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EDUCATIONAL INNOVATIONS IN PANDEMIC LEARNING CONTEXTS MULTIDISCIPLINARY PERSPECTIVES

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(coords.)

ISBN: 978-84-1377-677-4

Collection Innovation in Social Sciences
Colección en Innovación en Ciencias Sociales

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Collection Innovation in Social Sciences

This collection systematizes principles and training experiences related to Educational Innovation in Social Sciences.

This collection promotes world-leading research of the Research Institute of Social Sciences and Education. University of Atacama (Chile).

Este libro ha sido sometido a evaluación por parte de nuestro Consejo Editorial
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Madrid, 2021

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ISBN: 978-84-1377-677-4

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CHAPTER 9. GOOD PRACTICES WITH ICT IN PHYSICAL EDUCATION WITH STUDENTS WITH DISABILITIES.

Marta Montenegro Rueda & José Fernández Cerero.

Introduction

From the beginning of the 21st century, innovation in Social Sciences has played a key role in both academic debates and the agenda of the international political community. Whether societies are capable of innovation or even willing to innovate depends on their ability to exploit the technological, economic, social and cultural potential of both their own society and other societies. This collection aims to monitor, assess disseminate and share the best practices of Social Sciences and their implication in Education and Society from multi-disciplinary approaches. This perspective becomes more complex and integrates this proposal in a socio-technical network in which there is interaction between several technological, political, financial, educational, human and even legal aspects.

Consequently, one cannot dissociate the technical, human and social processes that contribute to the production of a significant change. We endeavour to serve the college and the community as a source of social science information in addressing matters of national and international concern. We strive to promote understanding, respect, sensitivity and acceptance of differences and we are committed to improve Education and Society from the promotion of peace, social justice, equity and human rights. Furthermore, this collection fosters academic excellence, collaboration, innovative active inquiry methods, and excellence in order to motivate and inspire students and readers to think critically, feel deeply, communicate effectively and act responsibly to meet the challenges of an increasingly complex, technological, diverse and threatened world.

This book is the first of the "Innovation in Social Sciences" collection, with the title "Educational Innovations in pandemic learning contexts: multidisciplinary perspectives." This collection opens a necessary gap in the field of social sciences applied to education. Several knowledge areas have a publication space where they describe and explain their researches and innovations.

This work aborded educative innovation in pandemic context and how the teachers' different levels and matters have resolved their teaching circumstances. The educators, through creative proposals, sometimes using ICTs and put on the effort in others aspects of the teaching like emotions and actitudes of students in these new situations of teaching and learning.

As coordinators, we have count with expert authors worldwide in their field of work about this first title.

This work has nine chapters; four of them show one panoramic of pandemic generated by COVID.

INTERNATIONAL INNOVATIVE EXPERIENCE: PERSPECTIVE ON COVID-19 AND EDUCATION

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1. CHALLENGES FOR HIGHER EDUCATION

Innovation in higher education has been the focus of various debates and research for many decades, pushing the modern university to reconsider what it consists of, emphasizing its importance as a key facilitator of the intelligent, sustainable, and inclusive growth of a society (Brennan et al., 2014).

In meeting the objectives of the Europe 2020 Strategy, European institutions assigned a central role to higher education. The European Commission (EC), in communications launched in 2011, 2012 and 2013, highlighted the relevance with regard to innovation in higher education. In this context, the reports issued are aimed in particular to contribute to a better understanding of recent developments affecting higher education and to provide evidence of how innovation can support higher education in times of change.

1.1. Initial thoughts

The closure of educational centers was one of the measures to restrain the COVID-19 pandemic which has had the biggest impact in the history of education. From that very moment, an accelerated deployment of distance education solutions was developed to ensure pedagogical continuity. The obstacles were multiple, from low connectivity and lack of online content aligned with the national curriculum to a teacher staff unprepared for this "new normal". (Giannini, 2020).

Regardless of the level of education, the overriding danger is that inequalities in learning will widen, marginalization will increase, and the most disadvantaged students will find it impossible to continue their studies. In this context, higher education is no exception, although, at this level, digital technology has had the greatest impact in recent decades. Before this event, a series of social transformations were already beginning to take shape, many of which are being brought about by the development of different information and communication technologies and their incorporation into society. The spectacular development of Information and Communication Technologies (ICTs) has modified the ways of transmitting, classifying, and processing information, the modes of communication and relationship, with a generalized scope on all activities and areas of human beings, from macro and micro economic, political, social, cultural, labor, or educational spheres, to even more personal spaces (such as the family, social relations). (Orellana, 2007; González Sanmamed, 2007).

In Society, the fact that information and communication technologies revolve around all information and communication processes stands out, highlighting the telematic and communicative processes. This is so much so that the society of this century has come to be known as the "Web Generation" or "Generation I" (from Internet and/or Information). Or in the words of Professor Manuel Castells (2000): the network society, or the information age. Or, as Echevarría (2000) points out, the new technologies give light to a new social space, the third environment, which is clearly differentiated from the natural and urban environments. Currently, other related concepts also coexist, such as technological society, information society, info-society, tele-society, e-society, WhatsApp society, which refer to the social changes that are being generated as a result of the use of social software as a means of communication.

The new times have generated new actors (Internet, mobile telephony, augmented reality, digital geolocation, and other digital technologies) that are changing our experience in multiple aspects: leisure, personal communications, learning, work, etc. Using Bauman's metaphor (2006) to characterize the current processes of socio-cultural change, driven by the omnipresence of information and communication technologies, he suggests that current time - digital culture - is a fluid production of information and unstable knowledge, in permanent change, in constant transformation, as opposed to the cultural production developed - mainly in the Occident throughout the 19th and 20th centuries - where the stability and inalterability of the physical, material, and solid prevailed. That is to say, the digital is a liquid experience well differentiated from the experience of consumption and acquisition of solid culture (Area & Pessoa, 2012).

In this sense, ICTs have progressed and evolved at a dizzying speed, possibly much more than we imagined years ago, and have become an almost indispensable phenomenon in our daily lives. Their constant and inevitable

presence has brought about a great revolution in all orders of human existence by creating new interdependent relationships and modifying lifestyles, thinking and knowledge (Cózar & Roblizo, 2014).

Likewise, it can be considered that their presence in higher education is very relevant because all professionals with a university degree, regardless of the subject area in which the professional is enrolled, must have adequate training for the use of these tools in their professional development and the implementation of any training activity in the socio-technological environment in which we live (López Meneses & Vázquez-Cano, 2013).

In this line, the university institution is being transformed due to different events, ranging from its incorporation into the European Higher Education Area (EHEA), the extension of methodologies such as collaborative work and the incorporation of ICT, in general, and the Internet and Web 2.0, in particular (Cabero & Marín, 2014). In the same way, in this European university context, a methodological and evaluative oriented change is necessary to enhance the comprehensive training of students through the development of their social, intelectual, and technological competences (Aguaded, López-Meneses & Jaén, 2013).

In short, the study of integral formation allows the quality and effectiveness of the educational process to be evaluated. Thus, the need to ensure a comprehensive education, both, inside and outside the university environment, is one of the main goals to be achieved today (Zamora-Polo et al., 2019). In this sense, Crespí & García-Ramos (2021) strongly advocate an integral education, that is, a "human education with teaching centered on the person and his or her learning process" (p.300); in other words, the axiom teaching to learn becomes the goal of every university teacher. In this context, communication plays a transcendental role, since it is not restricted to educational areas and can serve as a transversal resource to achieve a wide variety of skills, not only academic, but also social (Ordóñez-Olmedo, Alcaide-Pilido & Pérez-Escobar, 2021).

2. RESEARCH SCENARIO

The innovative university experience carried out in this research is based on the didactic premise that learning is not merely reproductive and transmissive, but should be oriented from the socioconstructivist, connectivist and ubiquitous didactic model in which students develop their own knowledge from previous ideas and their experience with the advice of teachers in interaction with technological resources.

On the other hand, it should be mentioned that the university experience of the 2020-21 academic year was part of the project: DIFPRORET PROJET: Analysis of educational difficulties, proposals and challenges facing the COVID-19 (Burgos-Videla, Vázquez-Cano, López-Meneses & Adaos-Orrego, 2021).

The present research analyzes the consequences of COVID-19 in Education through word clouds with the social software https://wordart.com/ since it has good usability, and it is free of charge. The study is carried out with 64 students of the 2020/2021 course corresponding to the subject of ICT and Social Education, of the Degree of Social Education of the University of Pablo de Olavide (Seville). In the career of Engineering in Multimedia Arts Production at the Catholic University of Santiago de Guayaquil in Educator and at the University of Atacama in Chile.

The innovative university practice for the 2020-21 academic year consisted in the introspective reflection and selection of 3 to 5 key concepts representing the most significant and relevant aspects of the consequences of the coronavirus in education, together with a brief commentary justifying the selection. Subsequently, the students sent to the teacher's e-mail address their name, surname, degree and a reflective and critical commentary on the concepts made. Finally, the teacher implemented it on the open access web site of the innovative university activity: https://eloy-lopez.jimdosite.com/ (Figure 1).

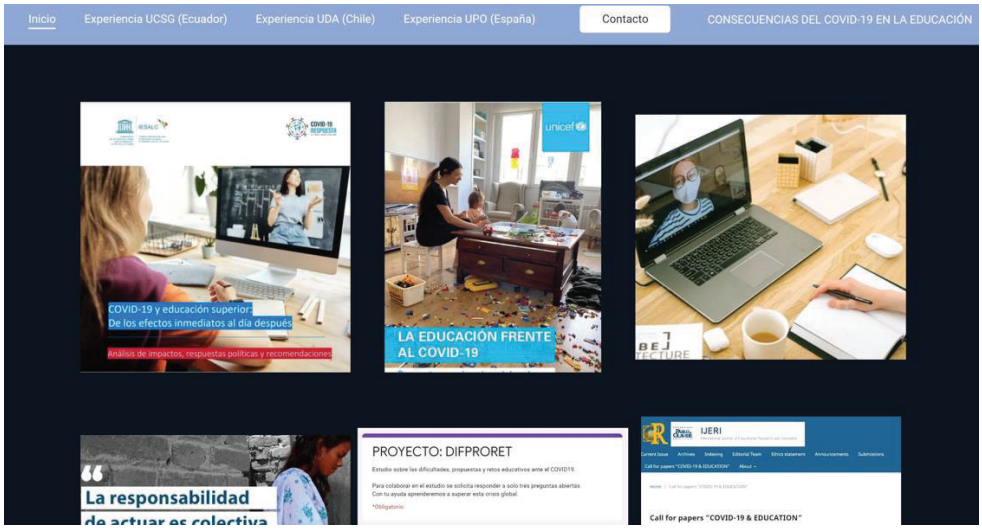

Figure 1. Virtual space of the innovative university experience. Source: https://eloy-lopez.jimdosite.com/

In turn, each student recorded in his or her individual Edublog the different e-activities that were carried out and served as a digital portfolio of the evidence, difficulties and academic progress achieved during the development of the entire course. As an example, Figure 2 shows in each of the upper tabs the activities developed during the 2020-21 academic year.

Figure 2. Edublog of a student with the word cloud made during the 2020-21 academic year. Source: https://wordart.com/474af3iazvsr/word-art

On the other hand, it is worth mentioning that in the virtual space with the U.R.L. http://bit.ly/1G9pT8U are compiled all the links corresponding to the individual edublogs made by the students of different degrees from the academic year 2009-10 to the present.

Finally, regarding the evaluation of the multimedia university experience, an evaluation matrix/rubric with a series of evaluation criteria was offered as a frame of reference for its didactic assessment (Figure 3).

Figure 3. E-activity assessment matrix. Source: https://practicas3000.jimdo.com/rúbrica-2016/

2.1. Objectives of the study

The research was structured according to the following priority objectives:

- To investigate the consequences of COVID-19 on the formative processes shown by the students of three universities (UDA, UCSG and UPO).
- To find out the main features which characterize Education at this time of pandemic, under the vision of the international student body.
- To promote digital competence in the creation of virtual content.

2.2. Research methodology

The methodology used was qualitative and descriptive. The total sample consisted of 102 students, made up of 44 students from the 2020-2021 academic year at the University Pablo de Olavide (Seville, Spain); 42 students of the 2020-2021 academic year from the Universidad de Atacama (UDA) (Chile); and 16 students of the 2020-2021 academic year from the degree program of the Catholic University of Santiago de Guayaquil (UCSG) (Ecuador).

For the qualitative analysis, the contributions made by the students were reviewed by analyzing the words or sets of meanings as recording units. Subsequently, the conceptual plot was transcribed and categorized taking as a frame of reference the guidelines established by different authors (Bogdan & Biklen, 1992; Miles & Huberman, 1994):

Phase One: Data reduction. This phase constitutes the realization of rational procedures that consist of categorizing and codifying the data, identifying, and differentiating units of meaning. The procedures are:

- Categorization of data. Categorization involves the simplification and selection of information to make it more manageable. This process involves several sub-phases:

  - Separation of units. It consists of separating segments of information following some kind of criteria such as spatial, temporal, thematic, grammatical.
  - Identification and classification of units. It consists of conceptually classifying the units that are covered by the same topic with meaning. The procedure can be inductive, i.e., as the data are examined, or deductive, having previously established the system of categories, following a review of specific literature on the topic under study. Normally, this classification is usually mixed.
  - Synthesis and grouping. This phase is actually linked to the previous one since categorization itself implies synthesis. This phase is also present once the categorization process has been completed and some categories are grouped into meta-categories.

- Coding. It is really the concrete and manipulative operation that assigns each category to each textual unit. In this sense, each selected unit has been coded for its frequency count.

- Second phase: Interpretation and inference. Finally, the data analysis process was completed with a stage where we proceeded to the interpretation of the different units of categorized information, systematically arranging the information obtained in tables and graphical representations to facilitate the interpretation and explanation of the results.

2.3. Results of the innovative university experience

Among the results obtained after coding and interpreting the information, it should be noted that the students point out a total of 14 concepts that they consider defining the information society. Figure 4 shows some relevant concepts of the current Society.

Figure 4. Visual representation of some relevant concepts on the consequences of COVID-19 on education considered by the student body of the 2020-21 academic year. Source: https://eloy-lopez.jimdosite.com/

Regarding the students corresponding to the 2020-21 academic year, at a global level they considered that the main consequences of COVID-19 in education are characterized by the use of the Internet or online (10.20%), highlighting the aspect of educational inequality (6.12%) and the incidence of the COVID-19 (6.12%) and confinement (5.61%). Likewise, they express a change in Education and a new reality, both concepts with (4.59%) (Figure 5).

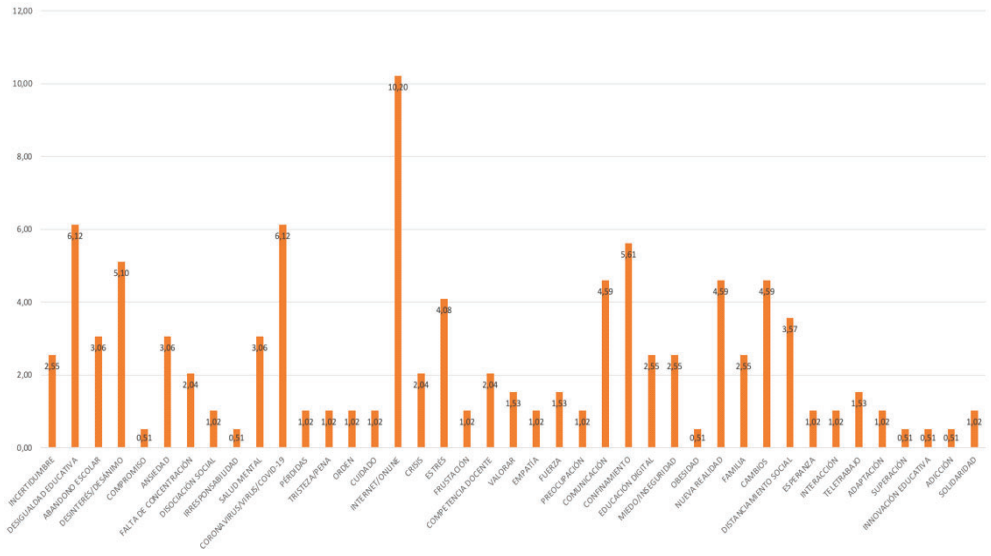

Figure 5. Consequences of COVID-19 on student education for the 2020-21 academic year. Universities of Spain, Ecuador, and Chile. Source: Own elaboration.

A parameterized study by the different countries where the research has been carried out shows that in Chile the most related concepts as a consequence of the coronavirus in education are stress and new reality (8.11%), figure 6, followed by Internet and confinement (6.76%) and coronavirus, changes and social distancing, which are also equal with (5.41%).

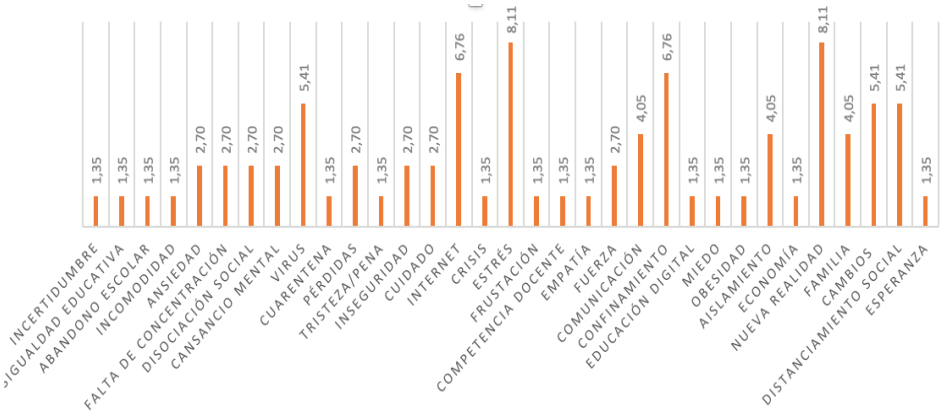

Figure 6. Consequences of COVIDCOVID-19 in the education of the student body for the 2020-21 academic year. UDA University (Chile). Source: Own elaboration.

For the students from Ecuador, the most relevant thoughts expressed in words are lack of interest or discouragement, and anxiety (7.55%); and educational inequality, lack of concentration, mental fatigue, and teaching skills, sometimes simplified to the concept of difficulty (3.77%) of coincidence (Figure 7). The reflection that most caught our attention was:

In the context of the health emergency, low-income students located in rural areas were the most affected in education, because schools and colleges had to close their doors due to the massive contagions that existed since the beginning of the pandemic in March/2020. Having to connect to the internet to listen to their classes, and in an environment far from civilization, makes it impossible for these students to continue with constant learning; despite the government's effort to try to alleviate this situation with action plans, such as carrying printed sheets with the activities to be carried out, this has provoked young people and children to decide not to study until the situation improves and they can attend classes in person. (Anonymous, 2021).

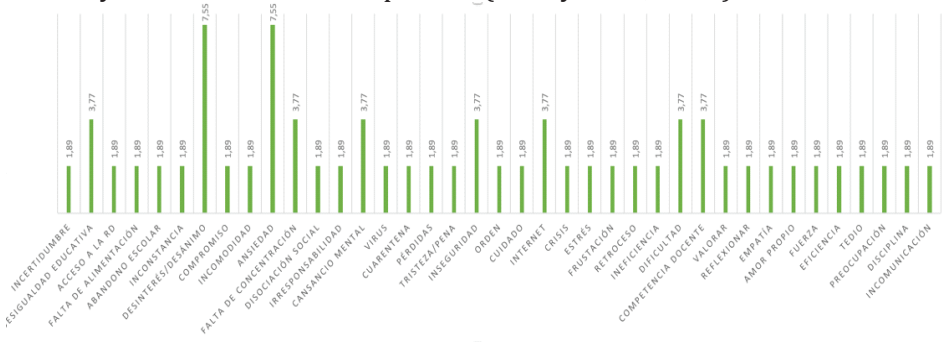

Figure 7. Consequences of COVID-19 in the education of the student body for the 2020-21 academic year. UCSG University (Ecuador). Source: Own elaboration.

Finally, in the case of the Spanish university, the main concept to define the consequences of COVID-19 in education is the use of internet or online teaching, which has been understood with the same meaning in (11.63%), the student body highlights that educational inequality (9.30%) is a side effect of the pandemic we are experiencing, likewise, the word coronavirus again has a high position with (6.98%) (Figure 8).

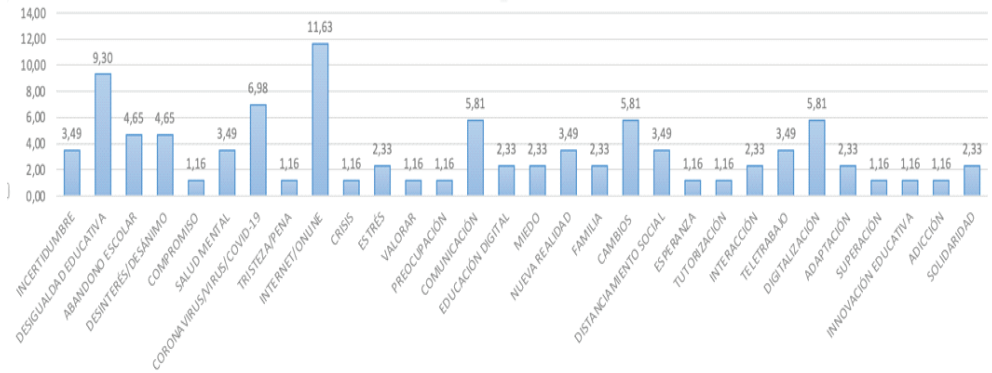

Figure 8. Consequences of COVID-19 in the education of the student body for the 2020-21 academic year. UPO University (Spain). Source: Own elaboration.

