Selected Paper of 9th Cyprus International Conference on Educational Research (CYICER-2020) 18-20 June 2020, Bahçeşehir Cyprus University Nicosia / TRNC (ONLINE CONFERENCE)

Teachers' perception of educational challenges in the face of the COVID 19[1]

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Abstract

The health context related to the COVID-19 virus has implied challenges for various areas in which the educational sphere stands out. Preventive measures of social distancing and quarantine have led to classes being given virtually (online), and in this scenario research is emerging that focuses on the educational challenges of teachers. The DIFPRORET project, educational difficulties, activities and challenges in confinement is applied to a sample of 200 teachers, with a qualitative method and methodological strategy of content analysis. The findings show the difficulty in the use of platforms, understanding of distance education, creative action and the generation gap with 64.26%. With this, a hierarchical map is expressed that gives account of three significant constructs: didactic operation, progressive learning and curricular innovation, which allows us to conclude that under these constructs translate the perceptions of teachers on educational challenges.

Keywords: Digital strategy, COVID-19.

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1. Introduction

By the end of 2019, many cases of pneumonia of unknown origin will be registered in patients from Wuhan, Hubei Province (China). By January, the cause will be established: a virus belonging to the Corona viridae family that is deposited in the respiratory epithelium. Its acronym in English: SARS stands for Severe Acute Respiratory Syndrome. The respiratory syndrome is related to pneumonia in patients who present with advanced conditions and with infection through the inhalation of aerosols and direct contact with different surfaces and exponentially spreads. This Coronavirus (COVID-19) arrived in Chile in early March 2020, already manifested as a pandemic, which exacerbated the collapse of health systems, increasing the mortality of. The project has been a great success, with a large number of adults and a nationwide state of alert and fear of an imminent pandemic.

It is important to establish that in pandemics, states must take precautions and propose to citizens practices of self-care and social relations at a distance. The communes and regions in Chile entered into confinement or quarantine at different times, spaces of time in which one cannot leave, and one must remain at home. This reality has to be borne by all citizens, including teachers, both in schools and universities.

For Venkatesh and Edirappuli (2020), in recent pandemics, isolation and quarantine have increased the state of insomnia and anxiety (Hawryluck et al., 2004; Jeong et al., 2016). The measures taken during the Chilean pandemic have limited the freedom in people's lives, thus altering their way of living, which contributes to frustration, boredom and potentially depression. Anxiety may be increased by fear of contagion, lack of information about necessary care and inadequate information provided by various means (Brooks et al., 2020).

Park (2020) warns that since the outbreak of Coronavirus 2019 disease (COVID-19) in Wuhan, China, daily routines must change, and changes in human behaviour are driven by perceptions of risk, and the resulting responses can affect the spread of infections.

It is also important to note that people's autonomy is affected, not being able to get out and about, not being able to relate to subjects in a normal way affects the quality of life and mental health of subjects. Understanding people's behaviour is crucial to responding to the COVID-19, as it forms the basis for changing behaviour.

People's response to the effects of the pandemic impacts on the public's situational awareness to adopt health-protective behaviours, such as social distancing and gradual care in families, furthermore states that in today's societies there is no comprehensive model of evidence-based protective behaviour against the threat of infectious diseases (Qazi et al., 2020).

The challenges facing the world during the VID19 pandemic are compounded by the presence of informal settlements, which are generally densely populated and lack formal sanitation infrastructure. In this context, teachers are exposed to difficult times, on the one hand, because of distance and the pandemic and, on the other hand, the absence of a face-to-face relationship with students.

Wasdani and Prasad (2020) estimate that living conditions in slums are such that residents do not need to enter public places to expose themselves to a significant risk of contact-infection. Thus, also the group representing trainers, teachers, academics is affected. In Chile, the segment of teachers is not a high-income segment; on the contrary, it is subject to a kind of constant struggle for recognition.

In the confinement caused by the reception of the pandemic, there are various psychological and social conditions that affect the community. One of them is the low level of empathy generated in society towards the economically disadvantaged. Peters (2020) believes that the empathy and moral strength felt in sharing with others is essential for good development and a healthy world.

