliver classes online. In the observations was possible to identify the following:

Use of technological tools

It was found that 100% were using at least 2 different digital tools for the classes. Teachers used either Teams or Zoom to deliver the online sessions. Teachers included visual aids like PowerPoint presentations, Google presentations or Digital Boards. In this case, the basic use of the tools was present, and the classes were given according to the regulations established by the institution to face the lock down. This situation allowed students to continue with their learning process although there was not any face-to-face session.

On the one hand, after reviewing the observation journals, it was possible to identify some common tools in the remote classes. From the 14 observations done, the most used tools were: GSuite apps like google docs, slides, Jamboard. At least 10 of the teachers observed used one of the applications of GSuite. On the other hand, the other most used tools were apps like Genially for games, presentations, and infographics. 5 teachers resorted to this resource to present content or to have interactive activities. The other least used were PowerPoint slides or videos. There was something that although was not explicitly mentioned in the training, was that teachers used the aids Teams and Zoom had like the chat or the digital boards. Most of the teachers used these aids to ask students to interact in the class if they did not want to open their microphones. Finally, there were other tools that one or two teachers used to interact with their students. Some immediate response tools were Mentimeter, Quizziz or Jamboard. There was just one teacher that used Screencastomatic for video recordings (instructional videos).



Digital mindset and digital competence

During the observations it was possible to see that most of the teachers could use the tools they selected for their classes and activities. Nevertheless, the use was very limited in terms of functionalities. Teachers used, for example, a presentation in Genially just for content or a game, but they did not use the advanced features of the tool to present an activity in a more interactive way. Teachers were interested in including other resources in their classes, but the use was not the expected for virtuality sessions. Although, some tools like Mentimeter or Quizziz are designed to boost participation or to have assessment activities, they were used for simple questions or icebreakers, and they did not vary this use into more complex ones. It was evident that teachers were including face-to-face practices into virtual classes. On the other hand, some teachers were attentive to help students with technological issues or vary the participation from the microphone open to interactions through chat so students could participate more.

It was also evident that teachers struggled to change their mindset in terms of how to distribute the time in the classes so they could use different tools to have different kinds of interactions. Some teachers were reluctant to shorten their activities so they could give more time to students to participate instead of the teacher. This practice was evidenced throughout the different moments of observations.

Class-Methodology

In terms of methodology, teachers were doing their classes according to their regular face-to-face practices. Although they delivered their synchronous sessions using Teams or Zoom, and after being instructed to divide class moments so they would not have the same interaction in virtuality, at least 50% of the teachers observed had long periods of teacher talk, explanations and even lectures that made the classes completely face-to-face oriented. This common practice affected the participation of the students. Many students barely turned their cameras or microphones on to attend the classes. It was not possible



to evidence that students were indeed connected to the class or completing any kind of exercise due to the amount of time in which they had to listen to the teacher. However, this initial practice was common during the first months of the lock down and teachers manifested that they were feeling exhausted due to the amount of time devoted to the class and the lack of participation. Some teachers were willing to modify their practices during their classes. In the observations was also evident that teachers although were a bit reluctant to shorten their activities, they changed and were including other spaces like active pauses, cooperative activities, and initiation to participate through the chat or online documents.

Interviews

In this study, interviews played an important role since they showed what teachers believed and allowed them to discuss their interpretations of the world and their realities, and how they regard situations from their own point of view (Cohen et al, 2011). Having said this, the interviews were implemented at the end of 2022 with the purpose of capturing all the perceptions and beliefs teachers at ÚNICA had towards the training and support during the Pandemic and the challenges faced. The interviews were designed to find out what teachers believed, perceived and experienced during and after the training sessions and the resources provided to develop their remote classes during 2020. Considering this report, only the interviews developed in 2020 were considered and the analysis evidenced the following themes:

Teacher Digital competence development

After developing the sessions of the interviews, the teachers mentioned many important things about their own development of digital competences. They said that a great part of this development was possible thanks to the training provided by ETPIC and the different activities developed to support



teachers while they were starting the implementation of the digital resources and tools in the classes.

There were comments like:

Interviewee 1: I feel that there has been quite a bit of progress, kind of staggered, and I feel that you (ETPIC) have done a very good job in guiding the teachers to discover the tools that exist and to start using them meaningfully in the classes.

Interviewee 2: It does have to do with a bit of training, for example, getting the link out of one and getting out of trouble with a link in a document in the Drive, for example, a document, yes, a document in the Drive online.

As it is possible to evidence, teachers considered important and relevant the training received and the learning progress they had. This led to visible transformations in their views towards technology and its incorporation in their classes. They mentioned that it was also a bit overwhelming since there are many tools to be used and that their learning paths are not as fast as they wanted. It is important to keep the training on a regular basis so the purpose of innovating in class with technology can be part of everyday practice.