2.4. Research findings

The current context of health crisis caused by the COVID-19 virus has implied challenges for several areas, in particular, one of the areas with the biggest impact has been education (Burgos-Videla, Vázquez-Cano, López-Meneses & Adaos-Orrego, 2021). Likewise, this global crisis has triggered a rethinking of the provision of educational services at all levels. The intensive use of all types of technological platforms and resources to ensure continuity of learning is the boldest experiment in educational technology, albeit unexpected and unplanned. Therefore, the results need to be evaluated, learning more about what Works, and why, and using the lessons learned to strengthen inclusion, innovation and cooperation in higher education.

In today's information and communication society, university students are increasingly involved in autonomous and collaborative learning processes that require active methodologies to facilitate the integration of social software with the academic curriculum (Schworm & Gruber, 2012).

Among the conclusions obtained, it should be noted that the reflective elaboration of the word clouds made by the students allows us to meet the main objective of the research, i.e., to study the most relevant consequences of Education and COVID-19. In this sense, the key concepts of stress, new reality, internet, and confinement stand out.

In the same way, this innovative university experience allows to show that the educational use of digital word cloud creation can be a very interesting didactic resource to express previous ideas of some subjects, as well as to serve as a reflective sediment and repository of learning experiences for future academic promotions.

It should also be noted, in agreement with other studies (Aguaded, López Meneses, & Jaén, 2013; Vázquez-Cano, López Meneses, & Fernández Márquez, 2013; López-Meneses, E.; Vázquez-Cano, E., & Fernández, E. 2014), that the use

of digital 2.0 resources in university contexts can help the dissemination of knowledge in a globalized way, collective reflection and didactic resources for educational research; all of which we consider key objectives when developing competencies among university students.

On the other hand, the students value positively the social software for the elaboration of concept clouds for being intuitive, easy to handle and functional, as a result of the discussion held in the last part of the training session. In this sense, it corroborates with the conclusions of another previous work with postgraduate experiences (Sarasola, López-Meneses & Fernández, 2013).

We would like to close these reflections by calling for an active methodological metamorphosis in some university classrooms as they continue to maintain organizational structures, didactic transmission models and obsolete traditional methodologies, where the textbook is still the king of resources, to the detriment of other more functional, useful, and motivating resources, such as digital resources 2.0. In this sense, we believe that in a hypermedia society there is no place for a bookish teaching and the new whatsapp generation should be the promoter of ideas, knowledge and experiences that circulate through the networks of the future, as long as they can become familiar with them and make proper and constructive use of them from their youth.

Finally, in agreement with Moya (2013), our teaching task involves the use and management of digital educational content, so that it interferes in the teaching-learning process, so it is necessary for education professionals to know the characteristics and advantages of incorporating these digital educational contents in the classroom.

If the United Nations 2030 Agenda was already having an impact on higher education programs, the current crisis is a clear call for universities to be at the forefront of the transformations needed to build back on more resilient and cooperative foundations (Giannini, 2020).

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TEACHING PRACTICUM EXPERIENCES IN THE CURRENT PANDEMIC CONTEXT

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1. THE TEACHING PRACTICUM PROCESS

The practicum process represents a challenging stage for the student teachers, product of the insecurities of the experience itself, student teachers require permanent accompaniment and guidance from their supervising and guiding teachers. During 2020 the practicum process of the English Pedagogy career of the University of Atacama, -and around all universities in Chile- was carried out under an anomalous situation provoked by a global pandemic, Covid-19 representing a real challenge for all the people involved in the process besides the apprehensions the process of working through remote classes, has.

As teachers, we agree that, the use of Information and Communication Technologies (ICT) can be useful in the classrooms as a source of new teaching materials, and there are several online technological tools to use for online classes it is fact that there is no general consensus on methodological guidelines to follow or to check when it is about carrying out classes online.

There were positive and negative appreciations of the community in general about the virtual contexts, existing more questions than answers among the teachers' communities regarding to classes designs, assessing students' process, preparing pedagogical material, creating a proper environment and a suitable use of time for learning in virtual contexts. That is related to Sepulveda and Morrison who (2020, p.588) when explain that "there has been a rising interest in how training has been implemented via distance learning, there is a dearth of research about the development of online teaching placement activities in the context of the global pandemic".

The main purpose of this chapter is to present a set of student teacher experiences during an online practicum developed in the contexts of his/her formal education. The idea is to report a set of didactical methodologies created, adapted and applied by students in order to teach English during a pandemic scenario due to Covid-19 desease.

3.1. Describing the experiences

In this section, some experiences of practice in Covid-19 mode that involved virtuality will be described corresponding to impressions the supervising teacher had while having in charge both students who carried out their practicum process in two different realities and contexts.

Something that was interesting and, at the same time, challenging for the students teachers, was that they had to face a new modality to work with the students, because of the anomalous pandemic COVID 19, that is affecting the whole world. It was the online system for classes.

Fortunately, the school in which the student teachers had to do their practicum, provided the students with the necessary technological tools, such as laptops and internet connection to make online sessions possible and somehow help students teachers to get closer to the students and to help them learn in a proper way. In spite of the tremendous economical effort that the school made, not all the students that received these benefits were really interested and committed to participate in the online sessions. Those students did not join the classes and they did not deliver the assessments the teachers gave them.

1.1.1. Context

Private catholic high school of the city of Copiapó. Student teachers had to work with two 1st grades secondary education courses, A and B. Each course was composed by fourty students, only girls, ranging between fourteen and sixteen years old. It is necessary to consider that classes were given only once a week and that they were reduced to fourty five minutes. The traditional time used for English classes in the Chilean educational system is ninety minutes twice a week.

1.1.2. General overview of the courses

About fifty students were usually joining the online sessions and from those students, just six or seven used to actively participate in the class. The rest of the students just kept connected to the session but did not participate at all. There were some students that were not interested at all and those students not only rejected to join the classes, but also they did not deliver the assignments they were given to study at home.

1.1.3. Objective

The objective of this methodological adaptation was to promote students iniciative to develop the Speaking ability in English. The main challenge this practicum experience had, was that the class was not a face to face class, but it was realized using the Meet platform.

1.1.4 Description

The teacher students felt kind of insecure that they were not able to do well on the practicum process, and they started questioning themselves in order to take advantage of the brand new system they had to get used to for being successful in the teaching-learning process. Considering the factors that were mentioned, in the previous paragraphs, the student teachers thought about making a kind of methodological adaptation that consisted of presenting the students PPT files containing short activities that student teachers created taking into account the students interests and preferences. In this case, concerning music and social networks to get the students' attention and to motivate them to speak in classes.

In order to promote the Speaking ability in classes, the student teachers made use of activities that demanded the students to give their opinions on the topics that were selected for the class. They tried very hard to motivate the students by making them feel comfortable and relaxed in order to express themselves and use English for that purpose. They tried to take advantage of Oxford's affective strategies, which are concerned with identifying one's mood, and anxiety level, talking about feelings, rewarding oneself for good performance, and using deep breathing or positive self-talk… (2003, p. 14). They made an effort to consider affectiveness as a strategy for promoting students oral participation in class.

The first activity they worked with was connected with a song that was very interesting for the students, mainly because of the feelings and emotions it involved. It gave the impression that the students felt represented by the central message of the song. First, they showed the class the video of the song and at the same time, they showed them the lyrics of that song. The students watched and listened to the song very attentively.

The central point with the activity was related to the way in which the worldwide networks of communication affect people's lives and somehow promote life in solitude. The students necessarily wanted to participate in class and give their opinions about it and they tried hard to communicate what they thought about the main topic treated with the song.

When concerning social networks, it was possible to notice that the student teachers took advantage of meaningful learning to plan their class. According to

Cuzco and Zhagüi: "This theory says that learners learn through a meaningful process of relating new events to already existing concepts" (2010, p.16). They considered what the real meaning of technology for adolescents today is. The students are so involved in the use of computers and cellphones with applications such as Whatsapp, Twitter, Instagram, Facebook and all nets for online communication that they are probably willing to communicate and say something about the topic. Antoni Ballester says that therefore meaningful learning implies longer retention than memorizing, it occurs when humans relate new concepts to pre-existing familiar concepts (2014, p. 199).

The students felt so familiar with the topic that was presented in the class that they were really motivated for using the language in an oral way and that was the main objective of the student teachers.

1.1.5 Assessment of the experience

The strength observed by the supervisor teacher was mainly connected with the fact that most of the students attending classes made a big effort to give their opinions. That, was an indication that the student teachers did very well with the lesson planning they proposed, which used meaningful learning. It was clear that the student teachers were very interested in finding an effective way to motivate students to use the language orally. Those students who actively participated in the activities presented, were able to use the language in spite of the basic level of English the whole group had. Finally, it was interesting to notice how successful the class was, and it was mainly because of the careful way the teacher students had for getting to know the class' age, sex, and interests.

The weakness detected was that even though most of the students actively participated in class, there were some students that did not participate at all. The point is not easy to understand because it could have been something related with lack of motivation from those students or simply an internet connection problem that did not allow them to take an active role in that particular class.

3.2. Learning styles

1.2.1 Context

The context of this experience is quite different from the one described in the previous case. Even though the school and the grades were the same, 1st secondary education courses A and B in a catholic high school, the group of students the student teachers had to work with, was not the same. Again, the classes that were given twice a week, were reduced to only one class a week and the classes of ninety minutes were reduced to fourty five minutes.

1.2.2 General overview of the courses

In this case, the student teachers were asked to work with a reduced number of students, belonging to the courses mentioned in the previous paragraphs. It was a group of eight students that presented some weaknesses when learning English in a common class when being together with the rest of their classmates.

1.2.3 Objective

The methodological adaptation of this class was done with the objective of helping the students recognize their own learning style. The student teachers wanted the students to see the benefits that imply for their own learning to be conscious of the best strategy they can take advantage of when it comes to learning.

The student teachers also wanted to motivate the students to develop the speaking ability, so that they had a chance to be leveled with the students of the course they originally were part of.

1.2.4 Description

The student teachers decided to take advantage of the language contents they were teaching and at the same time, use the class as an opportunity to get to know the students of this special group. In particular, they were interested in knowing about the ways in which they learn. It was mainly because they wanted to help the students to succeed in learning English and a good way to do it has to do with the fact of being conscious of the learning style each one has.

They began the class presenting the students the structure of the verb To Be in the three forms: affirmative, negative and interrogative. They gave examples for each case.

At the same time, they gave the students a very detailed description of each learning style. They also gave the students a couple of examples of questions about the way in which each one learns and their corresponding answers. The student teachers wanted to emphasize the importance of being familiar with the learning style each student has. The idea was to motivate the students to take advantage of the way in which each person learns, in order each student can use that information to learn in the best possible way.

It is important to indicate that the student teachers tried to promote oral communication in the class and they were all the time motivating students to use the language. That is why they mixed a grammar content with the importance of knowing about different possible ways of learning and what kind of learning strategy should be convenient in each case “Several compensation strategies are used to compensate lack of appropriate vocabulary, but they can also be used to fill the gap of grammar knowledge” (Oxford, 1990, p. 49).

They asked questions and demanded the students to answer in English, but they helped the students to finish their answers, cheering them up all the time and making use of positive reinforcement in order them not to feel demotivated because of the lack of vocabulary and or grammar structures they had. According to Krashen, they temporarily forget they are interacting in another language. This could be convenient for the development of the communicative competence, because learners, due to the communicative situation they face, seem not to have problems to express their opinions, even though the language they use can contain grammar, lexical, phonetic or any other kind of mistakes (Krashen, 1995, p. 4)

Another interesting thing from the teacher students, when dealing with the students' oral performance, was that they accepted the students' answers and made a big effort to understand what they were trying to say. All they wanted was that the students were able to overcome their problems with the language, so that they were motivated to speak and at the same time, they could reach the level of the rest of the class.

1.2.5 Assessment of the experience

The strength observed was the fact that the students were motivated to speak and to tell the student teachers about their own ways to learn. It was noticed that they used a mixed of English and Spanish to communicate, which was an indication that they really wanted to communicate. The other important thing was that most of the students of this group were able to share with the student teachers, what their learning styles were and that was a very important piece of information to be aware of.

The weakness detected was that even though the students were about seven or eight, and most of them participated in class, there were some students that did not participate in the class. Again, it could have been something in relation to lack of motivation from those students or perhaps an internet connection problem that did not allow them to participate in the class.

3.3. Avoiding correction

2.2 1 Context

The context of this experience is the same as the previous experience. The school and the grades were the same, 1st secondary education courses A and B in a catholic high school, the group of students the teacher students had to work with, was the same group mentioned above. The classes that were given twice a week, were reduced to only one class a week and the classes of ninety minutes were reduced to fourty five minutes.

2.2.2 General overview of the course

In this case the group was the same reduced number of students, belonging to the courses mentioned above. It was a group of eight students that presented some weaknesses when it came to learning English.

2.2.3 Objective

The methodological adaptation the student teachers proposed for this class was to avoid correction when the students participated in class. They thought it was a good attempt for promoting class participation in this group of students that was characterized for being weaker than the rest of the students attending the same class, when concerning oral performance in English.

2.2.4 Description

They began the class and presented the students the structure of the verb To Be in affirmative, negative and interrogative forms. They decided to teach the same content they had worked with in the previous classes in order to be sure the students learned this very basic content in a correct form. After checking the way in which the verb To Be worked, they gave the students a couple of examples of questions and they discussed their possible corresponding answers.

Something noticeable about the proposal was that the student teachers wanted the students to use the language in an oral form. Then, they decided to use open questions, to be sure that the students were somehow obliged to answer those questions in a full form. They were not allowed to answer simply "yes" or "no", because the student teachers managed themselves to take the answers where they wanted, which was oral production. The students could not get away from that purpose.

The most interesting innovation from the teacher students, when dealing with the students' oral performance, was that they accepted the students' answers just as those answers were given by the students. They were so interested in that the students were able to overcome their problems with the language that they somehow ignored their mistakes, just to motivate the students to speak. In other words, they allowed the students to use the language freely with their mistakes included.

The previous proposal is considered something interesting because: "error correction is seen as an essential component of L2 acquisition for the learning process to be effective" (Guntherova, 2019, p. 12), and the teacher students were doing just the opposite. It seemed that they wanted to go against the theory of the importance of error correction, maybe for demonstrating that error correction can be sometimes damaging for students' oral performance,

since it can somehow make students fear of speaking English for possible production of mistakes.

Finally, there were two main forms of correcting mistakes by the student teachers:

- On the one hand, in case the students made a mistake when answering a question, the student teachers just repeated the same sentence in the correct way, either using the correct words or the correct grammar expressions.
- On the other hand, once the student teachers were closing the class, they corrected all the mistakes that were made by the students during the class. They corrected all mistakes without saying who was responsible for them. So, they never made a direct correction to the students.

2.2.5 Assessment

The strength observed was that the way in which the student teachers treated error correction was very original and challenging. It was because they were interested in not making students fear about making mistakes to promote English language oral production in class. The main point was not to expose students in front of their classmates. That fact resulted in a very good alternative to deal with the mistakes made and to correct them in future interventions.

The weakness detected was that even though the students were just a few, most of them participated in class, but there were some students that did not participate at all. Again, the point is not easy to understand because it could have been something in connection with lack of motivation from those students or simply an internet connection problem that did not allow them to participate in the class.

3.4. Dealing with limited time

2.3.1 Context:

The experience was carried out at Escuela Técnico Profesional" High school in the city of Copiapo. The student teacher was in her last year in the level 500. Two grades from 1st and 2nd level of secondary education were assigned, the total number of grades were four and the students were more that sixty students.

2.3.2 General overview of the courses

The student teacher had to develop her practicum process during the High school teachers' strike having no time to get familiar with the students' realities

or teach them through online classes. She was able to observe only one class before the previous events having to teach grammar only and the grades were mixed for each level. Due to this particular situation, the student teacher had to record videos for the classes with a limited given time.

2.3.3 Objective

The main objective of this experience is to describe some of the strategies for effective presentation of contents the student teacher used when teaching time is very limited.

2.3.4 Description

It would seem fairly obvious that in order to our students learn something new (a text, a new word, how to perform a task, etc.), first they need to be able to perceive and understand it. One of the teacher's job is to mediate such new material so that it appears in a form that is most accessible for initial learning (UR, 1996)

It becomes relevant for the teaching process when teaching remotely or through online classes, to make sure everyone understands the contents. However, if students do not perceive or understand what is intended to be taught there would be no learning at all and it becomes even more complicated when teaching time is very limited.

The following experience tells us about a student teacher who in her professional practicum had to deal with the difficulty of having to create effective presentation of contents during video classes having a limited time of 15 minutes only.

The main challenge, the student teacher had to deal with, was the fact that she only observed one class and she was not given time to know the educational context of her students representing a big demand besides the fact that once recorded the video classes they had to be uploaded to the Classroom platform of the School and only then students could access to them.

During the student teacher's first couple of videos none of the goals seemed to be achieved, for a lack of a proper structure that adjusted to the given time. Besides, student teacher's unknowlegment about programs to start recording in short periods of time. The student teacher tried different websites to record them until the collaborating teacher recommended "Loom", which is a free recording software where she could record her videos propperly.

During the next videos, it was observed a slight improvement in the distribution of time, the student teacher started to incorporate, in her recording, a chronometer to keep the timing of each lesson. After doing this, the student teacher could handle timing in a better way.

Every class had to last around 15 minutes. The contents had to be presented in English and Spanish as well as containing a pre-reading activity, a reading activity and a post-reading activity. Every recording of the student teacher contained a review of the units of the year. After the planned activities, the students had to answer a work guide that the student teacher had to create and based it on the exact activities of the class so they would not get confused, this workguide had to be uploaded to Google Classroom Platform as well as the video.

The recording period was hard at the beginning since the student teacher had to pretend the students were present in class. After the period of trial and error of recording classes, the suitable structure for that kind of online class was getting shaped into a very well organized and distributed presentation, making the lesson objectives easy to achieve. The presentations had clear instructions and explanations of the content in English and Spanish, so it resulted in an easier way for the students to understand and develop the activities.

It is important to highlight that even though the challenges the online classes on virtual scenarios present, the student teacher's positive attitude towards her practicum process played an important role when searching for the best methodologies and strategies to applied during limited periods of time. Even though there were moments she could give up due to the lack of information, the student teacher presented a persevering attitude that guided her to reach her own goals.

2.3.5 Assesment of the experience

Strenghts: When talking about recording videos it is fair to say that they allow teachers to be creative and facilitate the learning process to the students, reducing the access to learning and mentoring. It also facilitate reflection and teaching autonomy in student teachers practicum.

About the group of students, the first grades had a participating group of students having a positive attitude towards learning, which is not very common among this level and through this modality.

Weakness: it was detected that it is hard for any teacher to make the students speak because a lot of them felt unsteady to talk on the microphone or even turn off their cameras and even worse, some of them weren't even in the class due to the fact that putting the camera on was optional.

There were challenging situations such as students' attention during online classes only lasted 10 minutes. Some reasons were that students had to face problems with their access to the internet, and if they did, some of them felt unmotivated, bored or shy during the classes. It was very hard for the student teacher and for the teachers at school, in general, to develop the appropriate environment to get students attention.

3.5. Conclusion

The formation that the students of the English Language Teaching program at the University of Atacama receive in normal conditions, implies an environment in which they plan and do their classes in situ. That is to say, that they go to the school or highschool and face the students in a traditional class. The current pandemia demands all individuals that are involved in the educational system, to perform in a different way.

On the one hand, it was a challenge for the students to face these new requirements with no preparation at all. Nevertheless, they managed themselves to deal with this situation and to plan classes considering students' needs, the need to use technology and a reduction of the class time, in the best efficient way they could. For student teachers, recording classes allowed improving the quality of delivery when strategies such as time management were added.

On the other hand, it was also a challenge to deal with students' motivation to take an active role in online classes. Some students seemed really interested in learning and participating and so collaborating with the teacher. Unfortunately, some of them seemed not to be interested at all. Giving the impression that they just turned on the computer and left the class.

A common point in the weaknesses detected had to do with the problems students had when concerning internet connection. It is a situation that is difficult to control, because in most cases the school was responsible for providing the service to the students´ houses and the internet connection depended on factors such as the company that was hired, the place the house is located within the city and some others. The students and the teachers cannot control that fact to assure that everybody can actively participate in the classes. Moreover from the point of view of the supervising teacher there was not a general consensus on methodological guidelines to follow or to check when it is about carrying out classes online which made the practicum process even more difficult for the student teachers.

After knowing all the experiences the teacher students had, when dealing with this anomalous situation, it is possible to say that they all succeed in the attempt of doing their practicum, which is a demonstration of their gift and love for the profession.

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PERSPECTIVE ON THE INFORMATION SOCIETY IN TIMES OF COVID-19

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1. INITIAL THOUGHTS

The 21st century is the information century where individual learning is conceived mainly through interactive and participatory technologies that offer a stimulating and socially positive experience, but that at the same time, becomes a construct which allows students to learn by doing, while sharing their knowledge experiences with others who are often on the other side of that virtual space (Gómez-Parra & Huertas-Abril, 2019).