Considering the research topics, and what has been said about the change that the pandemic causes immediately, and related to confinement, it seems fundamental to attend to the segment of teachers. There are studies such as that of Fernandez and Pozos (2018) that point to the concern for

the lack of deepening in the determination of certain concepts associated with digital competencies, and the lack of progress in the incorporation of new technologies in the teaching task. To justify what has been said, they carry out a descriptive work of the literature associated with the theme in order to define the new current scenarios and the implications for teacher training. The objective was to validate the 'digital competence model of university teachers', a complete redefinition, not only of the profile in terms of new professional functions and roles, but also of the professional competences themselves, the digital competences. This warns us of the obvious need and lack that is sustained in current training and performance.

In relation to what has been said, we know that today's society is living the fourth industrial revolution, this becomes a challenge that can be overcome through technology; however, inequality between social groups is also evident in the use and acquisition of digital skills (Galindo, Ruiz & Ruiz, 2017).

The latent need to identify the strengths and weaknesses of teachers in the use of Information and Communication Technologies (ICT) to generate changes in their incorporation to the professional practice is evident through studies such as that of Diaz Perez and Serra Lopez (2020). However, there is no common frame of reference for its application. The above-mentioned study is carried out in Venezuela with professors from the University of Zulia and it is considered that an objective and subjective view is required on what teachers need in order to make positive changes and solve problems with the use of new technologies implemented in the classroom.

According to Marza and Cruz (2018), digital competences allow teachers to empower themselves with social aspects and new cultural trends. Other research diagnoses show that a significant percentage of the world's population faces, at different levels and from the complexity of incorporating technology into life, the prospect of linking up with ICTs, then competences appear as a problem, but one that is little attended to by academics and states (Bartolome, Martinez & Tellado 2014). According to Freire and Brunet (2016), the university must be transformed and restructured to face new trends and the digital panorama.

In this scenario, innovation will acquire substantial relevance. The incorporation of ICTs in teaching didactics, related to constructivist learning and the development of transversal skills, will help teachers to restructure class sessions, calling it active learning, such learning, inverted classroom, problem learning. All of this has been set in motion from a sense of indispensability and urgency in times of crisis.

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An education in times of complexity must become a complex university. In a study developed by Fernandez and Estrada (2016), it is understood that a curriculum by competencies that articulates global elements and knowledge, professional and work experiences, a question in which there is agreement because the needs towards which the effort should be directed for the consecution of professional, specific and general competencies are identified. Being a complex university requires a constant articulation between society and the curriculum.

The Burgos Didactic Operation, as an emerging category for the analysis of the curriculum, establishes social dynamics as a crucial element of change for the incorporation of creative action in the theoretical-epistemological and processual-practical articulation in the teaching process (Burgos, Pizarro, Fajardo & Martinez, 2019). In this sense, the teacher's appropriation of the ICT must be mediated by the experience as an initial consideration for the anchoring of new possibilities. Let us remember that from the presential to the virtual classroom, possibilities are lost and gained, the direct sensory monitoring of the situation is lost face to face, but the autonomy of the student is increased

and the managerial role of the same one, where the student becomes the owner of his time and organisation. The ability to innovate and readjust the different study programmes, to submit to the stress of the pandemic and confinement resignifies the word innovation, giving it a different meaning more in line with resilience. For Koen, Robert, Athina & Xabier (2018), in a study that offers a regional framework for evaluating the effects of innovation for universities, innovation has the potential to develop indicators that holistically raise the quality of the processes in the university.

Anderson (2017) explains the importance of the leader in charge of the human group for innovation in schools and universities. It is essential that the human group be capable of considering each of the individuals who participate in the processes, knowing their needs and achievements, demonstrating tolerance, inspiring them and guiding them. This sometimes becomes difficult when spaces of downward communication and dictatorial leadership are generated.