Interviewee 1: todavía muchos se sienten como inseguros, no frente a la tecnología, bueno un poco y creo que eso es como el punto de seguir trabajando.

Interviewee 2: ahí digamos que a veces un poco abrumador también el asunto, en el sentido de que hay tantas y uno digamos que tiene que desarrollar una cierta autonomía y una cierta también rutina de aprendizaje, utilizando las herramientas. Digamos que eso también es un poco abrumador.

They realized that it was valid to decide when to use any tool and that they did not have to include many tools in just one session. Teachers realized that although they had a huge number of resources and tools to be used, they could resort to just one according to their activities and students' needs. They also



mentioned that now they are more experienced and expert in the use of the tools, but their learning process requires more time to become expert users of such tools.

Transformation of the teacher's role and methodology of the classes

Another important aspect evidenced from the interviews was the change in the role of the teacher in the classes. Teachers said they were experiencing changes in their practices; they changed their mindset in terms of the regular structure of the classes in which the teacher talk is the most important to a class where interaction and participation is greater, and all the instruction is given differently. One teacher explicitly said, “we are not playing one-hour videos, I give more opportunities for participation and students like that, they also thank the active pauses during the sessions”. This presents an opportunity to understand that variation and other kinds of interactions during the classes are more meaningful. Other teacher mentioned:

Interviewee 2: la transformación particularmente ha ocurrido en el sentido en que los estudiantes dejaron de ser quienes, quienes caminaban sobre ese puente y también se convirtieron en proveedores del de ese otro lugar al que se quiere llegar a que me refiero. En esa medida, particularmente en un par de materias. Siento que he promovido un poco esa idea de la interacción con el propósito de conocer y eso ha sido como un poco. Digamos un poco el cambio, la transformación. Digamos que antes yo simplemente trataba de hacer ese puente entre lo mis estudiantes y lo que quería que aprendieran.

Interviewee 3: Entonces en esa medida digamos que la colaboración se vuelve algo absolutamente necesario, como existe trabajos en grupos y trabajos en equipo con la con el propósito de que de que haya un aprendizaje propio originalmente, como que me vuelvo experto en un tema. Sí, y yo soy quien transmite ese tema a mis compañeros, pero también con que hay un aprendizaje colectivo y eso me facilita.



Digamos, la administración de tiempo y de contenidos en el en el en la unidad de instrucción, en la unidad pedagógica que plantea.

Although teachers were aware of the importance of transforming their classes to a more interactive and participative sessions, they showed that it was demanding and that they needed support from ETPIC. It was evident that teachers still had some practices that were not the recommended for virtuality.

In this line of thought, we can link the roles of the teacher and students with the organization of the classes. Since teachers were attentive to the transformation of their classes, they had to think of the betterment of what they regular did in their face-to-face classes.

Results

The first stage of the study required both keen observation of instructional practices and rapid intervention regarding urgent needs in the context of pandemics. ETPIC quickly developed a how to guide in the use of tech tools for teachers and the management of the remote classes (virtuality); this kit was composed of a series of synchronous and asynchronous strategies to provide teachers with useful and practical tech tools available online. Simultaneously, the committee developed strategies for students, soon the community was learning about netiquette, study habits, and digital wellness. All the initiatives proposed by the team, including the purchase of digital classrooms memberships, were consistently supported by the administration.

By means of surveys, class visits and focus groups the team managed to document professors and students' technological traits and device tools towards a digital growth mindset. This digital mindset can be defined as the skills and beliefs that are in a continuous development towards the effective use of



technology (Trabado, 2016). The community was found as and heterogeneous group regarding skills in the use of technology (tools, devices, and online interactions) and regarding digital mindset (positive and or negative views of virtual teaching and learning). The researchers can underline the following results:

1. The pre-pandemic classroom represented very few opportunities to scaffold online learning, to establish collaboration online, and to evaluate outcomes consistently through any digital tool. Even though the teachers would eventually display YouTube videos in class and take the students to the language lab sometimes, virtuality was not a topic of conversations in the teachers' lounge or even a concern among the teachers. The baseline of the study evidenced a scarce knowledge of digital tech tools amongst the collective of teachers prior the pandemic.

2. Transitioning into virtuality was not easy for anybody. Initially, many professors transferred their instructional practices from the classroom to a virtual environment with little or no adaptation. Even though teachers worked hard to adapt, many lessons became online lectures with considerable gaps in checking understanding often failing in making learning visible. This scenario allowed the technology committee to develop and perform interventions such as training sessions on tech tools, and the development of a digital hub for all teachers, as a result the culture of collaboration has grown rapidly.