The information and knowledge society is a phenomenon that has been impacting human beings for a few decades. It is characterized by information technology, which allows its organization in networks and offers people the possibility of accessing, sharing and processing data, even remotely and in real time (Kali, Baram-Tsabari & Schejter, 2019; Cabero & Valencia, 2019; López-Meneses, 2020), being elements of discrimination and exclusion in certain social contexts (Cabero & Ruiz-Palmero, 2018), affecting every aspect of our lives, and especially what we know and how we learn (Hoadley & Kali, 2019). It is a society with high connectivity between people, where information, knowledge and sustainability are promoted (Van den Hoff, 2013). ICTs become a fundamental element of our daily lives, thanks to their role as a means of

communication and socialization along with their possibilities in the search for information (Ruiz, Martínez & Perales, 2018); so the life of the digital citizenship takes place in the spaces and times built in Web 3.0 (Sandia et al., 2018).

The current society is adjectival from the paradigm of information and communication make human beings in societies with medium-high economic levels coexist and interact in a digital and almost virtual world (Vázquez-Cano et al. 2021). In this sense, society is dominated by synchronous conversation systems as a means of communication, social networks as contexts of relationship, or content repositories as collaborative spaces that evidence the development of the creativity of its users (López-Gil & Bernal-Bravo, 2019). In addition, laptops and cell phones, increasingly accessible to students, have evolved to acquire the ability to efficiently surf the Internet, being able to make use of all the resources provided by the Internet (López-Quintero, 2019). Likewise, in the educational context profound changes have operated and the analysis of the perception of all the actors involved is necessary for an adequate symbiosis between technology, society and educational context (López-Meneses, 2020).

Finally, these times of a socio-health crisis, it is a historical fact that also allows us to generate synergies and collaborative experiences (Burgos-Videla, Vázquez-Cano, López-Meneses & Adaos-Orrego (2021), and also offers us an opportunity to execute joint efforts based on rationality, solidarity and humanism, which contribute to mitigate the consequences of COVID-19 and to prepare a better post-pandemic scenario (Jiménez-Sánchez, 2020) and an opportunity to understand that another training modality is possible, but in order to achieve this objectives we will have to reflect on different aspects ranging from training in digital competences of teachers and students, the transformation of teaching roles and ensuring social equity in access to technologies (Cabero, 2020).

4.1. Research scenario

The present study is contextualized within the framework of a university didactic experience that follows a socio-constructivist, connectivist and ubiquitous model in which the self-construction of knowledge guided by the students is favored, based on previous ideas and their experience with the support and guidance of the teaching staff in interaction with technological resources.

The present university experience has taken place in the academic year 2020-2021 at the University Pablo de Olavide (Seville), as part of the project: "Didactic training in Cloud Computing: Digital competences, didactic strategies and e-activities with Web 2.0 technology in the EHEA ("Formación didáctica en Cloud Computing: Competencias digitales, estrategias didácticas y e-

actividades con tecnología Web 2.0 en el EEES"), within the framework of Action 2 of the Teaching Innovation and Development Projects subsidized by the Vice-Rectory for Teaching and European Convergence of the aforementioned University.

This university educational action is developed during the month of February in the subject: "Information and Communication Technologies in Social Education", corresponding to the first year of the degree of Social Education of the Faculty of Social Sciences of the University Pablo de Olavide, Seville (Spain) with a load of 7.3 ECTS credits (European Credit Transfer System). In relation to the syllabus, this subject belongs to the area of Didactics and Educational Organization and is articulated around various thematic blocks; in our case, it corresponds to the first thematic block: Didactics, curriculum and ICT in Social Education, specifically, to the first topic that has the objective of studying the Information and Communication Technologies (ICT) in the context of the current Society. In turn, the subject is composed of 14 sessions of basic education (EB) and 7 sessions of Practical Education and Development (EPD) that were developed in computer classrooms. In this place, the design, development and implementation of different utilities, applications and 2.0 resources (*wikis; blogs; news syndication; creation of discussion forums; creation of concept maps and online word clouds; interactive posters; design and implementation of multimedia educational materials related to Social Education topics; and participation in social and professional networks...*) which were fundamental for the competence development and empowerment of the future Social Education professional were taught. The link is: http://bit.ly/2xwjh4x

The present research analyzes the evolution of students' perceptions related to the most relevant characteristics of the Information Society through word clouds. The study is carried out with 47 students of the 2020/2021 academic year corresponding to the first year of the Information and Communication Technologies (ICT) and Social Education course of the Degree in Social Education at the University Pablo de Olavide (Seville).

Generally, the online university practices due to the health crisis were developed at the end of February with the WordArt application (https://wordart.com/). It is a simple application related to 2.0 technologies that allows designing clouds of labels (tags) in a dynamic and easy way from the concepts indicated.

The innovative university experience for the 2020-2021 academic year consisted in the introspective reflection and selection of 3 to 5 key concepts that represented the most significant and relevant aspects of the current Society, together with a brief commentary justifying this selection. Subsequently, the students sent to the teacher's e-mail address their name, surname, degree and a reflective and critical commentary on the concepts made. Finally, the teacher

implemented the innovative university activity on the open access website: http://practicas3000.jimdo.com/

Objectives of the study

The research was structured according to the following priority objectives:

1. To investigate the main characteristics of the Information Society manifested by the first year students corresponding to the subject of Information and Communication Technologies (ICT) and Social Education of the Degree in Social Education 2020-2021.

2. To find out the main features which characterize the Digital Society of the first year of the subject of ICT and Social Education of the Degree in Social Education of the 2020-2021 academic year.

4.2. Research methodology

In regards of the methodology used, this was qualitative and descriptive. The sample consisted of 47 students in the 2020-2021 academic year who were in the first year of the Degree in Social Education at the University Pablo de Olavide (Seville). The activity consisted of delimiting several concepts which, from their point of view, defined the current Information and Communication Society, not only limiting themselves to explaining their definition, but also providing a personal reflection on the prioritization of these terms.

For the qualitative analysis, the contributions made by the students were reviewed by analyzing the words or sets of meanings as recording units. Subsequently, the conceptual framework was transcribed and categorized taking as a frame of reference the guidelines established by different authors (Bogdan and Biklen, 1992; Miles and Huberman, 1994):

First Phase: Data reduction. This phase constitutes the realization of rational procedures that consist of categorizing and codifying the data, identifying and differentiating units of meaning. Around the categories of values, pillars of society, technologies and current events.

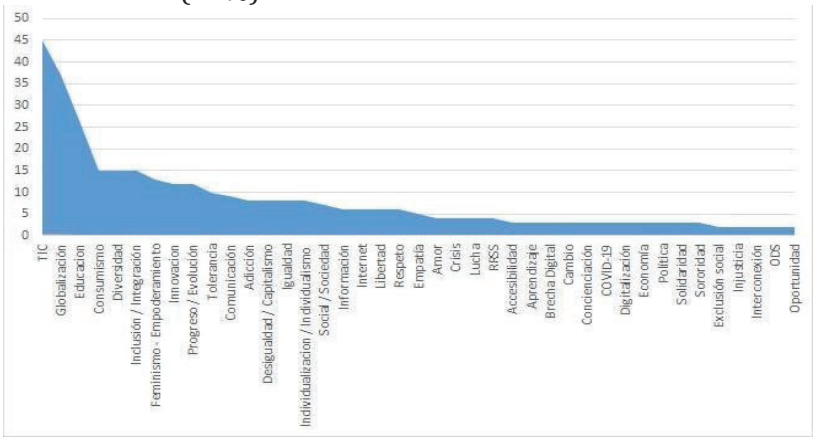
Second phase: Interpretation and inference. Finally, the data analysis process was completed with a stage where we proceeded to the interpretation of the different units of categorized information, differentiating the concepts delimited in each category, systematically arranging the information obtained in tables and graphical representations to facilitate the interpretation and explanation of the results.

4.3. Results of the innovative university experience

After analyzing the data provided by the student body as a whole, it should be noted that the sample obtained was made up of a total of 47 students in the first year of the Degree in Social Education at the Universidad Pablo de Olavide (Seville), indicating a total of 89 concepts, with an average of 5.7 concepts per

student. A differentiation was made between concepts identified individually and grouped by categories.

The results show a notable influence of social emergency situation in which we are immersed due to the world pandemic caused by COVID-19, and among the defining concepts of the Information and Communication Society (Graph 1), the predominance of the use of technologies (53%), the concept of social inequality, linked to global capitalism (47%), and the processes of international globalization (43%) have acquired special importance. Of course, we also found special reference to COVID-19 (40%), together with an increase in consumerism (21%).



Graph 1. Main Characteristics of Information and Communication Society

Likewise, the graphic shows to a great extent, the existence of a wide social diversity (19%), in crisis situations (17%), in which concepts such as society/social (15%), education or freedom (13%) are among the main concerns, or pandemic and unión.

However, there are other concepts with lower percentages which are no less relevant, such as the addictions associated with technologies, the importance of interconnection, of information, so essential for progress and social evolution, together with the proliferation of social networks, without ignoring the current moment that requires social distancing and implies associated difficulties (9%).

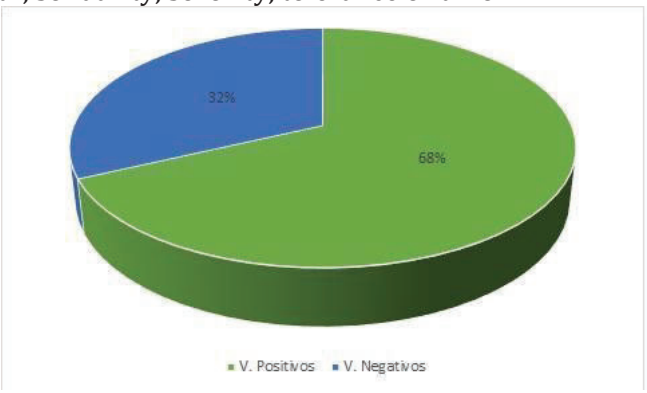
This situation has generated contradictory emotions such as resilience, solidarity, hope, appreciation for the family, ability to adapt, in the face of moments of despair, uncertainty or stress (6%). A new reality in which accessibility to the media, creativity, equality, awareness of the need for respect and tolerance have become more visible, at a time when the internet and virtual reality have played a fundamental role but have also allowed to spread hoaxes,

the establishment of prototypes, dependence on followers or likes on social networks, all in a situation marked by fear and the feeling of lack of time (4%).

And the empowerment of women is not left behind, with the feminist movement (17%), and the importance of sorority (3%) as an emerging value in the plurality of today's society.

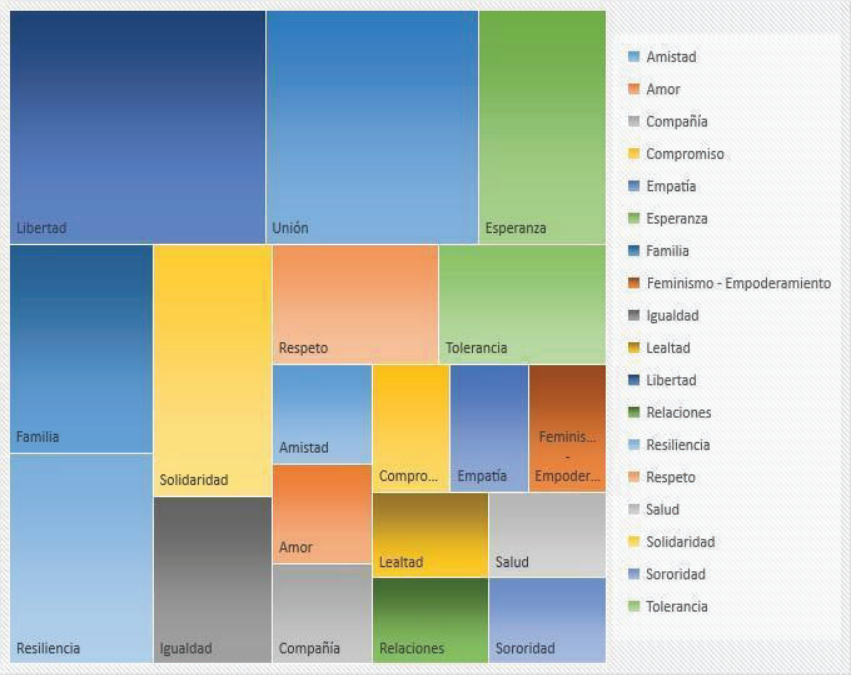
It is a context marked among the perceptions of outstanding features, by innovation and the possibilities of progress, evolution and development (16%), from the possibility of change (4%) to facilitating social opportunities (3%).

In this data analysis, we have considered as important to pay attention to different social values (Graph 2), to which all students refer, although 68% of them attribute values that have positive connotations, such as friendship, love, companionship, commitment, empathy, hope, family, feminism - empowerment, equality, loyalty, freedom, relationships, resilience, respect, health, solidarity, sorority, tolerance or union.

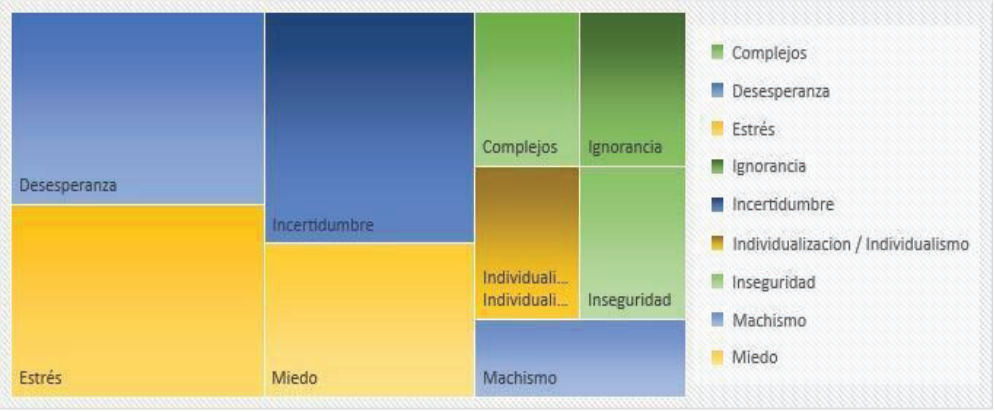


Graph 2. Main Characteristics of the Information and Knowledge Society.

On the other hand, freedom (15%) and social union (13%) stand out (Graph 3). In contrast, there are also negative aspects (32%, Graph 4) that also define current society, highlighting among them the lack of hope, stress, and social stress or uncertainty (19%).



Graph 3. Predominant Values in the Information and Knowledge Society.



Graph 4. Positive values in the Information and Knowledge Society.

4.4. Research conclusions

Education is a right that we must always protect, even and especially in the most difficult circumstances. In emergency situations, education offers protection and reduces the psychosocial impact of a crisis by providing a sense

of normalcy, stability, structure and hope, while also providing essential elements for economic stability in the future (UNICEF, 2020).

Today, we are immersed in a perennial technological change offering, in general, new challenges to society, and particularly, to educational processes (Froehlich, 2018; Rodríguez, Cáceres, & Alonso, 2018). Likewise, its pedagogical use is a priority element in current education (Jiménez, Sancho, & Sánchez, 2019), and its didactic applicability in training contexts is more beneficial than the traditional methodology based on the transmission of content and, in turn, implies a didactic change that favors more dynamic and meaningful learning processes (Cabero, Vázquez-Cano, & López-Meneses, 2018; López-Belmonte et al., 2019; López-Meneses, 2020).

Never before throughout its history, humanity has had at its disposal so many ICTs as it does today, technologies duplicated at great speed thanks to digitization, making transmedia, i.e., the observation of media content on different devices, multiplies the ways in which we can interact with information (Cabero & Ruiz, 2018). At the same time, ICTs in times of pandemic have become resources that have demanded citizens to generate new types of learning and new ways to learn.

On the other hand, this university experience allows showing that the educational use of digital word cloud creations can be a very interesting didactic resource to express previous ideas of some topics, as well as a vehicle for the reflective sediment and repository of learning experiences to future academic promotions. Likewise, the reflexive elaboration of word clouds made by the students allows to satisfy the main goal of the research, which is to study the most relevant features of the Information Society from the perspective of the first year students of the subject Information and Communication Technologies linked to the degree of Social Education.

Finally, the influence of the socio-sanitary crisis situation in which we are immersed with the world pandemic of COVID-19, has affected the students' perceptions about the current Society, which shows the predominance of the use of ICT and international globalization processes in symbiosis with references to the COVID-19, together with consumerism. Similarly, these perceptions of university students in the area of Social Sciences become challenges to achieve a sustainable future of global citizenship.

4.5. Acknowledgements

This study arises from the guideline set by the Teaching Innovation project: "Didactic training in Cloud Computing: Digital competences, didactic strategies and e-activities with Web 2.0 technology in the EHEA", within the framework of Action 2 of Teaching Innovation and Development Projects funded by the Vice-Rectory for Teaching and European Convergence of the aforementioned University and under the protection of the researchers of the research group

EduInnovagogía® (HUM-971). Group recognized by the Andalusian Plan for Research, Development and Innovation and the Office of Transfer of Research Results of the University Pablo de Olavide.

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EXPERIENCE IN INCORPORATING AUGMENTED REALITY IN EARLY CHILDHOOD EDUCATION

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1. INTRODUCTION

ICT have experienced enormous growth in recent years, although it is true that, until the end of the eighties and early nineties, with the appearance of personal computers, it is when computing resources began to get cheaper and became more affordable for a greater number of people. Such is the case that, since then, a large number of incessant hardware and software improvements have appeared, in addition to the fact that multimedia resources and the Internet have also created a greater impact; Information has gone from being scarce and difficult to access to being quite varied and rapidly available (Alkhattabi, 2017).

In today's society, there is a wide use of information and communication technologies (ICT), which is part of the usual practice in the daily lives of children. Particularly, in the educational field, the inclusion of ICT has been reflected in current and innovative teaching processes, both in the action of teaching by the teacher and in the way, children learn, highlighting the potentialities offered by technology educational (Hinojo et al., 2019). However,

at first the interest in universalising access to Information and Communication Technologies was aimed at the adult city, today media and digital literacy is a maxim to be achieved by all citizens.

Supranational organizations such as UNESCO and the European Union have been promoting various ICT initiatives to achieve a critical, responsible, and participatory citizenship that contributes to development and social transformation, thus intertwining digital humanities and cultural pedagogies (Huerta & Suárez-Guerrero, 2020).

In this sense, teaching institutions and teachers have ceased to be the origin of all knowledge and have had to become facilitators and proctors of the large number of learning resources (Durán Montero, Hernández Alvarado, Varela Rodríguez, & Quezada Sánchez, 2018).

Regarding the use and incorporation of ICT in the classroom (Herran & Fortunato, 2017), they claim that educational change and optimization, if they are focused on a radical and inclusive pedagogy, will be methodological and educational. In addition, as they claim (Vázquez et al., 2020) ICT have the potential to prepare students for life in the 21st century. An essential peculiarity of Augmented Reality is that this method was created as a tool to formulate solutions to problems integrating different areas of knowledge such as: mathematics, natural sciences, and experimental, among others. In the same way that AR as a teaching-learning tool allows the child to easily go from the abstract to the concrete (and vice versa); It also empowers the student with the skills necessary to manipulate different variables simultaneously, the development of systemic and systematic thinking, the creation of different learning environments, modeling, and others (Escobar, Soto, Teran, Mesa, & Sandoval, 2016).

The process of cultural socialization that the present student body of the educational system is experiencing is totally different from what adults experienced several decades ago. Today's adults came to school with very restricted experiences from a technological point of view (basically they knew cinema, radio and television in black and white), but above all there was little information about what was happening in other places. The children and young people of this 21st century, on the contrary, expand in extracurricular areas the diversity of multi-media experiences (with computers, video games, television, videos) and above all they have a heterogeneous excess of information about all kinds of events, news or ideas (Area Moreira, 2015).

Through interaction with other subjects, who provide different models of action, the use of media such as computers, peripherals, digital cameras, players, audio and video, game consoles, mobile phones, etc.; It will allow children to learn and interpret the different languages of technologies: audiovisual, multimedia, musical, oral, written, plastic, visual, still and mobile image, mathematical, iconic, etc.

It is transcendental to overcome the prototype of technology as an extracurricular activity and show agreement with robotics as a learning tool, which allows to generate attractive interdisciplinary teaching environments where the student as the main helper of their learning, can create their own opinions of the notions that are being imparted.

Access to pre-compulsory education (especially in the earliest stages 0-3 years) is one of the most relevant aspects in the generation of educational opportunities and constitutes the educational level with the greatest potential to reduce social differences throughout life (Tosco, 2019).

According to (García Valiente & Navarro Montaño, 2017), Spain is in a time marked by the technological revolution, a reason that has changed people's daily lives and their customs, especially at school. Education has been sovereignly intervened by ICT and their incorporation into people's lives. For this reason, some autonomous communities contemplate in their regulations the need to add ICT to the teaching-learning process and to develop programs and invest in public schools so that ICT are used, accessing the installation of new totally free devices.

The emergence and strengthening of the Internet have attenuated various changes in the areas of knowledge that human beings contemplate in their day-to-day lives. ICT have been quite successful in advancing productivity in general. Regarding the educational field, their enlistment is of vital importance to try to oppose the high rates of school failure and dropout, as well as to respond to the progressive multiculturalism of today's society. ICT agree to develop possibilities of methodological innovation that provoke the achievement of a more efficient and inclusive teaching (Durán Montero, Hernández Alvarado, Varela Rodríguez, & Quezada Sánchez, 2018).