The type of leadership has a great influence on an organisation, and within educational institutions, a leader who increases participation can change the organisational culture, generate new standards and change employee attitudes. It follows that today, universities, in addition to re-adapting their curricula for the training of professionals trained in ICT, must be innovative in terms of ways of managing processes.

2. Methods

The study is qualitative, with a level of descriptive scope. It is situated in the paradigm of codification and analysis of content for the process of analysis and interpretation of information. In order to advance in the presentation of the results, it is necessary to mention that, for the validation of the instrument, and as a previous and necessary step, an analysis of hierarchical clusters, multidimensional scaling and multiple correspondence analysis is carried out based on the programs SPSS 20.0 and STATISTICA 10.0 (Burgos et al., 2019); with the objective of exploring the perceptions of the people about the difficulties during the period of confinement and proposals that are established in education in pandemics. Based on the validation of the DIFPRORET questionnaire, this research is carried out by changing the focus to teachers' perceptions of educational challenges and their didactic translation. The sample is made up of 200 teachers, academics from universities in Chile. An online questionnaire is used as a methodological strategy.

Table 1. Sample socio-demographic data

Sex	No.	%
Woman	110	55
Male	90	45
Country		
Chile	200	100
Education		
Primary and secondary	200	100
Vocational training, University		
University A	65	32.5
University B	73	36.5
University C	62	31
Edad		
30–39 years	35	17.5
40–49 years	55	27.5
50–60 years	78	39
More than 60 years	32	16

2.1. Instrument

The questionnaire instrument DIFPRORET serves to know the Difficulties, Proposals and Educational Challenges derived from the exceptional situation as a consequence of the pandemic originated by the COVID-19. It allows for the collection and availability of contextual and empirical information in order to later analyse indicators, incidents and associations of variables; such as gender, educational stage and educational difficulties during the period of confinement, or differences and similarities between countries with respect to educational activities carried out during the period of confinement, among other possibilities that will depend on the analytical objective (Burgos Videla, Vazquez-Cano, Lopez-Meneses & Adaos Orrego, 2020).

The questionnaire in the first open question allows for the collection of information on the main educational difficulties encountered during the period of confinement and opens the way to the subject's expression through the explanation or review with key words; the subject has a space to express according to his/her idea, perception, social representation, what he/she considers relevant to inform.

The second question, which refers to the educational activities or proposals carried out as the most relevant during the period of confinement, brings us closer, for example, to the creative, innovative and psychological dimension where we could find different positions, we could find tendencies with respect to the sensations expressed, the didactic, the communicational, among others.

The third question refers to the main challenges that we must overcome in order to deal with education in periods of confinement. This question allows us to understand, from a broad sense, the diagnosis in relation to the current situation, allows for interpretation in terms of the possibility of attainable proposals, scenarios to project actions, among others.

The three central questions of the questionnaire are answered in an explanatory paragraph or summary with key words. The contributions that are made, therefore, allow for the interpretation and collection of a great deal of important information for subsequent analysis. At this point in the study, we wish to determine in a broad sense the difficulties, proposals and educational challenges before the COVID-19, determining the concentration of indicators, variables that would indicate the persistence in the teachers' perception of a certain dimension. In this study, the objective was to explore teachers' perceptions of the educational challenges emerging from the difficulties during the confinement period.

2.2. Procedure

The Institute for Research in Social Sciences and Education of the University of Atacama with the research group Eduinnovagogía (HUM-971), from the University Pablo de Olavide, Spain, generated the questionnaire in six languages of DIFPRORET, which aims to contribute from research with the response to the different concerns about educational innovation in the digital age.

Thus, they assume the need to build a network of practical proposals for the development of relevant learning using Information and Communication Technologies as key tools, including the following areas of research: Augmented Reality; Gamification and Education; Pedagogical Connectivism; MOOc; Virtual Learning Environments; Digital Literacy and Socio-Educational Projects related to educational inclusion.

For the study presented here, the online version of DIFPRORET in Spanish is used, which contains, as noted above, open-ended questions on the context of learning in confinement.