3. Reaching a good command of tech tools and the ability to try new techniques was only the beginning for the ÚNICA professors. Once teachers eased the use of tools associated with virtuality, they required methodological support in their integration to the classroom dynamics they proposed. A lot of teachers felt the need to integrate all this new knowledge with their own areas of expertise and teaching styles. Teachers were already good enough, they only needed to find the way to



develop their own teaching identities in virtuality. In this regard, the technology Committee responded developing training sessions in instructional approaches such as SAMR (Puentedura, 2006) Hyperdocuments, and SOFLA (Marshall, 2021) and the importance of Flipped Learning practices.

4. Teachers show a growing interest in getting involved in the project. Even the more orthodox professors have shown considerable curiosity and willingness to attend the training sessions and implement what was learned in the training sessions. Nevertheless, the data collected through class observation and focus groups with students show big steps towards consistency in instructional practices in virtuality. Not all the teachers advance in the same pace, and the least used to technology are the ones who struggle more.

5. The work dynamics proposed by ETPIC allowed the community to understand communication in a new and more effective way. The pre pandemic environment presented important flaws in the flux and access to information; back then, the educational community (students, teachers, coordination, areas of knowledge and admin staff) barely used the institutional e-mail just to mention one example. In the past, information was often lost due to lack of procedures and a clear communication protocol and even people did not know how to ask for technical support when needed. Having said this, this showed that at the institution, communication was taken for granted and this gave an opportunity to change the way the information was presented.

6. The current challenge is to preserve the traditional high standards of the institution in this new environment. In other words, to make virtuality a proper scenario for professors to exploit their full potential in an innovative educational environment.



The analysis of the data reveals the grateful attitude of ÚNICA professors towards the actions taken by the institution to support them in this arduous process. Professors mention the key role of the support provided in the successful overcoming of hurdles and the generation of innovative practices for their classes. Professors in all areas of knowledge started making substantial changes, not only to the practices in their virtual classroom, but also in their view of learning and teaching digitally. There are still many actions to be taken regarding transformation of the classes and the teaching practices.

Conclusions

The institutional response to the Covid-19 contingency was an important action taken to adopt virtuality as a new method for teaching. ÚNICA established a technology coordination team fast which oversaw this institutional transformation. The ETPIC could arrange a clear path to follow so all teachers at the institution could face the best way possible the virtual classes. The transformation began from the moment the first training was given to all teachers. However, this transformation took longer than expected and it has not finished yet, which evidences the need to implement continuous teacher support.

The creation of the ETPIC team as the coordination of the technological and methodological support was key in the success of this transformation. This may be considered a promising aspect of an institutional transformation and a way to create a vision of innovation in all the pedagogical and technological aspects of the teachers at ÚNICA. The results of the project evidence that there was an important influence in teachers' digital competences due to the creation a series of trainings that then were a complete Professional Development program. Although this was to face the challenges of the pandemic, it showed an important need on this technological aspect. There were some effects of the teacher's development in the digital literacy and competences of teachers at ÚNICA. The program wanted



to foster different skills and it was evident that teachers require as on-going teacher training so that they can not only understand and apply what it is expected in terms of technology use and integration in class, but also a way to be updated in current pedagogical trends.

The broad implication of the present research is that it is important to have an institutional vision of innovation and support, investment in training and guidance so all teachers can innovate their teaching practices and integrate any digital resource, for this huge change SOFLA (Synchronous Online Flipped Approach) had an important role after evidencing the teachers' needs in pedagogical support, however it requires more time for implementation since this is a late part of the project that has not been finished. In addition, these findings provide additional information about the time teachers need to assimilate contents, to incorporate them and to be able to advance in the development of skills and digital mindset.

Our data suggest that we still have a long way to go to preserve the traditional high standards of the institution in this new environment. In other words, to make of virtuality a proper scenario for professors to exploit their full potential and to enhance students' skills and mastery in their subjects.

In summary, this paper presented the process that was developed for the transformation of regular face-to-face classes to a remote teaching assisted by technology classes with a huge training plan for teachers which resulted in several changes mentioned before. This provides a good starting point for discussion and further research that can be developed by the institution to enhance innovation and transformation of teachers and their practices into more innovative and different ways and to strengthen a Professional Development Program.