The ICT have caused profound transformations in various sectors of society, including education. In the teaching and learning process, the inclusion of technological tools has facilitated communication and understanding of the numerous contents that are taught in academic training. However, despite these advantages, the inclusion of these instruments represents a challenge for teachers, who have to acquire the necessary competencies and skills to be able to implement them successfully and for them to become a true source of progress (Pérez, et al. al., 2019).

According to (Martínez de Carvajal Hendrich, 2017) as it is a learning method, it provides the student with tools so that they can develop their imagination by themselves, creating while designing new creations, which provokes the child a promotion of group work that in turn develops a cooperative work between equals through the development of creative and organizational capacities, promoting interest in research, experimentation and the discovery of new skills, so it is convenient to leave it to students who are participants in the new creations and not only limit ourselves to being mere expectant.

In accordance with UNESCO (2020) schools must be ambitious and identify the viability and impact of future scenarios, which include better and faster connectivity. This must allow the school to incorporate new technologies such as the Internet of Things (IoT), AR and virtual reality, robotics, STEAM competitions and others that are possible.

Among other things, AR develops logical-mathematical thinking, problem solving, creativity, etc. What causes students a better way to achieve their own ends, so that the subject comes to better appreciate personal motivation, in addition to evolving as self-taught. In recent decades, information, and communication technologies (ICT) have become the protagonists of the daily lives of billions of people. Without a doubt, today's world would be less global without the planetary digital community connected through the internet

(Etxebarria, 2021). Augmented Reality (AR), according to Cabero and García (2016) and Barroso, Cabero and Moreno-Fernández (2016), is a technology that allows the mixture of digital information and physical information in real time through different technological supports such as They can be "tablets" or "smartphones", to generate a new pedagogical scenario beneficial for learning.

Finally, it stimulates some skills that over time will become of enormous importance and their future professional work, and even stimulates interest in technological sciences, which will become a highly valued sector in the future (Cabrera, Inspector, & Aut, 2015).

1.1. Method

With this work, the intention is to initiate the children of the educational stage, exactly the 2nd cycle of Early Childhood Education, in the knowledge of the new existing applications to promote their knowledge working in a playful way through Augmented Reality (AR), We have used the Quiver application, which consists of a series of drawings which create life once they are focused on through our mobile device or Tablets, if we have said application downloaded to the device.

Figure 1. Quiver Logo (http://www.quivervision.com/)

Second, teachers have worked with the HALO AR app, a new version of the old Aurasma. This application is very useful for teachers when creating new activities, fun and different from the rest, although its use is more suitable for elementary school children and high school adolescents, more and more teachers are opting for their initiation in the infant stage.

Figure 2. HALO AR logo (https://apps.apple.com/es/app/halo-ar-3d-learning-anywhere/id1534359793)

In the Digital Era, according to (Blanco & Amigo, 2016) the way of learning has transformed the way of teaching, which means that both the teacher's stamp and the teaching methodologies must adjust to the way of conceiving knowledge. The teaching staff is a continuous witness to the changes of the current generation of young interactive natives who demand an education according to their needs.

The use of technologies allows information to be acquired, processed, stored, and disseminated, which contributes to the training of people so that they can adapt to new social challenges. In this sense, it is considered that teacher training should be aimed at generating reflections on processes aimed at promoting the pedagogical use of tools, resources, programs, services, and environments characterized using technology (Hepp, et al., 2015).

1.2. Description of the experience.

As described, in this experience Infant children have participated, specifically the older ones of the stage, 5 years old and Infant teachers from the SAFA center in Écija (Seville), during the 2019-2020 academic year.

Two Early Childhood Education groups and 8 Early Childhood Education teachers have participated in it. In the first group, the experience has taken place in 5 years A and B, while, in the second group, it has been given during several tutoring sessions during the afternoon, exactly 3 days long with a total of 8 hours distributed between them.

The experience began by explaining to the 5-year-old tutors what QUIVER was. Likewise, they were provided with a document both with the collective computerized presentation and different texts where the information explained was expanded, during the two sessions that covered the experience and even the link of the page where you can access the different types of models- drawing templates.

Figure 3. Presentation seen in class with teachers.

After this, 2 different sessions were held in time, although with the same content, on the one hand 5 years A and on the other, 5 years B. A great variety of drawings to choose from were shown in class and each child chose his own.

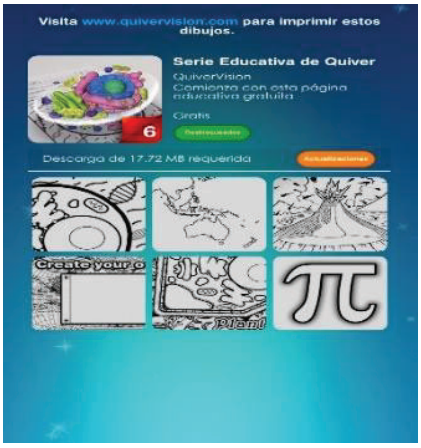

Figure 4. Drawing templates available in Quiver.

The practice with QUIVER consisted of coloring the previously chosen drawings, once finished, each child takes their Tablet, a device available to each user in class. And with the application open on the device, focus the image and see the drawing in motion as well as being able to interact with it and even take

pictures. In this first contact with the application, it was the teacher who took the photo in the first moment, later they were photographing each other.

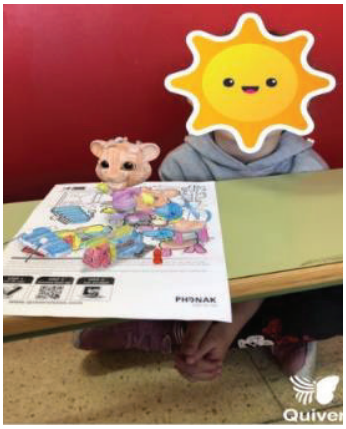

Figure 5. Practical Result Quiver in class.

On the other hand, during the HALO AR exchange, no teacher had knowledge of said application, much less of the wide range of resources that can be used through it. Thus, in the presentation of the workshop for teachers (figure 3). Once the first steps have been explained, it is the teachers who have the time to start in this new application for them, following the previous steps indicated in the presentation to be able to create their own Aura and share it among them.

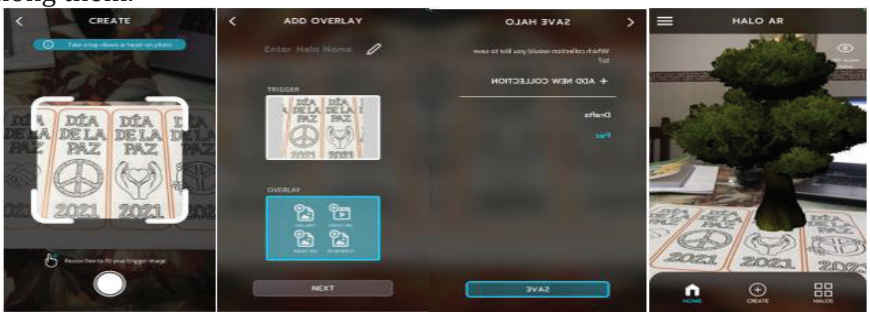

Figure 6. Steps to follow in the realization of an Aura.

After this, the teachers set out to create a series of auras and work the application previously between them and once they had some optimal skill to be able to work it in the classroom with the children.

Figure 7. Aura created by the Teachers.

1.3. Results.

We will highlight that in the children's classrooms, exactly the 5-year-old classrooms, there was great expectation and amazement when developing and carrying out this activity. QUIVER is a very didactic and entertaining application both visual, motor and motor in the development of the child, once they were taught a certain skill in its use, they were inpatient to show their progress to others and especially to the teacher.

The increase in enthusiasm in class has been quite optimal and it seems that the knowledge has reached the families, to whom a circular was passed so that they would have knowledge of the activities that we will carry out in class and be able to work them at home with their children.

Regarding the activity with HALO AR, the teachers were initially cautious when receiving information from this new technology, although once they emerged in their teaching, it was they themselves who showed more and more interest. It should be noted that it even improved communication between classmates, sharing ideas, suggesting proposals for activities, etc., such was the acceptance that even elementary school teachers wanted to know about this application to develop during the course. Likewise, and according to (Cabero Almenara, J. et al. 2020) it is significant to refer that AR still must overcome a series of challenges and conditions that benefit optimal pedagogical integration. Among others, it is convenient to encourage teachers to be trained in this type of methodologies.

2. CONCLUSIONS

ICT has transformed the way of thinking both of the student and mainly of the teacher since they have had to '' recycle '' so that the work in class is not dedicated solely and exclusively to a lack of explanations, so in various proposals of the Twentieth century refer to collaborative work, which

highlights the interaction of students among their peers, although when referring to collaborative work from the ICT criteria, we can come to understand it as a different form of collaboration between the child and the teacher.

Said use of ICT does not mean that its use is exclusively as such at the time of work, but rather that we refer to the proper use of these as support for some activities, as a complement to explanations, card activities, etc. Therefore, with this way of working, a new means is sought to improve the learning processes in the students and an enrichment by the teachers.

Many teachers are in favor of the use of ICT, so it is suspected that their use will end up taking hold in all classrooms, although for this to happen they must obtain training to be able to adapt the new tools to their methodology. So, the teacher has the duty or rather the need to recycle in terms of knowledge to be able to go into these new technological and innovative tools. Well, it is increasingly necessary to acquire connectivity tools, smart devices, and consumption of digital content capable of articulating the master practice (Parra Castro & Chantre, 2020) and daily life.

However, teachers must fulfill a series of functions such as an enjoyable learning that we could mark as a primary objective, use of resources for optimal learning, not to put obstacles to innovation, positive attitude to introduce new technological means, use said means previously in a didactic way, etc. (Gutiérrez Rodríguez, Ulloa Arteaga, Simancas Altieri, & Velasco Argagón, 2018).

The potential and advantages of ICT must be recognized as a proposal that offers the development of multiple capacities and abilities in the subject who learns from digital devices. Its derivations from an innovative hybrid perspective will allow to continue building knowledge in a more dynamic, active, and meaningful way for students and will adjust the teaching proposals of teachers using increasingly innovative alternatives, reducing inequality gaps (Sánchez-Cruzado et al. 2021).

Finally, it should be noted that the benefits of AR for scientific teaching do not lie solely in the inclusion of this technology in education, but rather the choice of adequate teaching resources and their correct use is essential. The systematic literature review has yielded three resources with AR that stand out for the positive results in student learning (Trinidad & Tubay-Zambrano, 2021).

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"PAVING THE WAY": VIRTUAL SIMULATION OF A JOB-HUNTING EXPERIENCE IN EFL DURING THE PANDEMIC.

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1. INTRODUCTION

More than a year has passed since the Covid-19 pandemic breakout, dramatically changing everyday life all around the world and placing serious concerns on education; lockdowns, protocols, synchronous and asynchronous classes among other routines started to be widely implemented by all of us on a daily basis. In Chile, like in other countries, the pandemic has wreaked havoc on health, economics, culture, and education, causing effects that will probably continue to be examined for several years. In fact, according to a survey conducted by "Centro UC Encuestas y Estudios Longitudinales" (Chile, 2020) 39% of people between 21 and 34 years old have presented mental health problems. In addition, in his study of how the pandemic has affected Turkish education, Muhammed Akat (2020, p.5) mentions: "Wang and others (2020) found that young people are more affected by the epidemic psychologically and feel more stressed, anxious, intolerant, and depressed in their study in which they investigated the psychological effects of the COVID-19 epidemic in China."

With all this information at hand, the role of teachers and professors has become key in this new challenging reality since governments demanded education to continue non-stop, so teachers restructured what they had already planned, and adapted methodologies so that their activities could fit the virtual environment. In this context, constructivism has emerged as the only possible paradigm to be applied whereas it focuses on the fact that "solving problems helps individuals in taking their own unique experiences and expertise to find a solution and once they do, they all extract unique lessons from it." (Ekins, Hupcey, and Williams. Cited in Alzahrani and Woollard, 2013, p. 3).

One of the aspects of Constructivism is that learning needs to be meaningful and authentic (Wilson, 2017), or in other words learners acquire knowledge by facing cognitive conflict or challenges and problem solving activities similar to the ones that may arise in real life. Suhendi (2018, p. 92) explains that "Knowledge and understanding are constructed when one is socially engaged in dialogue and active in experiments and experiences", and in the process of language teaching he explains that "One of the most important principles of a constructivist approach in language teaching is action-oriented. Creative and active participation in classroom activities, learning by preparing various projects as well as learning by teaching is highly treated in this approach." (2018, p. 93)

The Covid-19 pandemic created a challenging scenario for professors at universities: how to prepare future professionals for authentic "face-to-face" experiences in the middle of a pandemic that forced everyone to adapt to virtual activities. These demanding circumstances compelled teachers and institutions to make use of any necessary mechanism to achieve meaningful learning.

The following chapter is aimed to describe the details of a series of simulation activities in an English course in the English Teaching Program at Universidad de Atacama, Chile. These activities essentially consisted on the preparation for the professional life of 15 students, through role-playing the recruitment and selection in job hunting for their simulated virtual first job.

2. THE THEORY

As aforementioned, one of the most notorious changes because of the pandemic was the shift humankind had to go through in order to continue almost every activity virtually, and education was no exception since schools and universities had to move from a classroom-centered education to online education. Even though traditional Chilean schools and universities were not entirely prepared to move onto online platforms to deliver content the implication of virtual classes has allowed the learning experiences to continue; it has also broadened the use of teaching methodologies and strategies, and in general terms it has generated a different portrayal of distance or online learning in the eyes of educational institutions. Back in 1999, a professor from Virginia Tech stated about online learning:

> *Online education is capable of making vast amounts of very diverse information, knowledge, and skills available to the learner. In this sense, online education is quite capable of providing relevance as long as the learner is able to self-select a relevant topic, process, or skill. (Doolittle, 1999, p. 8)*

In the light of this, Doolittle focuses on the importance of the learner's independent or autonomous work in distance learning. Considering this

essential factor, teachers have been acting as guides and learners "in charge" of their own learning process placed constructivism and the learner-centered approach as the most suitable form of teaching.

2.1. Constructivism

Following the same author, Doolittle explains that "the essential core of constructivism is that learners actively construct their own knowledge and meaning from their experiences". Hence, students are placed in the spotlight of education being considered not as mere "receivers" of knowledge but as active, transformers and, more importantly, creators of knowledge.

When facing the world, humans interact with their environment, so -in a nutshell- this learning theory considers these interactions as the very core of understanding. In other words, Constructivism states that individuals construct a "picture" of the world going through a mental process that leads them to interpret and make sense of it. Considering this, all of us are fully capable of learning, the difference is that all of interpret the world in different ways. Windschitl & Andre (1998) define constructivism as:

> *'The view that students construct their knowledge from individual and/or interpersonal experience and from reasoning about these experiences' (p.147)*

Authors such as Piget, Vygotsky, Dewey or Bruner are placed in mainly two types of constructivism: Cognitive Constructivism and Social Constructivism. The following table suggested by Cholewinski (2009) provides a summary of both approaches:

Concepts	**Cognitive Constructivism**	**Social Constructivism**
Theorists	Piaget, Perry, Bruner	Vygotsky, Dewey
Concept of Knowledge	Knowledge is actively constructed by individuals through a series of internal intellectual stages or steps.	Knowledge is a product of social interaction (authentic tasks in meaningful, realistic settings).
Concept of Learning	Learning is an ongoing effort to adapt to the environment through assimilation and accommodation.	Understandings are created by "assembling" knowledge from diverse sources appropriate to the problem at hand. Learners build a persona, situation-specific interpretations of the

		world based on experiences and interactions, with the potential for development limited to the ZPD.
Instructional Strategies	Links to prior knowledge Explanations, demonstrations, examples Schema theory Outlining & Concept Mapping Generative Learning Repetition Interactivity Corrective Feedback	Modeling Problem-based learning Scaffolding Coaching Collaborative learning
Concept of Motivation	Motivation is intrinsically driven	Motivation is intrinsically and extrinsically driven.

Table 1: Summary matrix of constructivism theories. Source: Cholewinski, M. (2009)

As seen above, Constructivism considers a broad range of action; however, it all narrows down to the idea of building of new knowledge from the interaction of a person and what surrounds them. Constructivism is rooted in fields such as philosophy and psychology, and according to Glasersfeld (1995) it encompasses two main ideas:

1. Learners' active role in building up their own knowledge of what they interact with and experience (they do not passively receive knowledge).

2. Learners' cognition is adaptive; that is, it helps to organize the information they will transform, and not necessarily discover the "ontological reality".

Every one of us is capable of "knowing" something if we interact with it. The debate then is the validity of the new knowledge every one of us constructs, and the answer to this clearly depends on the philosophical point of view one accepts, matter that is not the scope of this chapter. Regardless the philosophical perspective, from a practical pedagogical point of view constructivist teachers are seen as facilitators for students to build up their own learning, notwithstanding "Construction does not give learners the license to claim that their meaning is as good as that of accepted knowledge" (Gatt and Vella, 2003). In other words, the teacher's role is to present learners "academic" knowledge that community accepts as being true, and construct new

knowledge from it accepting the fact that some meanings are accepted because the academic community has studied, worked and agreed on it. As a result of a constructivist approach in the classroom, results in a teaching process completely centered on the learners.

Concerning the constructivist dynamic in a classroom, Krapf (2009) understand the educational process as it follows:

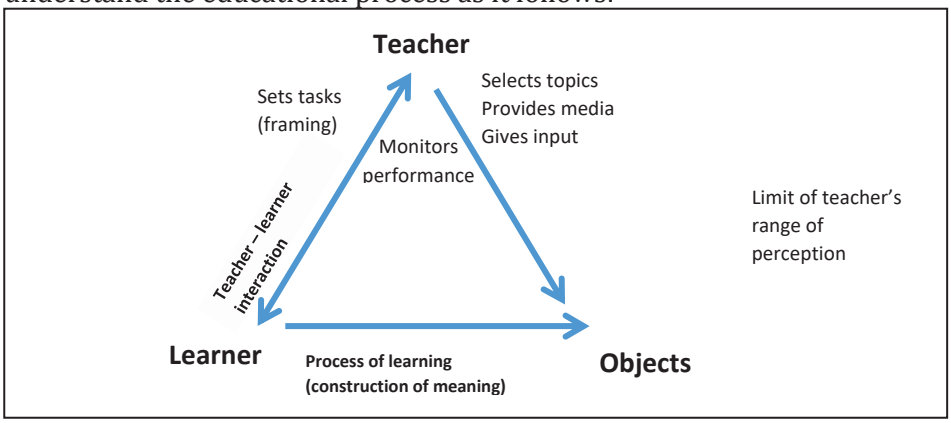

Figure 2. Constructivist interaction cycle. Source: Krapf (2009).

In their interaction with the world, students are faced with the contents (or in this diagram, "objects") and they construct meaning, they apprehend, interpret and build up their own definitions, but this content has been previously selected by the teacher together with learning objectives and tasks that are shared with the learner earlier. While learners interact and create meaning, the teacher's role is to actively monitor their performance, to finally both provide and receive feedback for and from their own students.

2.2. The Learner-Centered Approach for Online Classes

One of the elements of constructivism is the learner-centered approach, by which students are in fact the cause and effect of the teaching process. Both teacher and student engage in tasks that require specific actions depending on the role they have, in order to successfully achieve learning. Doolittle (2015, p. 1) states that "Philosophically, this essence relies on an epistemology that stresses subjectivism and relativism, the concept that while reality may exist separate from experience, it can only be known through experience, resulting in a personally unique reality." That is, when one understands something, reality and experience blend into one process resulting in new knowledge. In education, this "blending" occurs in the classroom, in students' autonomous work and virtual classes, when teachers present contents and students' cognitive structures work in order to transform and create meaning. Thus, following this paradigm, teachers transform themselves into guides and

curriculum facilitators for students to acquire knowledge and use it in real-life situations, considering learners as the axe or center of every action happening in a classroom, which in other words is called "learner-centered approach".

Unlike a teacher-centered paradigm, when learners are the center of the educational process it does not mean that professors play a passive role. On the contrary, a learner-centered approach leads to a more democratic learning process allowing both parties to be equally participants and equally benefited from it. Moreover, in a student-centered approach teachers are seen as facilitators and organizers of the learning experience, actors that work to stimulate independent thinking, problem-solving skills, and autonomous work.

A learner-centered paradigm may function as it follows:

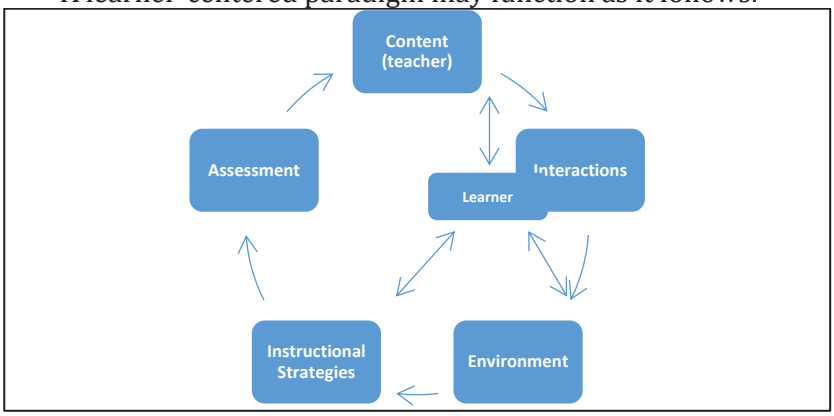

Figure 3. Learner-centered paradigm cycle. Source: Own elaboration.

In the cycle of a student-centered paradigm, learners interact with the curriculum through teachers, they also makes interchanges with peers, with the conditions that surround them, with teaching strategies that make them understand content, and with assessment by which they not only receive feedback but are also providers of it making teachers constantly improve the learning environment.