According to Hernandez, Fernandez and Baptista (2006) carrying out a non-probabilistic sampling for convenience serves to guide the selection of the sampling units (academic teachers) that guarantee the quantity and increase the quality of the information. The inclusion criterion was that the subjects of the research should be academic professors and contract teachers with more than 2

years and who work at the university, considering that the university is state-owned. There were a total of 200 professors; 65 belonging to the University (A), 73 to the University (B), 62 to the University (C). To extract consistent and nodal information from the discourses, the positioning was the paradigm of the codification and the technique of analysis of the content was used (Lopez, 2002; Sebald, 1962), identifying concepts, significant phrases that would later be classified according to the constructs (grouping of codes) and then constitute the explanatory categories of the investigated phenomenon.

The interpretative analysis of the content, in coherence with the culative research, serves the investigation to read the reality from the terms, concepts, phrases and individual stories collected (Dieguez, 1993; Flick, 2004; Gadamer, 1998; Murcia, 2003) from the teachers' speeches and expressed in hermeneutic units (Angel, 2011; Arango, 2011; Santasilia, 2017).

For the definition of categories, through theoretical coding, it consisted in a transformation of the records into interpretable units of meaning. The hermeneutic possibility of interpretation through coding is done through the process of reading and coding by stages or layers of meaning: Open, axial and selective coding. In Flick (2004), coding is understood as representing the operations by which data are broken down, conceptualised and reassembled in new ways. It is the 'central process by which theories are constructed from data' (Stauss & Corbin, 1990, p. 57). With the processes mentioned, the text was analysed, returning to it and considering that the definition of categories is linked to perspectives and levels of expression generated by the participants.

In the face of the innovation that was implemented in the different universities and considering the strategies that appear in the university context and in the pandemic, key concepts were identified that are recurrent in the participants' discourse, associations, frequencies, relationships between terms and significant relationships were identified, from the analysis of the content of the written accounts Vattimo (1991).

It is specified that the organisation of the categories to semantic constructs was carried out from the interpretative triangulation with the conceptual framework and the ontological meaning of the discourse, this is, to consider the experiences and the said by the subjects of the investigation. NVivo Software for Mac was applied to unify words, phrases, concepts in codes and in meaningful categories. We obtained the frequency with which these ideas were mentioned and corresponded to the construct (significant category).

An export of the coded information was made and the representation was obtained in Table 1 with the specifications of the codes and a hierarchical map of representative categories of teachers' perception of difficulties in times of pandemic.

3. Results

Below is the Hierarchy Map of the first open coding stage. In this map you can see the first codes for the reduction of the information obtained. It can be observed that most of the speeches, phrases and ideas expressed by the sample of 200 teachers are concentrated in the psychosocial dimension and in the adaptation to the digital system. This corresponds to each of the groups in the universities that participated in the research.

In the second moment of information reduction through axial coding, the congruence of meaning and significance in semantic terms is identified in order to determine the group of concepts that will later configure the central dimensions of each category.