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Appendix 1

Triangulation Matrix

Sample analysis of data

Research question: *How does the professional development (PD) and instructional design technology program influence teachers' digital competences?*

Objective of this research: *To identify the possible effects of the teacher's development program in digital literacy and competences of teachers at ÚNICA after a year of forced technological integration due to the Covid-19 quarantine.*

	Professional Development	Digital Competence	Digital literacy/mindset	Analysis
Questionnaire	<p>Did the strategies of the technology team (meetings, trainings, and workshops) contribute to your professional development? Yes: 17 No: 4</p> <p>What tasks can you do with technology in your classroom comfortably today after participating in the sessions? Set up a synchronous class in Zoom, Meet, or Teams, deliver a synchronous class in Zoom, Meet, or Teams, Upload materials to a platform, record instructional</p>	<p>Do you feel that the initiatives proposed by the technology team were sufficient to meet your technological needs? Yes: 17 No: 4</p> <p>Considering the definition of digital competence and after the training sessions, evaluate this type of competence when planning and executing your classes and evaluating content using digital and technological tools?</p>	<p>During this semester or this period, how much has your perception of virtuality and technological ed changed? Very little:3 Sufficient: 14 Quite: 3 Nothing: 1 Comments: "Digital tools are decisive for an understanding of meaningful content for students".</p>	<p>Teachers at ÚNICA recognize that the PD program developed were useful and helped them to promote digital competences and improve their practice in their classes. They recognize also that they changed, learned, and improved their competences when incorporating digital tools in the classes.</p>



	<p>videos, Design PowerPoint presentations, Design hyperdocuments, use multiple digital tools synchronously (for example: Zoom, Mentimeter, and Google Docs), Organize (set up) small work groups in Zoom, Design asynchronous classes or activities</p>	<p>Somewhat competent: 9 Not very competent: 1 Competent: 9 Very competent: 1</p>	<p>“I was incorporating many more tools and I now have a much more elaborate criterion of their effectiveness and applicability”.</p>	
<p>Class Observation (ethnographic notes)</p>	<p>Hames greets students with music videos and once they're all connected, call ready to know they're watching. Introduce the objectives of the class and make a reminder of what they previously saw. Performs a pronunciation exercise with IPA written on words that have difficulty. Use a TIMER video to count the time students must make a list of family members. Gives slightly complex instructions for the level of students (could include a slide with instructions) Hames makes a parenthesis to make an exercise of reflection on the types of families that exist.</p>	<p>The teacher evidently can use the tech tools with no difficulty during the sessions. He can manage any tech problem either with the digital tools or with students</p>	<p>The teacher evidenced through the different activities that technology is not a problem.</p>	<p>After the observations of the classes, it was evident that teachers were implementing and changing some regular practices in their classes. They could manage problems and any difficulty during the sessions.</p> <p>They were willing to use technology and to integrate it in the best way.</p> <p>Although there were problems during the implementation, the perception was positive.</p>



	<p>After reflection, give an individual work time of approximately 10 minutes in which they should watch a video and take notes.</p> <p>Hames calls on students to return to the meeting after individual work time</p>			
Interview	<p>I think it has been excellent no, that is, I cannot, I could not criticize anything Mhm because, that is, we managed to do it in a month tactically, that is, the University as such I think has provided all the support that one may need, the courses, I think there is, there is something that I do not know how to call it. For example, you, I know that you have all been willing to help everyone when you need it. But there's something in oneself, like it says Oh, no, so I'm going to put them in wasting time explaining this to me, I try to do it.</p> <p>I feel like it's been enough... I feel like you've done a very good job of guiding teachers to discover the tools out there</p>	<p>I declare that it does have a little to do with training, for example: get the link of one and get out of trouble with a link in a in a document in the Drive, for example, a document, if a document in the online Drive. Online or links to remove other resources. Or so I don't know how it is like. Oh well, right, a document in the Drive, for example, true, that's from one or, for example, upload the tasks to the Chinese of one. That used to touch me as with more, not as a head. How come this is it and not now?</p> <p>Then I create it immediately and share them in the chat and lose the fear of the chat because I say let them</p>	<p>Okay, okay Well, the truth, I feel satisfied and enthusiastic and to recognize that I know that I lack much, much to learn. Regarding the use of technological tools. But I've started, let's say, to use things like Padlet, Flipgrid. Things that we say aha eventually in the face-to-face, very occasionally used, yes and ... and well I feel that I used bone as we see that I have found significant the use of the tools for the purpose of the contents in which I have used them.</p>	<p>Teachers acknowledge the importance of the training sessions during the pandemic. This helped them to learn how to use digital tools and to integrate them. Sometimes they felt overwhelmed, however they could manage to develop their classes. The response to their needs were immediate. They thank the actions taken.</p>



	<p>and start using them meaningfully in classrooms. I feel that, for example, SOFLA helps a lot to structure that and that helps teachers to do it in a better way.</p>	<p>comment in the chat. Also, because before one elaborates many things, say those who must be a Padlet is not that it must be a Jamboard. Not also in the chat, write to it. And the students too, as the chat yes as how to give other uses to the chat that if one forgets, because I like it, or they are tired of so much Padlet and so much Jamboard.</p>		
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