According to Brown (2001, p. 46-47), the learner-centered instruction occurs when:

- Techniques focus on or account for learners' needs, styles, and goals.
- Techniques that give some control to the student (group work, or strategy, training, for example)
- Curricula that include the consultation and input of students and that do not presuppose objectives in advance.
- Techniques that allow for student creativity and innovation.
- Techniques that enhance a student's sense of competence and self-worth.

Bearing all of the above in mind, it is apparent that since students have previous knowledge and experiences that may influence their learning process, this approach is aimed to focus on learners' developmental stages, learning strategies, prior-knowledge and experiences, interests, goals and social context, aspects that teachers must consider when planning the learning experience.

Because of the pandemic, face-to-face education had to switch to distance or online learning, students were evidenced to be the protagonists of the process, so the learner-centered approach became the paradigm teachers followed in order to successfully deliver content. In fact, McCombs (2015) mentions that one of the goals of learner-centered online instruction is to maintain an environment led by constructivism learning theory, so it is evident the link between constructivism, learner-centered paradigm and online education.

As any teaching paradigm, the student-centered approach has its own features, being one the fact that the opportunities for learning are intended for students to create their own knowledge from activities that make sense for them. This is also called "meaningful learning".

2.3. Meaningful Learning and Motivation

Meaningful learning is a branch from Ausubel's view on Constructivism, according by which learning occurs in active, constructive and intentional contexts working on authentic tasks (Jonassen et al, 2006, p. 1). In other words, in order for students to learn meaningfully, they must relate new knowledge to relevant concepts they already know.

For more detail, Bretz (2001) in the Journal of Chemical Education explains the following:

> *(…) what Ausubel describes as meaningful learning occurs when new information is purposefully connected to a student's existing knowledge, i.e., the formation of "non-arbitrary" relationships among ideas in the learner's mind. (…). In order for meaningful learning to take place, three conditions must be satisfied: i) a student must have some relevant prior knowledge to which the new information can be related in a non-arbitrary manner, ii) the material to be learned must be meaningful in and of itself; that is, it must contain important concepts and propositions relatable to existing knowledge, and iii) a student must consciously choose to non-arbitrarily incorporate this meaningful material into his/her existing knowledge, a disposition which Ausubel labels as the meaningful learning set. (p. 3)*

Moreover, Joseph D. Novak (2010) explains that:

> *Meaningful learning results when the learner chooses to relate new information to ideas the learner already knows. Its quality is also dependent upon the conceptual richness of the new material to be learned and the quantity and quality of the organization of the relevant knowledge held by the learner. (p. 23)*

One of the characteristics of a learner-centered approach and, hence, constructivism is that activities must serve for meaningful learning and they must also be authentic. Doolittle (2015) explains that the attained knowledge "must be relevant to the individual's current situation, understanding, and goal." (p. 5).

Because of the little time formal education has, specially higher education, the delivery of contents must be strategic and effective, and hence a goal-oriented process allows learners to construct meaningful representations in terms of the most relevant goals they need to accomplish in order to successfully learn. In this way, teachers "can assist learners in creating meaningful learning goals that are consistent with both personal and educational aspirations and interests" (Richlin, L. 2006, p. 115).

The idea that learners are able to build new knowledge with the teacher's assistance carries the selection of materials that both serve to effectively teach that content but also that students can make sense of it and motivate themselves to learn. In this regard, Brown (2001) explains that meaningful learning results in long-term retention of contents because of the anchor in students' previous knowledge, experience and interests. The scaffolding of new information and experiences they have already gone through result in associations that have an individual meaning for each learner, causing a long-term learning.

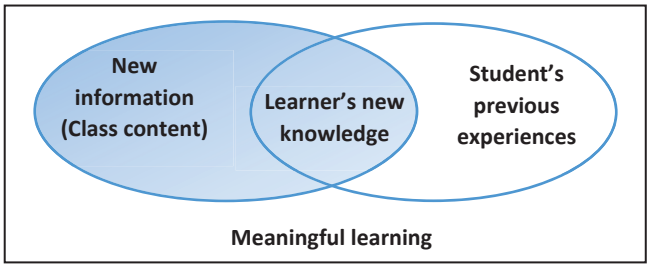

Figure 3: Meaningful learning Venn diagram.*Source: Own elaboration*

Kostiainen et al. (2018) explain that learners' perspectives and thoughts state "considerably affects the meaning-making process". The same authors continue explaining that "In order to engage in and aim for high-quality learning, students have to invest in their learning on many levels: they have to

engage in making a cognitive contribution including active participation and reflection as well as emotional commitment."

The connection of cognition and motivation then is undeniable. Brown (2001) explains the connection of learning and intrinsic motivation as: "The most powerful rewards are those that are intrinsically motivated within the learner. Because the behavior stems from needs, wants, or desires within oneself, the behavior itself is self-rewarding; therefore, no externally administered reward is necessary." (p. 59). He then explains that all learners' performance in different tasks will be effective because they will be seen as "fun, interesting, useful, or challenging", and in this way teachers promote intrinsic motivation.

Teaching adults is certainly different than teaching children or adolescents because of their maturity, interest diversification, and learning motivation. For example, children tend to present high levels of intrinsic motivation whereas teenagers' commonly start decreasing. Despite the fact that it may be demanding or even impossible for professors to force (adult) students to "want" to learn, Cotterill (2015, p. 2) mentions that "for deep learning to take place the student has to be an active participant and driven instigator of their own learning". In this sense, motivation may play a key role in the success (or failure) in the learning process.

Some authors have defined motivation as it follows:

- Cherry (2010): "the process that initiates, guides and maintains goal-oriented behaviors".
- Brennen, (2006): "… the level of effort an individual is willing to expend toward the achievement of a certain goal"
- Guay et al., (2010, p. 712): "reasons underlying behavior".

The fact that we understand that motivation underlies predispositions activated by different factors (Nukpe, 2012, p. 12) sheds light on the fact that teachers can manipulate the teaching environment to set factors that promote intrinsic motivation and, eventually, enhance learning.

2.4. Authentic Activities: The Role of Simulation to Promote Active Learning

According to Suhendi (2018, p. 7), one of the principles of Foreign Language Teaching is that activities are content-oriented and authentic. Moreover, Barron et al. (2008) suggests that students gain deep understanding of complex tasks through authentic activities to solve real-world problems.

Lombardi (2007, p. 2) defined authentic learning as the one that "typically focuses on real-world, complex problems and their solutions, using role-playing exercises, problem-based activities, case studies, and participation in virtual communities of practice". On the other hand, Hayden (n.d) from Harvard University defines it as "learning activities that are either carried out in real-

world contexts, or have high transfer to a real-world setting. Authentic learning activities should have both personal and cultural relevance".

Reeves et al. (2002) reported ten characteristics of authentic activities, being some of them:

1. Authentic activities have real-world relevance: Activities match as nearly as possible the real-world tasks of professionals in practice rather than decontextualized or classroom-based tasks.

2. Authentic activities comprise complex tasks to be investigated by students over a sustained period of time: Activities are completed in days, weeks and months rather than minutes or hours. They require significant investment of time and intellectual resources.

3. Authentic activities provide the opportunity to collaborate: Collaboration is integral to the task, both within the course and the real world, rather than achievable by an individual learner.

4. Authentic activities provide the opportunity to reflect: Activities need to enable learners to make choices and reflect on their learning both individually and socially.

5. Authentic activities allow competing solutions and diversity of outcome: Activities allow a range and diversity of outcomes open to multiple solutions of an original nature, rather than a single correct response obtained by the application of rules and procedures.

The fact that authentic activities come from the constructivist learning theory means that students link the new information (input from teachers) to experiences outside the classroom. In this regard, more specifically in teacher education programs, authentic activities allow student-teachers to associate theory with practice and thus developing teaching competencies and skills that may eventually provide a genuine full picture of the teaching profession (Kaldi et al., 2017, p. 246)

Simulation activities have emerged as a key tool in education because of the real-world-solving features that can promote the development of a variety of skills. Moreover, Kincaid and Westerlaund (2009) explain that simulation tasks provide students with new methods of problem solving, allowing them to have multiple views of the problem in order to be able to offer as many solutions as they can, hence building their own knowledge about a topic. In a few words, simulations offer the opportunity for learners to demonstrate the mastery of skills.

Simulations also play a key role in online educational contexts because of their nature, that is, these types of activities promote self-regulation and autonomous work, both conditions that are connected to online learning. In this regard, Reeves declares "a web-based course of study can incorporate in its design a metaphor based on a realistic and authentic context to preserve the complexity of the real-life setting" (2002, p. 566).

3. THE PRACTICE

In higher education, Chilean universities arranged virtual classes for students to continue with their programs and Universidad de Atacama was no exception. In this context, the English Teaching Program (ETP) at Universidad de Atacama carried out all courses in a virtual format, including Communicative Competence VIII, which is the last course of a series of English communicative competence classes. In 2020, this course had 15 students and it was the first time to be implemented; in addition, the course was held by two professors, and it lasted 16 weeks (from August through December). During the first semester (April through July), the topics developed in Communicative Competence VII were about technology, health, food, first impressions and, of course, the pandemic. Though all of the learning outcomes were successfully achieved, the Language Department did a survey to know the students' perception concerning virtual classes and the topics seen with the results showing that students did not positively evaluate topicsas being linked to the pandemic.

Bearing that in mind, both me and my colleague decided to change the topics from the proposed syllabus and help future teachers to be prepared for the professional life to come. In other words, we decided to plan a series of simulation activities role-playing a job hunting process. In doing so, they integrated:

a) The context they were being taught

b) The English contents they had to learn during the semester

c) The learning outcomes previously proposed in the syllabus

d) The expectations to include more realistic activities that could help students to develop professional competences, especially considering that these 15 students had only one semester left to become professionals.

Including authentic experiences promotes the necessary skills to be mentally prepared to face real-life scenarios that may cause high levels of anxiety amongst prospective teachers. As Hakki (2015, p. 587) states: "It may therefore be useful if we, teacher trainers, can revise and align our teaching methodologies according to what awaits student teachers in real life. It is only then we can equip them with down-to-earth applicable teacher knowledge."

Since this was the first time to implement online classes for this program, we decided to use synchronous classes to deliver theory and exercise the language, meanwhile asynchronous classes dealt with autonomous work in a variety of tasks of the contents previously seen. Because the pandemic forced us to work in a digital context, and applying constructivism in our teaching, we determined to put into practice the idea that they were applying for an online school, and since it was online, application and interviews were also going to be through videoconference.

Regarding the specific experience in this program, we considered the following conditions:

- Online environment
- Last communicative competence course
- A penultimate semester before getting their teaching degree
- Last semester does not consider professor-lead classes (only professional practice and independent work)
- No formal preparation for interview skills within the program curriculum
- Language skills preparation at level C1 from the Common European Framework (the entire program curriculum aligns with this framework)

Taking all of the above into consideration, we planned the process in different stages:

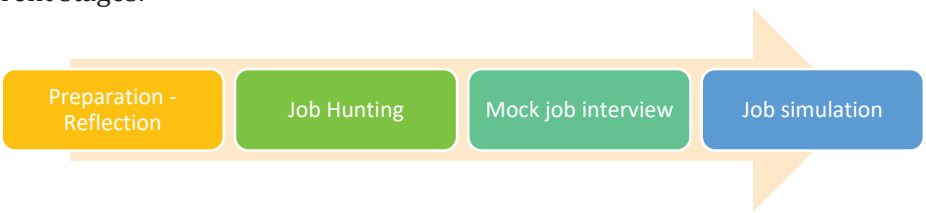

Figure 4: Mock job-hunting simulation task. Source: Own elaboration.

3.1. Preparation – Reflection stage

The first stage of the process was a synchronous class through a video call, in which students had to orally offer their perspectives on the professional competencies teachers should have, and in the next class they had to develop their opinions in a written way through a forum, but this time focusing on the social and academic competencies teachers should present in order to be hired in schools.

The goal for this stage was to introduce key vocabulary, grammar structures and formal writing style in the professional life. In order to do so, the first class they declared their own thoughts about their near-to-be profession and the most important skills English teachers should present; in this way, we activated previous knowledge on the topic. Afterwards, they read an article named "Top 10 Skills to Include on Your Teacher Resume" in order to get key lexis, and this was linked with the grammar structure Reported Speech because after the text analysis they were asked to report what the article communicated and also what their peers commented at the beginning of the class.

Then, students had to reply in a forum about the most important competencies English teachers must have in order to successfully develop their work, and it was expected that they used both the information from the text, and their own believes and personal experience as individuals and as pre-service teachers.

3.2. Job Hunting stage

The second stage continued with synchronous classes for theory (lexis and grammar) and asynchronous classes (autonomous work for practice); however the difference was that they were already exposed to vocabulary, so in this phase we focused on the development of language skills.

In this stage, the goal for was to familiarize students with a simulated real-life job hunting experience. For this, we selected a teacher job ad for a virtual school in which they required English language teachers with certain characteristics. The job ad was in fact real; it was for "Connections Academy", a virtual school from Georgia, which required English teachers for their 2021-2022 periods. The job ad mentioned a set of requirements, but we did a few modifications for it to fit the learning outcomes our learners were to accomplish.

In this phase, students practiced their writing skills by creating their own cover letter in a simulated process of application for *Connections Academy* virtual school. As preparation, we presented a set of real cover letters from teachers in order to induce them to examine text structure, writing style and cultural conventions. After analyzing the texts, students brainstormed and outlined their cover letter while getting synchronous feedback from the professor. Subsequently, they had to write their cover letter taking into account all the aspects seen up to that moment (key lexis and grammar structures, writing style, text structure and professors' comments), and the final letter was the written part of their midterm exam.

The rubric to grade the cover letter considered aspects such as structure and content, use of specific grammar topics, readability, and format. After grading every work, the average was 6.0 (from a scale 1.0 to 7.0)

3.3. Mock job interview stage

The second part of the midterm evaluation was an oral performance in which students simulated being selected for the job they applied to and taking part in a virtual interview with the school principal. In order for them to be prepared, they had to reuse the information they declared in their cover letters and consider the requirements posted in the job ad.

The goal for this was not only to evaluate their oral skills but also to develop learners' problem-solving skills in a professional context. The criteria for the oral part considered topic, purpose, content, language use, fluency and linking, and stress. Besides, both professors prepared a set of predetermined questions that are usually asked in job interviews, and selected some questions according to what students talked about. The prepared questions were:

- What differentiates you from other teachers?
- What is your vision about education and the teacher's role?
- What are your strengths and weaknesses as an English teacher?

- Tell me why we should hire you.
- What are your qualifications for this job?
- What are your best personal traits that would fit in this job?
- What technological skills do you have and how will you incorporate them into the classroom?
- What can you offer to our school?
- What skills or abilities do you possess in this profession that will contribute to our high school Connections Academy?

After grading every performance, the average was 6.6 (from a scale 1.0 to 7.0)

3.4. Job simulation stage

The last stage of the process continued with the same dynamic of synchronous and asynchronous virtual classes, in which contents were socialized and the four language skills were developed.

In this stage, the goal was to apply several aspects seen in class in a simulated job-hunting experience where they were selected and hired in Connections Academy. For this, they were introduced to the topic "public service announcements" to get ideas on how to present specific information. Then, they had to simulate being in charge of the "healthy lifestyle program" at the virtual school, and that the principal asked them to create a video in which they had to present arguments and persuade parents or guardians to promote a healthy lifestyle among children or teenagers, with a poster as a visual aid.

Notwithstanding that we provided the guidelines, learners could choose the specific topic previously seen in classes to focus the general topic "healthy lifestyle". That is, they were able to decide if they wanted to direct their arguments talking about: natural food, processed food, physical exercise or screen time because those aspects had already been covered in the course.

Key vocabulary and grammar structures had been developed throughout the semester, as well as the four language skills, so they received the guidelines with examples of posters to model the work. The idea was that the poster served as a means of individual art expression because they were free to design it with colors and images of their choice, they could also do it digital or handmade, and they chose the level of students they were referring to (children or adolescents). In short, the poster was the opportunity to give learners freedom of choice and decision within the general task.

Once the poster was finished and they received feedback from us, they recorded their videos with the instruction that they had to "look" professional and also show their posters in it. The result was a 15-student group formally and professionally expressing themselves in a job-like situation; the average grade was a 5.9 (from a scale 1.0 to 7.0).

4. CONCLUSIONS

The Covid-19 pandemic is still causing several difficulties in the educational field, more specifically in higher education, which for its characteristics demands efficiency in the delivery of contents and development of skills and competencies.

The fact that this course was in a virtual context limited some aspects, but also allowed new activities to be considered in the lesson plan. For example, feedback was detailed and individualized. Also, virtual contexts (for example, online schools) were considered as real options for a job, and this is an important point since the COVID-19 pandemic has no tended yet, so this new labor field arises as a real possibility. Besides that, students worked in a broad range of constructivist activities such as preparing a cover letter, analyzing job ads, preparing themselves for job interviews and producing didactic materials like actual teachers do in schools. Finally, the fact that they had synchronous and asynchronous classes consolidated a true learner-centered approach because the entire project was guided by us in synchronous classes, but directed for and developed by learners in their autonomous work, giving them the chance to do some research on every step, and including their own individual seal in the products.

After the course finished, we asked for students' opinions on the series of simulation activities, and all of them reported that simulating the whole process of job hunting helped them to understand what they may face in the near future, and also to put into practice not only language but professional skills too. In fact, one of them reported: "I really liked the idea of learning and practicing for something that is going to be really useful in my future." Hence, the fact that the task was authentic promoted the idea of "usefulness", in other words, the activity made sense for them, and so they felt motivated and engaged to participate.

Another essential point is that this activity could easily be replicated in either face-to-face or virtual environments because apart from traditional schools there are plenty of virtual schools, and this pandemic may promote in a stronger way teaching and working in online classes. Considering this, no limitations of this type of activity are foreseen; however, it is possible that in a near future once students get their degree and their first job, a follow-up questionnaire could be conducted in order to verify if the job-hunting project helped them to be prepared for getting a job.

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EDUCATIONAL DIGITAL TRANSFORMATION. TEACHING ATTITUDES.

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1. INTRODUCTION

Digital Transformation (DT) is the main strategy of economic development, and all organisations worldwide are currently adapting to it. Our society was already complex and characterised by the interdependence that was generated among ideology, technology, economy, working environments and globalisation. The management of a cultural change in higher education (HE) is becoming necessary and unavoidable: changes in teaching, changes in research and changes in governance. DT is an essential part of many countries' modernisation agendas. Future research in this line must contemplate, among other aspects: the consequences of SDG 4 in the DT of HE by regions, countries, or continents; the opportunities and challenges generated by Blockchain in the educational context; the corporate vulnerability of digital threats; the link between artificial intelligence and sustainable development; the role of HE in the scope of DT; cybersecurity in HE; the future of HE in Industry 4.0; and the analysis of disruptive Blockchain projects.

In our case, the 2030 Agenda guides the way that links DT to the Sustainable Development Goals (SDG). It is stated that the rise of information

and communication technologies (ICT) involves a considerable potential to accelerate progress, reduce the digital divide and promote the development of inclusive knowledge societies based on human rights, empowerment, and the attainment of gender equality. The development of inclusive knowledge societies must be based on four pillars: freedom of speech, freedom of information, universal access to information and knowledge, and quality learning (OCDE, 2020).

In this sense, the emergence of new organisational structures is creating a new institutional culture that enables DT. The literature shows that the companies that do not approach DT will disappear in several years, and that the success of change projects lies in a cultural transformation. Similarly, in education, specifically in higher education, DT is taking place. Initially, this change was associated with the application of digital technologies, which has continued to advance with the so-called "digital pedagogies", digital literacy, the European Framework for the Digital Competence of Educators, the importance of the coordination between the planning and projects that regulate the life of educational centers and the simultaneous incorporation of their digital project. In agreement with the rest of social organisations, DT is the change associated with the application of digital technologies in all aspects of human society (Kreiling, Serval & Bounfour, 2017; Seresco. 2020).

The UNESCO has created the ICT Competence Framework for Teachers (ICT-CFT), which is a tool to guide the initial and permanent training of educators in the use of ICT in the entire education system. The ICT-CFT has been designed to adapt to the national and institutional objectives, thus providing an updated framework for professional development and the creation of policies. ICT-CFT version 3 responds to the recent technological and pedagogical evolution in the field of ICT and education, and it incorporates the inclusive principles of non-discrimination, open and equitable access to information and gender equality, by teaching with the help of technologies. This tool also addresses the implications of the recent technological advances in education and learning, such as: artificial intelligence (AI), mobile technologies, the Internet of Things, and open educational resources, with the aim of supporting the creation of inclusive knowledge societies.

The process of DT requires technology, digital culture, and leadership in order to be fully accepted in the educational environments. One of the digital enablers is the hybridisation between the physical and digital worlds; in our case, this situation is reflected in the multimodal models of face-to-face and distance learning. We need certain leadership profiles that will undoubtedly be essential for an efficient management focused on the well-being of the people. That is, we need positive leaders (Álvarez-Álvarez y Fernández-Gutiérrez, 2020) to work on the change and development of educational organisation; this has been successfully achieved by many management teams in their educational centres, and now they must advance in these aspects with

confidence. All the studies found in the literature about the organisations that have overcome situations of maximum stress and internal destructuring state that promoting positive emotions improves the motivation and well-being of professionals, which in turn increases their creativity, commitment, and capacity to adapt to new situations. Successful managers who lead these resilience processes have focused on "what works", "the critical factors of successes of the new organisation and "the positive aspects" of each collaborator as a starting point of improvement. The factors that are being studied nowadays (Tintoré et al., 2019; Villa-Sánchez, 2019; Weinstein et al, 2019) have identified the following factors as descriptors that define a positive leadership model: involvement, innovation, influence, resilience, and coaching.