Figure 1. Hierarchical map of the first stage of coding

Of the three groups of academics belonging to the University A/ B/ C, a representative synthesis of the 368 codes obtained is reached (expressed in Figure 2) with an important presence of the difficulty for the use of platforms with 19.58%, the understanding of distance education with 26.29%, the action of the professor with 22.57% and another of the catalytic concepts is creativity with 27.20%; the generation gap with 64.26%; these are among the data that suggest observation and consider as nodal for the later interpretation. Based on this synthesis, a new codification called selective is made.
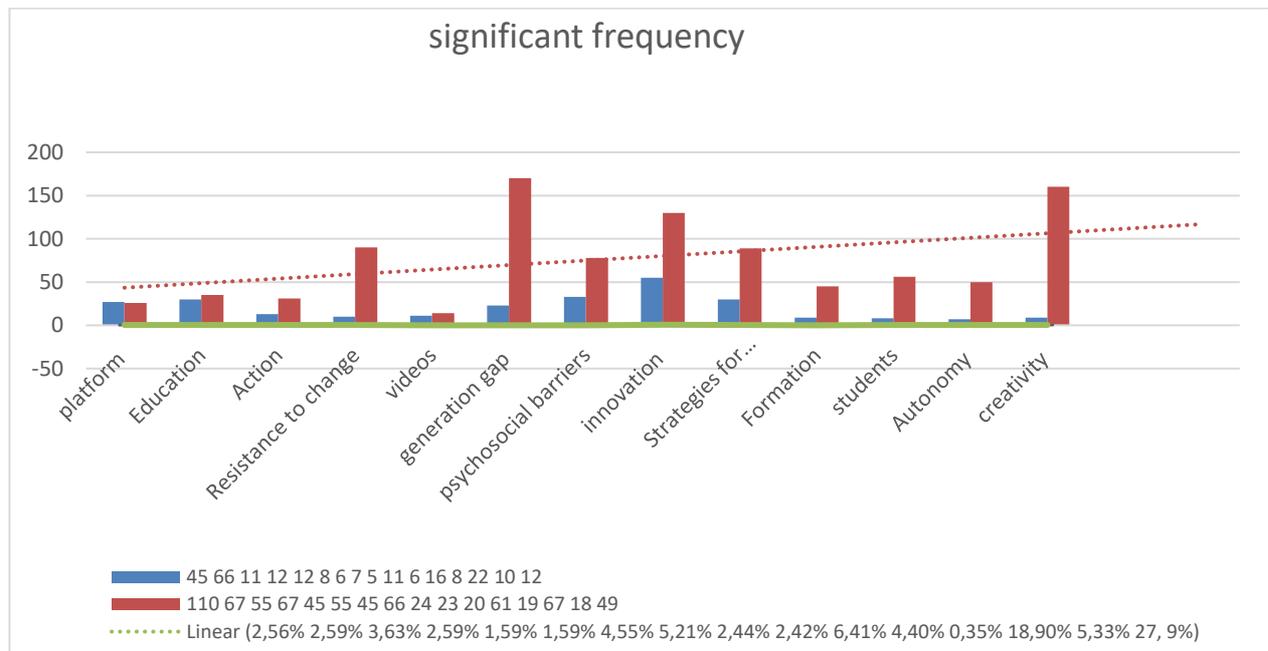

Figure 2. Significant frequency codes

Selective coding corresponds to the moment of reduction and triangulation of information. It is from this that the hermeneutics and the interpretation of the information become essential. For the investigation, the already codified and reduced data were organised in the following Table 2.

Table 2. Codes and encoding

Name	Description/dimensions and properads	Archives	References
Curricular innovation	<u>Dimension</u> Tendency to implement strategies in diverse contexts. <u>Properties</u> Acceptance of change Precariousness of resources Adaptation to the digital system Structural Change	1	139
Progressive learning	<u>Dimension</u> Generation gap Bureaucracy <u>Property</u> Lack of training Lack of experience Resistance to change Psychosocial and operational constraints	1	135
Didactic operation	<u>Dimension</u> Creativity <u>Property</u> Methodological autonomy Alternative methodology Student Strategies	1	94

From this order we arrive at the structuring of the hierarchical map (Figure3) of three significant constructs: Didactic operation, progressive learning and curricular innovation. The three constructs respond to teachers' perceptions of the educational challenges that emerge from the difficulties during the period of confinement. This means that the greatest number of codified references in the discourse are grouped into three significant groups, which are at the same time determined by the dimension to which they correspond and their properties.
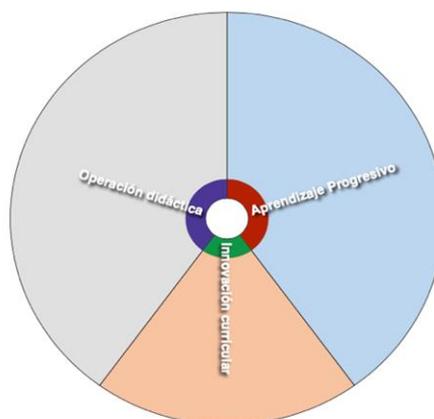