DT is directly involved in the new types of innovation and creativity in HE. Similarly, the traditional teaching methods have been improved and supported. In the present time of the pandemic, digitalisation has allowed developing efficient academic actions when the situation did not allow attending face-to-face lectures. The aim is not to follow a fashion technological trend but much more, since DT brings accessibility to vulnerable groups and improves the efficacy of educational methodologies, which provides the educational quality that we have been searching for so long. Fundamentally, DT is the reinvention of educational organisations.

1.1. Digital active pedagogies.

Rethinking the curriculum and learning ecologies, as an analytical framework to determine how we learn and what contexts we need, is a relevant strategy for learning (González-Sanmamed et al, 2020; Hervás-Gómez et al, 2020). Future teachers under training are facing an unprecedented and unknown situation. On the bright side, they have the chance to experiment and "live'' virtual teaching in all its dimensions. Similarly, they are given the opportunity to observe, design and evaluate innovating projects in their professional practice. The acceleration of training in all educational levels has been considerable. We cannot disregard the relevance of the development of Personal Learning Environments (PLEs). PLEs have become essential experiences during the pandemic. Studies focused on recognising the different types of learning that can be acquired by our future teachers are aimed at unraveling and delving into the possibilities of Learning Ecologies (LE) in the institutional, business and working reality of their social environment, in a pandemic such as the one caused by COVID-19. Other studies are aimed at critically analysing the new learning environments as dynamic and informal environments, as well as developing the capacity of future teachers to be autonomous in the execution of tasks that require the application of theory and practice.

1.2. The empowerment of future teachers.

Other studies related to LE show that technological resources can provide great help in the learning and professional development processes. The increasing impact of LE is a framework to interpret and explore the multiple opportunities for digital learning (González-Sanmamed, et al., 2020). Previous investigations have demonstrated the importance of PLEs in HE and in the professional development of future educators (Díaz Noguera, Álvarez Arregui & Rodríguez Martín, 2013).

Social projection used to be carried out in a world characterised by promptness and immediacy, where working environments were in constant development and alert for the quickly changing demands. What happened to us now? Why has it been of utmost importance to face confinement and bring the school to our homes? The coronavirus, which has changed the customs of most of humanity drastically and very quickly, has taken to the extreme the management of the new economic and social paradigm focused on the development of competences. After this experience, we have learned to work, study and socialise in a different way. We miss human contact, which is so important for learning and communication. To date, many of our teaching-learning procedures were based on time shifts, and through the lockdown experience we can help to transform such system toward tasks.

Social projection is found in the new challenges of the working environments that are in constant crisis management (health, economic and social crises), which must thereby be very sensitive to the demands of the development agendas, such as those included in the abovementioned 2030 Agenda (green energy, telecommunications and digitalization). It seems that long time ago, when researchers wrote about knowledge generation, learning was considered ubiquitous (Díez-Gutiérrez y Díaz-Nafría, 2018), invisible (Cobo & Moravec, 2011), connected (Teixeira-Witt & Martini-Rostirolla, 2020; Siemens, 2020) and rhizomatic (Cormier, 2008), as new formats were created, and times and spaces were expanded and modified. Future teachers will have to respond to a set of emerging skills and competences. This requires leadership in their own working life, responsibility in their own development and self-management of their intentional learning projects inside and outside formal institutional environments.

Anyone who wants to carry out a project of intentional learning would generally ask him/herself: what do I want to achieve and how can I do this? What are the human and material resources that are available in the course of the project? Which are the most suitable and efficient instruments to carry out the activities and support my project? What is the expected result and how can I know that the objectives have been met? This idea is key in the change of institutional culture that must be sought in higher education.

The creation of challenging situations for students in terms of self-management in a formal institutional framework is wide. Two examples of this are: learner control as an expression of self-management and learner control from the perspective of instructional control. The student must make independent decisions on what and how to learn (Drachsler, 2009), although not by him/herself; there must be a balance between learner control and the facilitator role played by the educator. This new professional role must be characterised by negotiation and the exchange of perspectives, ensuring the necessary resources and validating the results of training in digital competences, emerging technologies, digital learning (gamification), digital evaluation and empowerment for the participation of students in LE. All these scopes constitute a relevant part of university training in all fields of knowledge.

The existence of a team that provides help and support to face technical difficulties is important. Through e-learning as the centre of teaching interest, a methodology based on problems, projects and working contracts has been introduced. The new learning model is based on continuous learning, and it results in the combination of different learning contexts, which include formal, non-formal and informal learning. These emerging circumstances have been analysed in studies on ubiquitous learning, continuous learning and expanded education contexts. The creation of "learning ecologies for continuous learning" provides an integrated conceptualisation of learning as a complex phenomenon that unites formal, non-formal and informal learning experiences. This creation offers a framework to understand how individuals select, experiment, navigate and participate in learning experiences that comprise multiple contexts (Sangrà, Raffaghelli & Veletsianos, 2019).

We have revised and verified the impact of learning styles on future leadership models. The attitudes toward computer technology are key, as well as the design and creation of materials. It is important to take into account the relationship between interests and skills in order to choose the most adequate education and evaluate its strategies. One of the implications that we detected is related to the motivation that students have experienced and expressed in the design of their materials. These smart classroom studies show that intelligent technology is aiding the development of inquiry, collaborative, group, mobile and ubiquitous learning (Lin, Huand & Cheng, 2010). The smart classroom can adapt in a personalised manner to the individual learning of each student. It enriches learning, by supporting it with interactive resources provided by emerging technologies, such as Augmented Reality (AR) (Restivo, 2014; Silva & Restivo, 2009; Yang & Lin, 2016). In a smart classroom environment it is easier to stimulate the motivation of students for learning, promote their active learning and achieve an adequate learning performance (Liu, Horton & Olmanson, Toprac, 2011). Thus, (Or Kan, 2011) proposed the development and promotion of an active learning environment in smart schools of Malaysia. In this process, multimedia technology and Web 2.0 tools,

specifically MyPortfolio, were integrated to allow students to learn on their own and to record their evolution and experiences within this cooperative learning environment.

The obtained results show the valuation of the following aspects: motivation, collaboration and reflective exchange of experiences, self-learning, promotion of initiatives and decision making. The tasks they promote facilitate the development of competences associated with the search of information, planning, reflection, coordination, cooperation, professional development and leadership.

The professional development of faculty members is a key factor to guarantee a good higher education (Darling-Hammond & Richardson, 2009; Inamorato Dos Santos, 2019). The concept of PLE has been interpreted in different ways (Attwell, 2007). The main benefit of PLEs is related to the opportunities offered to students to control their environment, expanding beyond the physical space of educational institutions (Attwell, 2010). As was pointed out by [32], learning is becoming increasingly self-directed and informal thanks to technology, hence the need to explore what resources are used by teachers to promote their professional development from the integrating perspective provided by LEs. This way of learning is a revolution in permanent teacher training, since teachers lead and control their own learning and they are able to identify their needs, interests and potentialities. These aspects are very significant indicators of teacher professional development (Muijs, Day, Harris & Lindsay, 2005; Yurkofsky, Blum-Smith & Brennan, 2019).

Digital citizenship, i.e., the competences and ethical values required to participate in on-line society, is an increasingly essential element in the 21st century. Critical thinking (Delgado-Algarra, et al., 2020), citizenry (Thorson, 2012) and the inclusion of systems like interactive groups, collaborative learning and peer tutoring have proved to be efficient strategies that help all students to reach their maximum potential based on their learning capacities, while they also promote social inclusion and the coexistence of the entire classroom and community (Glatzel, 2017).

1.3. Competences of the future teacher

The professional profile of the teacher in the digital age is defined by a combination of knowledge, skills and attitudes required for the responsible use of digital resources in the university context. It is important to highlight the impact of using the didactic and pedagogical principles that facilitate the integration of this new educational paradigm. Digital competence frameworks for teachers have been legislated in Europe, such as DigCompEdu, which was published in 2017. This framework establishes the skills and digital competences of teachers, at all levels. It shows six working areas:

Area 1: professional environment (organisational communication, professional collaboration, reflective practice and continuous digital professional development).

Area 2: digital resources (select, create, modify, administrate, protect and share).

Area 3: digital pedagogy (management and organisation of the use of tools in teaching and learning; guidelines, collaborative learning and self-managed learning).

Area 4: evaluation and feedback (evaluation strategies and test analyses; feedback and planning).

Area 5: student empowerment, accessibility and inclusion, differentiation and personalisation; active student participation.

Area 6: facilitation of the digital competence of students and 22 specific competences.

Other studies are based on needs analysis (Zotikovna Vlasova, 2019).

Future teachers will have to use digital resources as a guide to acquire competences related to digital society, such as critical and innovative reflection, solving complex problems, collaborative capacity and socioemocional attitudes.

This pandemic has shown that teachers must be deemed competent in the digital field. Research has been extensive in this scope in the last decades. The irruption of technological resources in all education levels has disrupted the education system (Farnós Miró, 2020). Universities are transforming and international institutions are adopting competence frameworks such as the Digital Competence Framework for Educators (DigCompEdu). Some studies show the successful implementation of the frameworks (Cabero-Almenara, 2020).

2. CONCLUSIONS

After the analysis of the questions related to resources (software and hardware), we can assert that most students, with adequate competence in the use of computer equipment, do not find it difficult to adapt to distance teaching. Likewise, in view of the obtained results, we can infer that there is no digital divide among the students of the analysed sample, since they find their devices sufficiently suitable and, thus, they do not require those provided by their educational centres, which is in line with the findings of other studies carried out during the COVID-19 pandemic (García-Aretio, 2021).

In general, the participants of this study consider that they will obtain good results with on-line teaching and are highly motivated with their studies. However, some of them find it difficult to adapt, feel discouraged (they do not like it) and reject this way of learning for the future. Moreover, they highly value interacting with their classmates and teacher in the classroom, as well as

physically being in the classroom, which is in agreement with the results of other studies performed all over the world (World Bank, 2020).

In this sense, new and interesting research lines emerge. We do not know whether such rejection to remoteness among the protagonists of the teaching and learning processes is due to the novelty of this situation, the imposed lockdown to fight the pandemic or the change experienced in the months of confinement, which coincided with the beginning of this model of virtual teaching. Could this opinion evolve intime with the normalisation of the health and social situation of the students? Is this valuation negatively influenced by the stress that the students have suffered during the lockdown? Were the lectures suitable to the demands of on-line teaching, or were the design and implementation of the lectures not up to the task? Are we living a DT accelerated by the current circumstances, in which there was not enough time to create the necessary pedagogical structures to implement a quality education? All these questions pave the road for new research lines that could help to improve DT in the field of education.

We should not forget the importance of knowing the interest of students in DT in certain educational scopes. They may not like the idea of distance learning, globally, but that does not imply that they reject any type of virtual learning (courses, assignments, specific contents...). This requires the conceptual and philosophical reevaluation of teaching and learning, as well as of the roles of teachers, students and didactic materials and the connections between them (Jandrić, 2018).

Therefore, there could be a direct relationship between DT and the new types of innovation and creativity in higher education. Similarly, the traditional teaching methods are improved and supported. During this pandemic, digitalisation has provided us with the possibility of developing efficient academic actions when attending the classrooms was not possible. The aim is not to follow a fashion technological trend but much more, since DT brings accessibility to vulnerable groups and improves the efficacy of educational methodologies, which provides the educational quality that we have been searching for so long. Fundamentally, DT is the reinvention of educational organisations.

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ICT AND COMMUNICATION IN THE UNIVERSITY: RELATIONSHIP WITH GOVERNANCE

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1. INTRODUCTION

The University can be defined as the public or private institution of higher education, formed by different elements that interrelate with each other around an open, dynamic system with the capacity to adapt to the changes that occur in society (Barrientos-Báez et al., 2020). Governance is the way the University is managed, indirectly impacting those services, companies, people and infrastructures that surround it and it is that good work climates and corporate cultures benefit the company (Peña-Acuña, 2017, p. 5). It is important to note that universities should be known for their skills and / or capacities to train professionals and carry out scientific research (Janeiro et al., 2013). The coronavirus pandemic has caused situations in the area of university governance that have never been seen or anticipated. During the first month of the COVID-19 crisis, students received inputs from both government entities and those of the university community.

The University can be defined as the public or private institution of higher education, formed by different elements that interrelate with each other around an open, dynamic system with the capacity to adapt to the changes that take place in society. From here, we can affirm that governance is the way the University is managed, indirectly impacting those services, companies, people and infrastructures that surround it (Barrientos-Báez et al., 2020). Governance in the University cannot ignore that the processes of educational change are very slow but inevitable. Only passivity and immobility are impossible in education (Barrientos-Báez et al., 2019). The governance approach represents, under current conditions, an appropriate approach for the study of university organizations (Aguilar, 2006); and as Gayle et al. (2003), placing ourselves at the level of university organization, governance refers to the structure and decision-making process that involves both internal and external agents of the institution, focused on quality, as Ganga Contreras et al. (2016).

1.1. Social media at university

Science in the last 40 years has contributed with the creation of the digital technological revolution to significantly influence the behavior change of homo sapiens (Rodríguez-Cadena, 2019, p. 503). Since the inclusion of social networks in our lives, relationships between people, companies and institutions have been modified, generating an incipient, but now irreversible, rupture with previous information systems (Caldevilla, 2013). Social networks are currently a tool for daily use for half of the Spanish population (Vázquez Chas, 2016).

So much so that, as Abuín (2014) states, large advertisers, private or public, are betting on social media and the success of their strategies in these media lies in the offer of value-added services and exclusive promotions for users of its microsites, which have increasingly seen their childhood habits modified by new devices (Catalina-García et al., 2019) and social networks play a transformative role in modern vocational education (Matronina et al., 2019) . In the field of the university institution and its governance, it is essential to communicate and explain the actions to reach the academic community, such as student representatives, administrative staff, teaching and management staff.

For its part, the Academy can thus know and monitor the management of its representatives (a need dictated by experience, according to Ganga, Navarrete and Suárez, 2017), even participate immediately in their decision-making through their assessment and opinion in the digital environment, among other potential applications, such as those suggested by Gilabert

González et al. (2015) Grijalba-Verdugo (2017) or the communicational utilities listed by Valerio-Ureña and Herrera-Murillo (2017).

The unidirectionality of the Internet is part of the past, since there is an interaction between user and platform, establishing new channels for participation, the exchange of ideas and a portable multiplatform (tablets, mobile phones, smart watches, etc.) from which Endless messages can be communicated. Among them, as Mitchelstein et al. (2019) or Zuckerman (2017) politics. For its part, the App, the multi-file trunk, also called the cloud, guarantees the user security –sometimes violated-, efficiency and a multitude of emotions that are transmitted live, with the risk of not assessing the consequences of certain actions.

The use of social networks encourages individuals and, in the case at hand, students to access information from their own university in a direct and easily accessible manner. -To information in general, as Bernal-Treviño and Clares-Gavilán (2019) and Campos Freire (2008) already said -. They can see the personal profiles of the people who represent the institution and also that of the teaching staff. All this without abandoning the information from the media themselves, but now, with a limited time. The academics and representatives of the Institution, aware of this situation, take advantage of the direct contact of social networks to seek participation among their followers, and share with them their concerns, opinions and points of view of specific moments or circumstances.

The representatives of the university institutions strive more and more to generate content of interest adapted to the language of social networks and therefore to the language that students understand, as can be seen in the long tradition of works such as Torres-Romay and Corbacho -Valencia (2011) or even earlier, such as Kliksberg (2000). All this in a context where the time devoted to information is increasingly limited and there is hardly any room for a slow and thoughtful reading of the media. This situation leads the traditional press to a crossroads where its consumption can be replaced by other types of messages.

The digitization of information and the convergence of this phenomenon with that of its network distribution have brought with it a new era of human development of historical dimensions (Sotelo, 2012, p. 220). This is interpreted as a relevant fact, with greater consistency, and that progresses at a speed that is difficult to control because digitization and online platforms facilitate learning and fun in an efficient and economical way.

The COVID-19 pandemic generated by the coronavirus has meant a profound and radical change in the way of understanding university governance and, in turn, this may provide an opportunity to contrast the perceptions of students (belonging to the millennial generation and therefore

tending to a mode of acquisition of their own information, Alonso Mosquera et al. (2016). In addition, being subject to the differences between media and online audiences indicated by Cea-Esteruelas (2016) and to considerations of more profound relative their future as members of the Academy, as reflected by Salman Alkhaza'leh and Fayiz Obeidat, 2019) with respect to the measures adopted by both the Government of Spain in a general framework, and the university government in a specific framework.

1.1.1.Television Vs Social Media

Television is the medium that university students have used the most to monitor information about the pandemic, but closely followed by the four proposed social networks. Instagram is the one that has the highest percentage of following, although it is closely followed by Twitter, linking with data on the use of social networks indicated by Tapia Frade et al. (2010). WhatsApp, which exceeds its instant messaging dimension and Facebook are a little more relegated, although at a considerable distance from other traditional media. Another of the most outstanding characteristics of the technocratic university is the importance it has in the scientific and technological development of societies in a changing, highly competitive and globalized context (Muscio, 2010; Ganga-Contreras, 2017; Ganga-Contreras, Sáez-San Martín and Viancos, 2019).

Both the printed press and the blogs stand out for their little presence, although radio does not reach very high levels either, conceived as such in its traditional facet, since the use of podcast has been left out of the object of our research, but for whose relationship with the context of social networks in an academic context, has been extensively treated by Marta-Lazo and Segura-Anaya (2014).

1.2. Higher education and online teaching

The continuous social changes, the need to reconcile work and family life, an increasingly global world, technological advances, etc. They have also led to the need for a change in educational models, aimed at greater personalization of learning. In this sense, university teaching has been adapting for years and shifting, slowly, towards a more flexible model, in which face-to-face teaching is combined with the use of LMS platforms or other educational platforms, where activities and documentation are managed for the student body. One hundred percent online teaching has also been gaining ground for several years, responding to many of the social demands mentioned above.

The health crisis caused by COVID-19 at the end of 2019 and early 2020 has further highlighted the need to offer quality online training, highlighting the

lack of resources and training for a large number of teachers, unable to face this change.

An urgent need for change evidenced by Area Moreira and González González (2015, p.32), when they pointed out that "the media and dominant cultural forms in 20th century communication are in crisis", due, among others, to aspects such as information that has been almost entirely digitized; technologies that are constantly present in any area of our social or personal life; the possibility of being able to be connected 24 hours a day; increasing the storage capacity in the cloud; advances in representation formats and codes (multimedia, hypertext, virtual reality or 3D; artificial intelligence; social networks and their ability to exchange information between people without time and physical limits.

But it has had to be a global pandemic, which has led to the confinement of millions of people, which has made teachers and educational administrations rethink the need to adapt the educational model to the technological society of the 21st century, something that includes, also, online teaching. To adapt to the needs of today's society, points out Quesada (2017, p. 313) "higher education institutions must become more flexible and develop ways of integrating information and communication technologies in training processes".

In the sector of Higher Education, this online teaching modality had a profile of students with very defined characteristics (age, working and family conditions, economic conditions, etc.) that, after the health crisis, have changed, having to adapt, the online teaching methods to motivate students familiar with a model that is usually face-to-face.

It is essential that university faculty adapt their methods to go beyond the outdated master class and work to promote a deep learning approach in students (Zamora et al., 2020). Idea reinforced by Tourón and Martín (2019), who point out the need for a change in teaching methods, caused by the need to teach students to reflect, to critically analyze, to seek relevant information to solve a problem, etc.

Something, if possible, even more important in online teaching that needs to have the constant attention and interaction of the students to avoid demotivation and abandonment. "Not being present should not imply a reduction in the quality of the teaching of the studies in which we teach, work, research and experience our own professional, creative and teaching facet" (Yáñez and Vega, 2020, p. 80).

Online teaching needs to innovate, for which it is essential to "use student-centered methodologies, introduce role changes in teachers and students, incorporate ICT as spaces to share and distribute knowledge online, in addition to the collective construction of new learning" (Silva et al., 2016, p. 226). It is, therefore, about «proposing and putting forward innovative proposals that take

the continuous dedication of the teaching staff out of monotony by having to establish documentary proposals, different learning strategies and exchanging information with the rest of the team, promotes attractive dynamics, often forgotten » (Sáez-Pérez, 2018, p. 62).

There are some innovative experiences that are being carried out to include active methodologies in university online teaching, especially those most akin to use in higher education, such as the flipped classroom, gamification, collaborative learning or visual thinking . Some of these good practices are listed below as examples.

Regarding the implementation of the flipped classroom in online teaching, Íñigo Mendoza (2015) proposes it as an ideal methodology and easier to integrate than in face-to-face teaching since, by having LMS (Learning Management System) telematic platforms, "The student has all the study information, from the beginning of the course and in different formats, such as readings, audios, videos, so the adoption of this pedagogical model is already favored" (p. 477).

Another experience is Flipped TIC, which consisted of implementing the flipped classroom in the teaching degree classrooms of the University of Murcia (Sánchez Vera et al., 2016). It included this type of methodologies in the classroom “promoting the use of digital educational resources and activities based on task-based learning, thus promoting meaningful learning ” (p. 79). Although it was carried out in the face-to-face mode, the use of a telematics platform to upload videos and documents makes it fully applicable to online teaching. And it cannot be ignored that the University as an institution is according to Barrientos-Báez et al. (2020) a whole made up of different elements that interrelate with each other around an open, dynamic system with the capacity to adapt to the changes that occur in society.

The experiences of using the flipped classroom of Sanz Gil (2017) in the teaching of Biochemistry in the degree of Physiotherapy can also be highlighted; that of Barreras Gómez (2016) to invest the teaching classes of foreign languages; or the more recent experience of Calle Martínez (2020) of investing the class with university students to improve productive and receptive skills, among others.

Another of the most used active methodologies in university teaching is gamification. Here we can find several projects and good practices in Spanish universities. Among which we can highlight, among others, the project by Vivas Urías (2017) of gamification applied to online teaching of foundations in building structures; the experience of gamification and group dynamics in the university teaching of Modern History (Carrasco Rodríguez, 2019); the proposal by Hontoria and Herrador (2018) of gamification elements for online learning in mature students to respond to the mitigation of loneliness; or the

analysis of the use of collaboration and gamification in MOOC (massive open online courses).

Collaborative learning in online Higher Education has become widespread in recent years, and there are several investigations and proposals that we can find, such as those of Martínez Martínez and Cegarra Navarro (2018) that point out the usefulness of forums for collaborative online learning in university degrees; the collaborative learning proposal in a virtual educational environment from the student's perspective by Cánovas and Marimón (2016), in which they try to "determine which are the variables of the educational process that students relate to the perception that the result of the group activity exceeds what would have been achieved if they had worked individually "(p. 7); or the research of Mora-Vicarioli and Hooper-Simpson (2016), which studied which are the most used resources in university online teaching to work on collaborative learning, pointing out forums and wikis as the most common.

On visual thinking, some experiences can be found in the university field (Cortés Selva and Wandosell-Fernández, 2018; Rosa Gregori, 2018), but there is no specific discussion of online teaching, so from this chapter a specific proposal for use, which will be developed in the next section.

1.3. Technological teaching and emotions

It is not just about developing students' technological skills. It is important that the university governance supervises and controls the teaching of subjects with transversal content in Emotional Intelligence (EI). EI is not worked solely with the performance of activities formulated in a book but by enhancing the control of emotions by revealing and staging multiple behaviors that are presented in the teaching-learning process. Barrientos-Báez (2019) defines EI as that intelligence that lies in the ability to positively control and manage one's own emotions and those of others, in any setting, where experiences and changes occur as part of the personal learning process. If our emotional circumstances change, our way of reasoning will change (Arís, 2010). It is about recognizing in the student their cognitive (memory, ability to solve problems, attention...) and emotional capacities in order to promote the recognition of those who strive to achieve emotional behavior according to the skills that are intended to enrich.

Current university policy focuses more on the skills and knowledge to be acquired than on the development of the person and their personality. University education should not be alien to the evolutionary process of society and the world of work. The new demands in the jobs require qualified personnel, not only trained in knowledge, but also in social and cognitive

abilities, tasks that make up the hard core of EI; In addition, thanks to it, frustration processes and erroneous responses to unforeseen conflicts could be prevented on a personal level. According to Carreón et al., (2003), local expectations in the face of globalization, indicated by profits, risks, opportunities and expected capacities, suppose a scenario of competitive advantages based on intangible assets and intellectual capital, among which expectations stand out as factors in anticipation of conflicts or disagreements between economic, political and social actors. That is why the new educational policy must encompass competencies that imply having a global training in control and management of emotional skills when not of emotions themselves - both their own and others - especially practical in intercultural settings such as those exposed by Chamseddine (2018).

We must also attribute to the figure of the teacher its value as a guide that also teaches about emotions and social well-being because studies have been carried out that show a direct relationship between some factors and others, pointing to the notable influence that emotions exert on performance and general development of students in educational centers, a reason that leads us to consider the training of students in emotional competencies as necessary (Bisquerra and Pérez, 2007).

2. CONCLUSIONS

Television reigns over all media, but social networks gain special relevance and are about to dethrone the small screen. Therefore, we can conclude that multi-channeling enjoys a special and greater importance every day.

Spanish educational policy has to face the renewal that implies the need for a training offer in Undergraduate and Postgraduate degrees adapted to new needs (social skills, personalization in the service, ethical conduct, dealing with people of diverse idiosyncrasies and cultures, new technologies applied to personal treatment ...). For example, the use of APPs is presented as a necessary tool to improve pre and post-sale service in all economic sectors. For its part, access to digital social networks can lead to the formation of specific communities around specialized applications (Barrientos-Báez et al. (2017b). According to Caldevilla et al. (2020), it is possible due to the new digital environment, recover the authenticity of human communication and return to the original model of collective and creative effort that originated this environment.

Online teaching must bet on active teaching methodologies, which will undoubtedly provide an attractive response to those university student's active and autonomous learning needs, generating effective learning through activities, strategies and methods that favor participation, interaction and

motivation of students used to having a passive attitude in their teaching-learning process.

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ADULT EDUCATION AS A FIELD FOR INNOVATION IN SOCIAL EDUCATION. BIBLIOMETRIC ANALYSIS OF INTERNATIONAL SCIENTIFIC PRODUCTION

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1. INTRODUCTION

Social Education is a method of pedagogical intervention with an emerging trajectory not only at the national level, but also internationally (Sáez & Molina, 2006; Dapía & Fernández, 2018; López-Noguero & Pérez-Serrano, 2012), in high demand today due to the changes that are taking place in society such as the increase in quality of life, cultural diversity, technological advances or, among other factors, the increase in leisure time (Viana-Orta, et al., 2019; Caride et. Al., 2015; De Oña et al., 2018; Gallardo-López & López-Noguero, 2020).

As a professional field, Social Education has been consolidated by favoring the society's quality of life, the citizen's social and cultural well-being, offering responses to the socio-educational needs of the subjects (Gallardo-Vázquez & Gallardo-López, 2011). And it is that, in the words of Molina and Blázquez (2015), Social Education "focuses on the production of effects of cultural, social and economic inclusion, by providing people with the relevant resources to solve the challenges of the historical moment and the social framework in which they live" (p. 44).

There have been traditionally three main intervention areas in social education: Sociocultural Animation and Leisure Pedagogy, Specialised Education, and Adult Education. In this chapter, we will focus on the latter field of intervention, which aims to meet the training needs so closely related to educational and personal development.

In today's globalised society, so marked by the gradual ageing of the population in general, it is necessary to implement educational policies that emphasise the importance of adult education, promoting the active participation of all adults (Kilpi-Jakonen et al., 2015; Puentes et al., 2020).

Adult Education offers a new opportunity to individuals, favouring their physical, social and emotional development (Rodríguez, 2020; Tijeras et al., 2020), being a meeting place for new experiences and learning, and making possible social empowerment processes (Serrano-García & Bond, 1994; De Greef et al., 2015; López-Noguero & Gallardo-López, 2019 and 2020). Likewise, Adult Education has positive effects on health, prolonging active life and being a potential for transformation (Feinstein et al., 2009).

Rodríguez & Rivadulla-López (2017) indicate that adult education "aims to enrich the capacities and skills, broaden the knowledge and improve the technical-professional competences of the target group, favouring their personal development, facilitating their access to cultural goods and increasing their well-being [...]" (p.445).

In this scenario, Adult Education should promote the development of projects that meet the people's needs, supporting them in achieving their goals, providing them with well-being and favouring their development and autonomy.

In the Spanish context, according to INE data, in 2020, the number of people over 65 years of age represented 19.58% of the entire Spanish population (Spanish National Statistical Institute, 2020), therefore, we can affirm that we are facing a gradually growing group, although already with a large presence in society, which requires and will require the attention of social educators.

Social education professionals must promote the participation and involvement of adults, becoming social change agents and group energisers. Various authors (Vallés, 2009; Gouthro, 2017) analyse the functions of social educators in this specific field, stating that they can help adults to relate more easily to contemporary culture, helping them to manage their time creatively.

In this sense, it is necessary to approach the figure of the social educator, who must possess social skills and be able to develop socio-educational work techniques, framed in social welfare policies to satisfy the individual's development needs (López-Noguero, 1999). Likewise, people's learning must be fostered to ensure their autonomy, promoting self-knowledge and offering

them tools to face possible changes, making their active participation in society viable.

Adult Education constitutes an innovative space that allows the development of experiences related to Social Education, which makes possible the improvement of both, adults and elderly´s life quality, an essential aspect in today's society. In this way, Social Education is established as a discipline that enables the promotion of healthy, active and dynamic ageing.

The bibliometric analysis of a research topic can provide the scientific community with a holistic view of the state of the question, allowing its evolution to be known, providing relevant information and responding to new challenges (Quevedo-Blasco & López-López, 2010; Ardanuy, 2012). In this sense, in order to understand a specific reality, it is necessary and advisable to contemplate the previous research carried out, analysing and investigating the existing scientific activity that will shed light and appropriate directions for future research (García-Lázaro et al., 2020; Sanz-Valero et al., 2014; Smith & Baik, 2019).

In this chapter we wish specifically to delve deeper into Adult Education as an innovative discipline within the social education framework, analysing the scientific papers of impact related to this topic indexed in the Scopus database during the years 2015 to 2020, presenting the most current trends of the various lines of research in this fundamental field of Social Education.

2. METHODOLOGY

The research methodology follows the criteria for bibliometric analysis of Fernández & Bueno (1998) for this type of study in the field of education. Similarly, the methodological recommendations of the PRISMA statement for the review of scientific works in a specific discipline have been applied, establishing criteria for the information source selection, document discrimination, title selection, extraction and presentation of data (Hutton et al., 2016).

In the first phase of the research, the Scopus database was chosen because of its recognised international prestige and because it offers a large number of accessible papers that meet relevant quality criteria in the field of research and knowledge transfer (Elsevier, 2020).

In a second stage, the analysis variables were defined, which were as follows: 1) year of publication; 2) authors with most production; 3) thematic area; 4) type of document; 5) affiliation; 6) countries; 7) language; 8) keywords; 9) funding sponsor; 10) most cited documents; and 11) scientific journals that publish the most about intercultural education for social transformation.

Thirdly, to properly contextualise the research field addressed in this chapter, we decided to make the analysis from 2015 to 2020 period time. Likewise, the search was restricted to journal articles, books, book chapters and conference papers, as these are the most common formats for scientific dissemination at present. On the other hand, the exploration was limited to social science disciplines, as they are of greatest interest to our research.

Finally, in order to cover a specific survey of interest, we proceeded to introduce the search equation: "adult-education" AND "social". In this respect, the computerised analysis facilities offered by the Scopus database were used in the study carried out, and the data obtained were processed and presented in graphs or tables for analysis.

3. ANALYSIS AND RESULTS

The bibliographic search in the Scopus database resulted in a total of 442 scientific documents published in specialised journals and publishers. The analysis of the results obtained, according to the selected study variables, is presented below.

Taking into account the evolution in the number of publications per year, we can see that from 2015 to 2017 the production experiences a slight decrease. In this sense, from 65 documents registered in 2015 (14,7%), it went down to 58 in 2017 (13,7%). From 2017 to 2018 there was a significant increase in the number of research papers on Adult Education, reaching a total of 122 indexed documents (27%). Finally, from 2018 to 2020, the number of papers published declined again, reaching 59 in 2020 (13%). These statistics show a certain irregularity of research initiatives published on the topic addressed in recent years, making it a disciplinary field with great potential for exploration and innovation for education, in general, and Social Education, in particular.

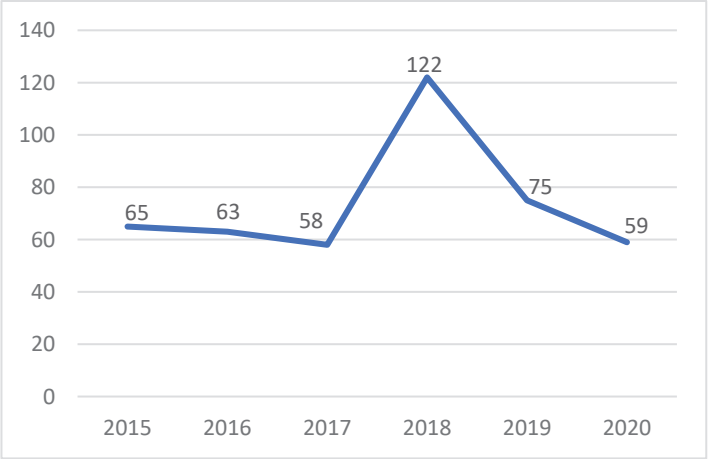

Figure 1. Number of documents by year of publication

If we look at the country of publication, we can see that the United States leads with 70 published documents (15,8%). This country has been an international reference in Adult Education since Josiah Holbrook founded the first American high school in Massachusetts in 1826, and began to promote in this country a movement that would lay the foundations for the development of lifelong learning. The United States is followed by the United Kingdom, with a total of 44 documents (9,9%) published in the period analysed (2015-2020), another country with a deep-rooted tradition in adult literacy and education since the 19th century, where, historically coinciding with the industrial revolution, the first initiatives in this field began to appear (Tiana, 1991; López-Noguero et al, 2001) understanding instruction as a powerful instrument for the transformation of the working class. Finally, Canada (41 documents), Spain (37), Australia (31) and Brazil (30) stand out especially in terms of scientific production on this subject in this period.

We would like to highlight two of these countries which, since the 1970s, have been very intensively involved in Adult Education, so it is not surprising that they also stand out in the scientific production of Adult Education: Brazil and Spain.

Thus, Brazil drew from the teachings of popular educators, as outstanding as Paulo Freire, who has made Brazil a reference country in these matters, while Spain, after Franco´s dictatorship period (1936-1975), began a very intense process of literacy and cultural dissemination activities that continues today, especially in small towns, through popular universities, civic centres, etc.

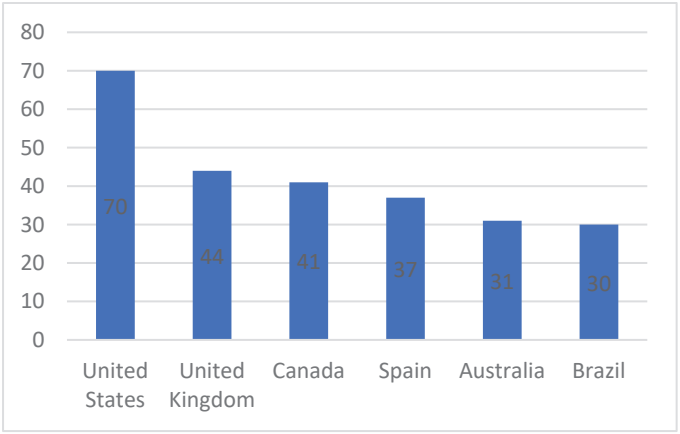

Figure 2. Number of documents by country of publication

The authors who have published the most on the subject addressed in this bibliometric analysis, and who we can understand as referents in the field of Adult Education in this period, are: Marcella Milana of the University of Verona in Italy (7 papers published), Céline Cocquyt, Tom Vanwing and Chang Zhu of the Vrije Universiteit Brussel in Belgium (5 papers each), Emilio Lucio-Villegas of the University of Seville (5 papers indexed in Scopus) and, finally, with 4 papers, Patricia Gouthro (Mount Saint Vincent University) and Pierre Walter (The University of British Columbia), both based at Canadian universities.

Figure 3. Number of documents by authors

Regarding the type of document published, the results show that the majority are journal articles (323 documents), followed by book chapters (73), books (32) and conference papers (14). Furthermore, the most common language of publication is English (393), followed by Portuguese (19) and Spanish (19). To a lesser extent, there are indexed papers published in Russian (6), French (2) and Turkish (2).

Another relevant data shows that The University of British Columbia is the most representative in this regard (11 papers), followed by the Universitat de Barcelona (8), and with 6 papers each we find: Pennsylvania State University, University of Calgary, Mount Saint Vincent University, Vrije Universiteit Brussel, and Università degli Studi di Verona. On the other hand, among the main sponsors of funding for research and published papers, the following stand out in particular: European Commission (18 papers), Horizon 2020 Framework Programme (10), Social Sciences and Humanities Research Council of Canada (5), European Research Council (4), Vrije Universiteit Brussel (4) and Conselho Nacional de Desenvolvimento Científico e Tecnológico de Brasil (3).

If we focus on the scientific journals that publish the most in the field of Adult Education, the International Journal Of Lifelong Education tops the list (21 papers indexed in Scopus), closely followed by the European Journal For Research On The Education And Learning Of Adults (18), Australian Journal Of Adult Learning (16), Studies In The Education Of Adults (16), Adult Education Quarterly (16) and International Review Of Education (15).

Analysing the keywords used to categorise and facilitate the location of published scientific papers, we can see that the most used keywords by far is "Adult Education" (which appears in 156 papers), a logical term as this is how this field of education has been known for decades, but the second most used keywords in this search is very interesting: "Lifelong Learning" (34).

In this sense, it is noteworthy how, in an increasingly demanding age of content and competences, "Adult Education" has been leaning towards concepts such as "Lifelong Learning", being understood more and more as a totalising generic process that encompasses the whole of human life.

Other terms widely used as keywords in the different contributions are: "Education" (29), "Learning" (21), "Adult" (14), "Adult Learning" (14), or "Popular Education" (13).

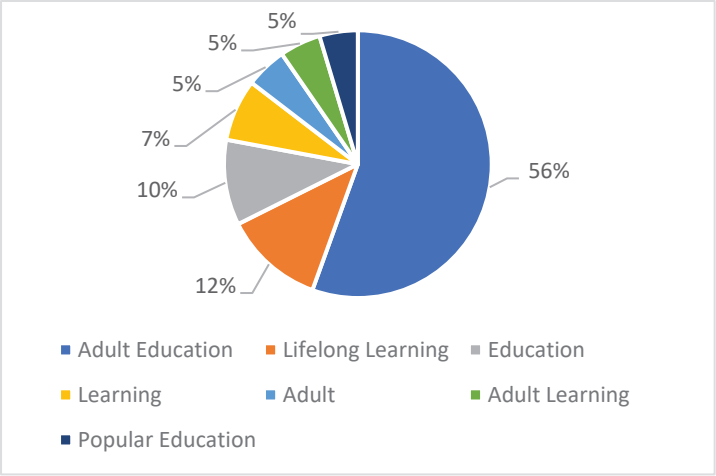

Figure 4. Keywords

Finally, it seems relevant to us to analyse the most cited documents, as they can be considered obligatory to consult in order to approach the reality studied due to the high impact generated in the scientific community.

Document´s title	Numbers of citations*
Social Justice Leadership and Family Engagement: A Successful Case From Ciudad Juárez, Mexico.	25
Predicting adult learners' online participation: Effects of altruism, performance expectancy, and social capital.	24
Is Group Singing Special? Health, Well-Being and Social Bonds in Community-Based Adult Education Classes.	19
Adult learning and social inequalities: Processes of equalisation or cumulative disadvantage?	16
Understanding adult lifelong learning participation as a layered problem.	15
Captivating Lifelong Learners in the Third Age: Lessons Learned From a University-Based Institute.	15

Table 1. Most cited documents *Updated 5 April 2021

The most cited paper is DeMatthews et al. (2016), with a total of 25 citations recorded. In this paper the authors conduct research with a qualitative approach, focused on exploring leadership practice in out-of-school contexts for the improvement of engagement and social justice, from Adult Education, community advocacy and critical analysis of reality.

With 24 citations, we find the work of Diep et al. (2016) who delve into the personal traits and performance expectations of adult education learners to interpret online participation in virtual environments.

On the other hand, Pearce et al. (2016), with 19 cumulative citations, provide the results of a very interesting research carried out with an adult education group, where they investigate the benefits of singing in a group for health and personal well-being. Among the main conclusions of this research is that being part of a group is a determining factor.

In the paper written by Kilpi-Jakonen et al. (2015), we look at adult learning and how it relates to social inequalities. The researchers explore participation patterns in different adult learning activities and the possible employment consequences of adult learning for individual trajectories, as well as the responsibility of public policy in facilitating access to adult education.

With 15 citations, Boeren (2017) publishes an article that addresses the issue of participation in lifelong learning. With the same number of citations, we highlight the work of Talmage et al. (2015), which investigates what types of learning experiences are most desired by lifelong learners, obtaining relevant results to understand interest and motivation in Adult Education. The main topics of interest to adults included global issues, religion/philosophy and social subjects focusing on specific groups and individuals.

4. CONCLUSIONS

The purpose of this chapter was to know the state of scientific production on Adult Education as a discipline framed within Social Education, analysing the scientific production of impact indexed in Scopus during the years 2015 to 2020. In general terms, it can be affirmed that there is not uniform trajectory or clear trends, with constant increases and decreases in the different years of scientific production.

In this sense, it is 2018 where we find in this database more research papers related to Adult Education where 122 indexed papers are located. However, in 2020, we find a significant decrease with 59 published documents, which makes it a field of research with a long way to go.

The analysis of the scientific production by country of publication shows that most of the works published on Adult Education come mainly from the

United States, which is at the forefront of this period, and, with a lower frequency of appearance, the United Kingdom, both of which are the countries with the highest number of publications on the subject addressed in this bibliometric analysis.

Focusing at the authors who have published the most on Adult Education, Marcella Milana from the University of Verona (Italy) stands out, followed by Céline Cocquyt, Tom Vanwing and Chang Zhu from the Vrije Universiteit Brussel in Belgium, and Emilio Lucio-Villegas from the University of Seville.