Figure 3. Hierarchical map of constructs

3.1. Curricular innovation (139 references)

From the teachers' perception it represents the use of different methodologies. The dimension of the tendency to use different strategies in diverse contexts articulates the possibility of change, although resources are considered essential for this. We have to confirm that the adaptation to the

digital system by teachers represents a structural change in the education system, that is, to incorporate the aspects to be done in the teaching practice. The precariousness of resources also appears as essential and is articulated with the trend, a question that is debatable, since innovation can also be generated from a procedural or attitudinal content without the need for investment in equipment. The new, which has characteristics of such, appears and is determined by the subject who generates it and the one who observes it. In the University, constant training is required for the opening of new procedures, the initial teacher training.

3.2. Progressive learning (135 references)

It is the space and time in which the subject acquires the skills, abilities based on the stock of anchored and significant knowledge to go deepening and branching it; this is triggered through a process in progress, mediated by the teacher and didactic operation. Progressive learning is fundamental in assessment as an indicator of learning. We agree that this methodology is not new; already in Dewey appears the sense of construction in social relation to achieve the anchorage with significant experiences. Then, we sustain that one of the elements that points high in the speech is the difficulty to monitor and to evidence the progressive learning of the students, due to the pandemic. In addition, the generation gap emerges as a nodal element in the development of this type of strategy. This is a relevant issue for the achievement of the objectives that need to be fulfilled in the classroom. The same happens with the lack of training and experiences to provoke the recognition and acceptance of change.

What is mentioned above is important because the subject that teaches, the teacher, should be prepared for the emergence of new events and should know how to attend to them from knowledge and from a resilient and creative state. Psychosocial limitations also play an important role in teacher motivation and performance, social distancing and the few face-to-face relationships cause the teacher to enter a state of quietness and little productivity on most occasions.

Didactic operation (94 references) corresponds to the construct that is configured in the teacher's field of action and attends to different concepts that, integrated in the construct, fulfil the function of a methodological device to consolidate a creative and innovative practice, with an ontological, philosophical and ethical character. This is understood and appreciated by most teachers as the possibility of transposing the knowledge and experiences of the lived curriculum. What they refer to is their condition as creative subjects capable of translating their creative action into an operative didactic stature. Generated by the subject from the compilation of experiences in relation to environment, context, curriculum and students. From the selective codification, this is constituted and matched analogically, for the case studied, with the dimension Creativity, and the properties autonomy methodology, alternative methodology, strategies of the students. For the active generation of didactic operation, the student represents for the teacher, in onto epistemological terms, the constant arrival and departure of new paths, challenges and possibilities of understanding the real in the Lacanian sense, then of the symbolic, of or imaginary.

4. Conclusions and future guidelines

The educational challenges of the teachers in three universities in the state of Chile in the context of the pandemic are highlighted by the didactic operation as a possibility of consciously incorporating the lived curriculum and creative action into their teaching practice in order to achieve situated learning.

The findings of the research are summarised in three positions that are presented below, with the aim of opening the space for discussion and advancing in the research presented.

   a) The state universities consider the curricular innovation as a key element to achieve educational quality without paying attention to the fact that a system by competences and

technocratic that in its implementation disregards the knowledge generated in the practical process dimension in emergency.

b) The COVID 19 among other world conditions such as poverty, comes to move, destructure the systems, crack the conditionings. It opens the spectrum to new possibilities, to a social construction that revalues what is human and questions the immediacy of superficial changes in consumption that are not very well articulated with social needs.

c) The systemic crisis in which we find ourselves causes a stagnation of progressive learning if training in skills excludes transversals related to change and resilience.

d) Education that is eminently political, social and cultural needs to be rethought in terms of academia, teachers and students from its humanist, philosophical, ontical, ethical and social foundations in order to embody and intertwine with a pragmatic and didactic sense the elements of the technological paradigm that are necessary in the emerging pedagogical construction of education.

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