Other information to be evaluated is the type of document published, in where it can be seen that the majority are journal articles, which shows the interest of the scientific community in disseminating research on Adult Education as a field of intervention in Social Education, through impact journals as the most widely used canal in recent decades for such dissemination. On the other hand, book chapters occupy the second position and, to a lesser extent, complete books and conference papers.

Regarding the author's affiliation who publish on the subject analysed, we find in first place The University of British Columbia, followed by the University of Barcelona, Pennsylvania State University, University of Calgary, Mount Saint Vincent University, Vrije Universiteit Brussel, and Università degli Studi di Verona, in the same line as the most productive countries (United States, Canada, Spain, etc.).

Most of the journals in which the subject matter is published in the period analysed (2015-2020) are directly related to the field of Adult Education. In this sense, the journal with the most articles published is the International Journal of Lifelong Education, which focuses on research on the principles and practice of Adult Education and lifelong learning in different settings. It focuses on the relationships between schooling, further learning, active citizenship and personal fulfilment, as well as the relationship between schooling, employability and economic development. It is followed by the European Journal for Research on the Education and Learning of Adults, which disseminates research on Adult Education and learning from different academic disciplines, perspectives and traditions.

With regard to the keywords, it is worth highlighting how the term "Adult Education" is being complemented by other terms that advance the permanent nature of Adult Education, the concept of "learning" or the progressive importance of "Popular Education" and its participatory and transformative dimension ("Lifelong Learning", "Education", "Learning", "Popular Education", etc.), at a time when education is in an evident crisis (Gallardo-López & López-Noguero, 2020).

On the other hand, according to the number of citations obtained by the documents, the article by DeMatthews et al. (2016) is the one that has received

the most citations to date of the documents indexed in Scopus, and is therefore considered a reference for the scientific community.

This bibliometric analysis provides an overview of scientific production in recent years on this matter and allows us to confirm that we are dealing with a subject of interest to the scientific community. Although the number of publications in recent years has fallen considerably, we are facing a scenario of exploration and innovation for international research, which is absolutely necessary given the characteristics that currently shape our societies.

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GOOD PRACTICES WITH ICT IN PHYSICAL EDUCATION WITH STUDENTS WITH DISABILITIES

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1. INTRODUCTION

This work has been carried out with the support of the Spanish Ministry of Science and Innovation, within the framework of the State Programmes for R&D&I oriented to the Challenges of Society (PID2019-108230RB-I00) and the State Research Agency (SRA) (Project reference/AEI/10.13039/501100011033). Title of the project "Training of university teaching staff in ICT as support for students with disabilities".

Information and Communication Technologies (ICTs) are a major breakthrough, not only in the field of education, but in all existing sectors. This technological revolution has radically transformed the way human beings act in society, especially the way they communicate (Castells, 2006).

The use of these tools in the educational context effectively improves the teaching-learning processes of students, and their different uses make it possible to promote the construction of students' knowledge. In this sense, and due to the vertiginous advance of ICT in society, teachers must be prepared and have the necessary skills to adapt to the constant changes in society, as they are responsible for applying new technological resources to students in order to improve their learning.

The field of Physical Education cannot remain on the sidelines of these changes, but must be consistent and take advantage of these transformations to improve, through the use of technological resources, the teaching-learning processes of students, including students with disabilities (Baert, 2011).

In this context, it seems appropriate to carry out a study that positions us on the use of ICT applied to students with disabilities in the field of Physical Education, with the aim of being able to delimit the benefits and limitations of their implementation in Physical Education classes.

2. ICT RESEARCH IN THE AREA OF PHYSICAL EDUCATION

Despite the numerous practices with Education and Information Technologies (ICT) in education, the potential of these tools has not yet been exploited by many physical education teachers (Diaz Barahona, Molina García & Monfort Pañego, 2019). This is reflected in the scarce research on ICT in the area of Physical Education with respect to other areas of knowledge, as well as the limited research that supports the impact of these tools on the teaching and learning process of students with disabilities in this area.

These studies argue that their scarce research negatively influences the use of these tools in the classroom, due to a lack of information for teachers (Kang & Kang, 2019). The presence of ICT in education offers new possibilities in the processes of didactic innovation or in the improvement of teaching (Casey, Goodyear & Armour, 2016), however, teachers still don't know how to use them with their students (Trujillo, 2015).

The literature, however, highlights the importance of the relationship of ICT with physical education, due to an improvement in different areas of people's lives (Mendes, 2016). Studies are also linked to the diversity of existing educational materials and resources, which make it possible to link ICT with the area of physical education (Fernández Espínola and Ladrón, 2015). Despite the relevance of these variables, studies highlight the negative attitude of physical education teachers to using these tools with students with disabilities due to factors such as lack of training or technological resources (Park & Ertmer, 2007).

Based on the above, it is advisable to carry out a systematic review of studies on ICT and Disability in the field of Physical Education, due to the importance of continuing research in this field.

3. PURPOSE AND RESEARCH QUESTIONS

The aim of this systematic literature review is to obtain an overview of the experiences of using ICT in the area of Physical Education with students with disabilities. The review will focus on the following research questions:

RQ1. What are the advantages of ICT in the area of physical education with learners with disabilities?

RQ2. What are the limitations of their application?

RQ3. What types of technologies are mainly used in the Physical Education classroom with these students?

RQ4. What recommendations could be addressed for the development of good practices with ICT to support pupils with disabilities in Physical Education in the future?

4. METHOD

4.1. Characterisation of the research

In order to address the research questions posed above, a systematic review of the literature on the use of ICT with students with disabilities in the area of Physical Education was conducted. The review was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analysis) guidelines, following the different stages: literature search, screening, eligibility and data extraction for the review (Moher et al., 2015).

4.2. Search strategy

Data were extracted from the following selected databases: Web of Science and Scopus. These databases were chosen for their relevance in academic research, good coverage of relevant studies and previous experience.

The research questions were used as a guide to identify the search descriptors extracted from the ERIC thesaurus. Thus, the search strategy was based on the combination of the terms: "physical education", "student", "disability", "ICT" and "technology". The search for relevant publications was set to articles published in the last five years (2016 - 2020). The last data search date was March 2021.

4.3. Eligibility criteria

Inclusion criteria used in the search for relevant studies:

- Scientific article published in peer-reviewed journal.
- Article published in English.
- The search descriptors are specified in the title, abstract and/or keywords.

Addresses the use of ICT with students with disabilities in the area of Physical Education.

- The following exclusion criteria were applied:
- Type of document: reviews, letters, opinions, conference proceedings, books.

It mentions the use of ICT in the area of physical education, but not with students with disabilities.

It does not belong to the 2015 - 2020 search threshold.

4.4. Study selection

In the initial search, by combining the descriptors, a total of 34 documents were identified in the selected WoS and Scopus databases. In the next phase, after discarding duplicates (n= 6), the identified papers (n= 29) were reviewed and those that did not meet the inclusion criteria (n= 12) were discarded. In addition, the reference lists of the identified papers were scanned and 1 paper was selected. This resulted in a total of 17 papers.

After applying the exclusion criteria (n= 10), and reviewing the remaining full text papers, a total of 7 studies were selected for review. Figure 1 shows the flow chart of the document search and selection process (figure 1).

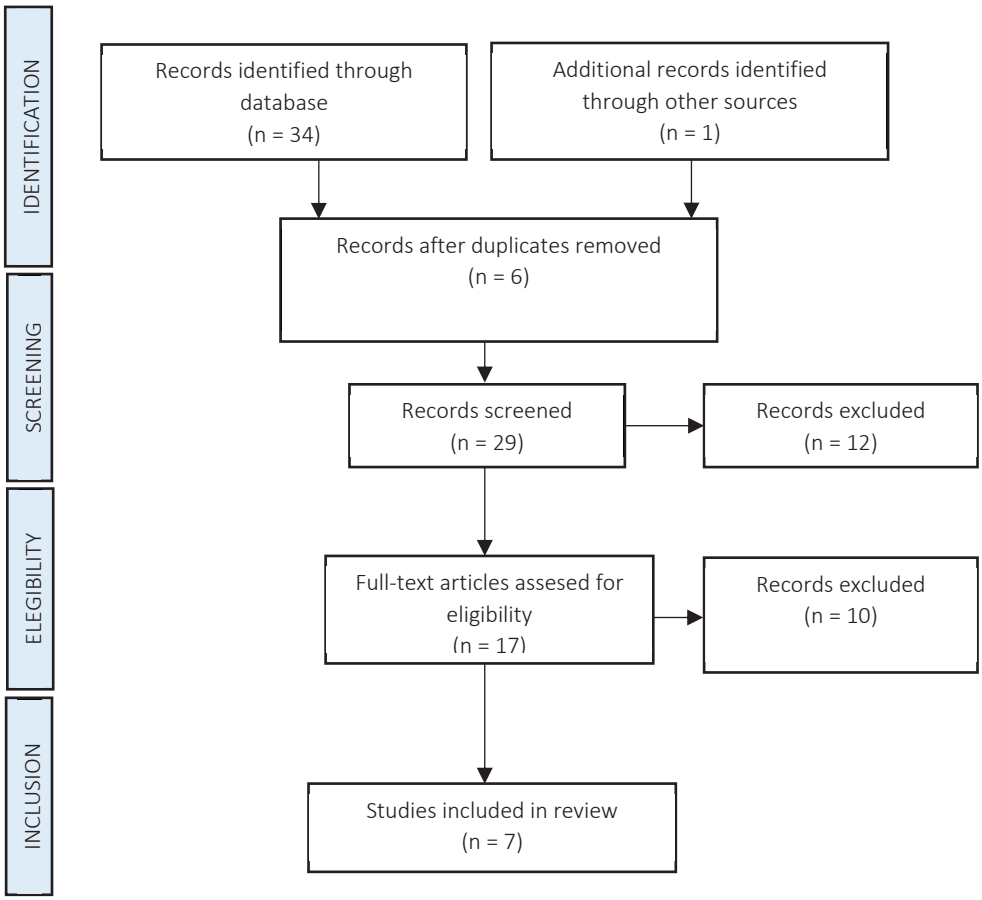

Figure 1. Flow chart. Source: own elaboration

4.5. Data collection and analysis process

For each of the documents included in the review, the following information was extracted: author, date, type of disability, educational stage, type of ICT used and main findings. The detailed description of the 7 articles can be found in the following table (table 1).

Study	Disability/Stage	ICT	Results
Krause, J. & Taliaferro, A. (2015)	Not specified / Primary education	Tablet, Smartphone	Improve behavior
Mikhaylova, I.V., Shmeleva, S.V. & Makhov, A.S. (2015)	Not specified / Secondary Education	Smarthpone	Improved social interacction and communication
Adrykhaev, S.G. (2016)	Physical Education / University Education	Assistive technology	Improved motivation and self-control
Blusse, S. & Davis, R. (2016)	Not specified / Secondary Education	Web 2.0. (Social Media, Internet…)	Improved the participation in sports activities
Hsu, T.Y. (2016)	Intellectual Disability / Secondary Education	Virtual Reality	Improved muscle strengh
Young, A.J., Silliman-French, L. & Crawford, L. (2016)	Intellectual Disability / Primary Education	ICT (Tablet, computer, video)	Improved social and emotional development
Kang, S. & Kang, S. (2019)	Not specified / Secondary Education	Virtual Reality	Improved physical activiy

Table 1. Characteristics of the studies included.Source: own elaboration

For the data analysis and interpretation procedure, qualitative and quantitative techniques were applied in order to answer the four research questions posed. In order to identify possible trends in the use of ICT in the area of physical education with students with disabilities, we resorted to bibliometric analysis of the keywords (Bhattacharya & al., 2003), through their graphic representation using the VOSviewer version 1.6.7 software.

5. RESULTS

This section answers the research questions posed by the analysis of the selected articles. To this end, the systematic literature search identified 7

relevant articles on the use of ICT in Physical Education with students with disabilities in the last five years (Figure 2).

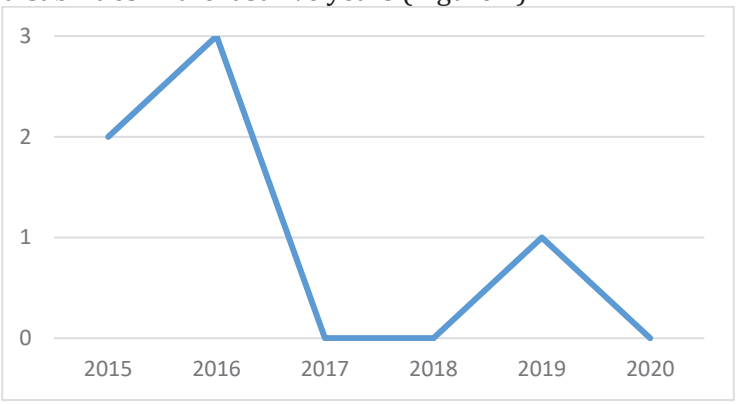

Figure 2. Distribution of articles by year. Source: own elaboration

The findings of this review show that research in the field of ICT in Physical Education for pupils with disabilities is currently under-researched, detecting a need for research.

Experiences with technology in the area of physical education with students with disabilities are concentrated in different educational levels, however, 7 studies analysed, most of the experiences are carried out in Secondary Education (57.14%), followed by Primary Education (28.57%) and, finally, University Education (14.29%).

These educational experiences have been carried out with students with disabilities. Among them, the studies carried out with students with physical disabilities and intellectual disabilities stand out.

The review has highlighted the digital technologies that have been used in the area of Physical Education with these students. As we can see in figure 3, the most commonly used tools are mobile phones, Tablets and the use of Virtual Reality.

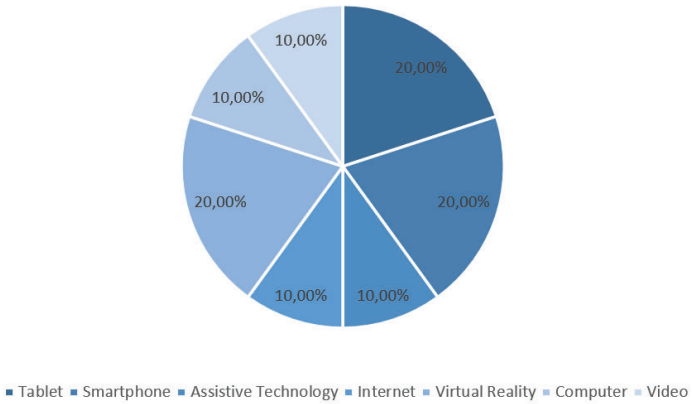

Figure 3. Tools use. Source: own elaboration

Once the descriptive and quantitative analysis of the documents had been carried out, and with the aim of identifying possible trends in the research, the key words were analysed using the network map to identify the relationships between them (Figure 4). The size of the keywords indicates the frequency of occurrence and the colour (blue, red, pink and green) the different topics addressed. Thus, the blue group, with the descriptors "ict", "technology" and "program", shows the types of ICT tools used in the Physical Education classroom. The red group, led by the descriptors "disability", "student", "development disability", shows the students' perception of the use of these tools in the PE classroom. The pink group, represented by "teacher training", "inclusive classroom" and "elaboration", is related to the importance of teacher training in the use of ICT to be applied in this area. Finally, the green group, headed by descriptors such as "phyisical education", "sport", and "inclusive education", describes the impact of ICT in promoting inclusion in the area of Physical Education.

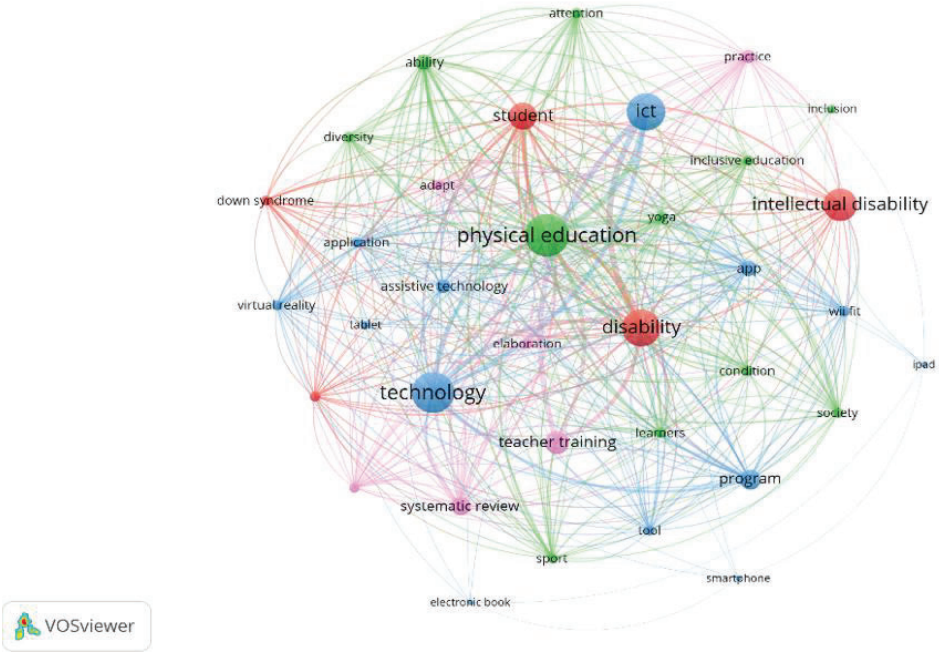

Figure 4. Tagged bibliometric map. Source: own elaboration

6. DISCUSSION

The incorporation of Information and Communication Technologies (ICT) in the educational context is becoming more and more frequent, however, in Physical Education classrooms it is still not properly implemented. This paper carries out a systematic review of the literature on experiences with ICT in Physical Education with students with disabilities. The search for articles in this area identified 7 relevant articles, with the aim of answering the research questions posed:

RQ1. What are the advantages of ICT in the area of Physical Education for pupils with disabilities?

This section addresses the first research question (RQ1), which aims to identify the advantages and opportunities offered by the use of digital tools for pupils with disabilities in Physical Education. Based on the findings of our study, the benefits can be summarised as follows:

- *Health:* the implementation of technologies in physical education for students with disabilities effectively aids health. By improving physical fitness, and performing motivating activities through

these tools, motor functioning is activated, improving the quality of life of these students (Adrykhaev, 2016; Hsu, 2016).

- *Inclusion:* Traditional methods are not always suitable for students with disabilities. By using these tools, students can perform the same activities as their peers.
- *Social interaction:* Related to the previous point, sharing activities with peers encourages interaction with the rest of the class (Taliaferro and Kruse, 2015).
- *Communication:* Similarly, it also improves the communication skills of students with disabilities.
- *Self-esteem:* By using technology, students feel more confident and secure as they can perform the same activities as their peers, they feel more comfortable, thus increasing their self-esteem (Adrykhaev, 2016).
- *Teaching and learning process:* Their increasingly popular use in the classroom is providing teachers with tools to improve teaching and learning for their students.

RQ2. What are the limitations of its application?

This section addresses the second research question (RQ2), which presents a critical view of the use of ICT in the area of Physical Education by identifying its limitations. Among them, we can find the following:

- *Teacher training:* The scarce literature on this field revealed that teachers are not trained in the use of ICT in the area of Physical Education (Fernández Batanero et al., 2019). In order to effectively apply these tools in educational practices, specific teacher training is necessary (Park & Ertmer, 2007; Kang & Kang, 2019).
- Lack of resources: The resources at educational centres are very limited, added to the lack of training to select the appropriate technological tool in each context (Castro Rodríguez & Eirín Nemiñan, 2018), which means that ICT practices are still very limited.

RQ3. What types of technologies are mainly used in the Physical Education classroom with these students?

The use of technology in education is becoming more and more frequent, however, in the area of Physical Education, experiences are still very limited. In the experiences with ICT in Physical Education classes, the use of Smartphones and Tablets stands out (Krause and Taliaferro, 2015). The use of these resources may be due to their low price, the variety of applications available and the familiarity of teachers with these tools (Roth, 2013).

Another resource mainly used in the PE classroom is Virtual Reality. These innovative and motivating tools promise to be the future of Physical Education. The incorporation of virtual reality in the classroom allows students to increase their reality-like learning experiences (Finkenberg & Mohnsen, 2003), as well as to successfully develop reality-like experiences without the risk of injury (Kang & Kang, 2019).

RQ4. What recommendations could be addressed for the development of good practices with ICT to support pupils with disabilities in Physical Education in the future?

High-impact scientific production on the use of ICT in the area of Physical Education with learners with disabilities is underdeveloped. This represents a problem for students with disabilities, as the lack of information and training limits teaching practices with ICT.

Thus, in order to effectively integrate ICT in Physical Education classes, it would be necessary to continue researching in this field, as well as to include this subject in the initial and ongoing training plans for teachers, as they are responsible for its implementation in the classroom.

The reders map has allowed us to understand in a global way the semantic and conceptual structure of this field of research, highlighting that the process of inclusion of technologies in the field of inclusive physical education has not been sufficiently explored.

7. CONCLUSIONS

The study has allowed us to learn about the impact of ICT in the area of Physical Education with students with disabilities. Technologies have had a great impact on the field of education, and Physical Education has been no exception. However, through the review, the results have allowed us to assess that their application in this field is still very limited.

In the same way, the studies show that teachers are not prepared to use ICT in the Physical Education classroom, especially with students with disabilities. This highlighted the shortcomings that exist in relation to the digital training of teachers in the use of these tools (Batanero et al., 2019). Limitations are also highlighted in relation to the lack of resources in educational centres.

However, although practices are still very limited, the results show their effectiveness in the use of ICT, with benefits for students with disabilities in the academic, social and personal spheres.

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