**Second half of 2020**

# OEL Magazine
## XXXVIII

## Quality in distance higher education:
*Managing **knowledge** towards a world to be known*

# XXXVIII

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# Contents

# Editorial

The great health crisis caused by COVID-19 has taken both people and authorities around the world by surprise, forcing them to adopt emergency meseaures to continue with the day to day. The situation has brought new changes in all areas of life. Areas such as health, the economy and education have received a strong impact so the populaton has had to adapt to this new normal.

Education is among the most affected sectors. At such a level that it has been a challenge for all members of the university community to adapt to a change that involves a new virtual modality. After having been for too long in a face-to-face educational system where technological tools were only used as complementary.

Without a doubt, teleducation has changed educational paradigms. That is why the OEL XXXVIII magazine, written by the students of the ''Taller de Administración y Liderazgo'' of the Civil Industrial Engineering Career of the University of Santiago de Chile (Usach), aims to showcase the investigations through a series of articles and opinion columns. Said investigations deals with the transversal theme of this edition "Quality University Teleducation: Managing knowledge towards a world to be known". This topic has been chosen under the motivation of providing knowledge from critical thinking about the multiple edges that this contingent topic has.

In this edition, topics such as the history of distance education and the projections that the authorities have regarding education in the distance format are addressed. The opinion of experts in the health area is also released, regarding how it has affected our daily lives, as well as additional content.

## Welcome to this world to know!

*Oel XXXVIII Magazine Team*

# Teachers' words

To face uncertain, invisible, and sometimes lethal circumstances as human beings, and even so, to assume responsibly with our activities of any kind, and with this, we refer to health personnel, essential activities workers, school and university communities, among others. That responsibility will never be enough if our looks and analysis surf on the surfaces and only the tip of the iceberg can be seen and not the background of the situations.

As course teachers, we have assumed the challenge of generating intentional conversations that produce synergies, reflection, critical thinking, discussion, generation of knowledge, with the sole purpose of understanding the importance of quality university education, as a result of which it is not the sole responsibility of the teachers, it belongs to a complete community that wants our students to be the future professionals who will transform our country. By the way, the role of students in this learning process is a fundamental pillar.

That is why teleducation carried out under normal conditions raises in itself the question of its equivalence to face-to-face education, as an effective action and impact on relevant, significant, and contextualized learning of the subjects that are programmed to be carried out in a certain formative experience. Especially when such educational experience is part of the professional training of university careers.

University education, as a system of human activity, is delicate and sensitive, poses and demands profound challenges from us regarding the current circumstances that must be overcome class by class, to never forget that what we do today as teachers will impact our professionals, despite the adversity that we face today. Education in an emergency context.

But since it is about seeing beyond, imagining, and questioning more than what can be visualized today, we have to manage knowledge to venture into a world to be known. Many things will never be the same again, in some cases, it will be convenient to do so.

It is in this context that the professors in charge of the Organizational Entrepreneurship Laboratory (OEL) and the Management and Leadership Workshop (MLW), of the career of Industrial Civil Engineering at Usach, set out to address the " Quality university teleducation: managing knowledge towards a world to be known".

This magazine that the reader has in view constitutes one of the solemn achievements of the OEL Entrepreneurship Units, and it is expected to arouse their interest and contribute in an important way to the delicate discussion and search for suitable management and leadership paths, necessary to travel on the subject considered.



**Tamara Wong Valdés**
Professor at the Organizational
Entrepreneurship Laboratory



**José Miguel Araya Marchant**
Professor Running
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# OEL

*Organizational Entrepreneurship Laboratory*

The **Organizational Entrepreneurship Laboratory** is a teaching/scholastic activity space from the Industrial Civil Engineering's curriculum in Santiago de Chile's University, destinated to induce, experiment and channel structured managment motivations and experiences, entrepreneurship and organizational personal leadership.

ICE students must form Organizational Entrepreneurship Units in various areas of management and knowledge production, such as: Magazine, symposium, promotion, colloquia, briefcase of applied knowledge, communication and multimedia. The purpose of this structuring is to learn about business management.

However, there's a second work line which is knowledge managment, students are expected to recognize their ability to propose and intervene in societal problems, through the exploration of eventual opportunities and pertinent design, offering socio-technical proposals, under conception, design, implementation, operations and managment modeling, tending to modify all of those situations of conflict and/or complexity, by virtue of favoring the organizational development of the entities that underlie them and achieve significant improvements in people's life quality.

The OEL is developed in collaborative knowledge management environments on applied disciplinary knowledges, configured in six OEU and a central coordination instance, the holding directory.

# **OEL** COMPANIES

## *Magazine*

We are a group made up of eleven students of the Industrial Civil Engineering career with the aim of investigating, knowing, deepening and informing about the different branches that address the cross-cutting theme: "Quality university teleducation: managing knowledge towards a world to know ". This magazine will have information that generates knowledge and critical thinking on the subject; infographics that allow a better reception of the information provided; and finally curious data that allow us to provide some consideration or additional information that is useful.

## *Communications and multimedia*

We are the Communications and Multimedia company of the XXXVIII version of the OEL, one of the six companies that make up the holding of the Organizational Entrepreneurship Laboratory (OEL) of the Usach. Our objective is to produce information, disseminate on the cross-cutting theme "Quality university teleducation: managing knowledge towards a world to know" through social networks and deliver technological services to the rest of the holding companies, ensuring stimulation and adequate public participation.
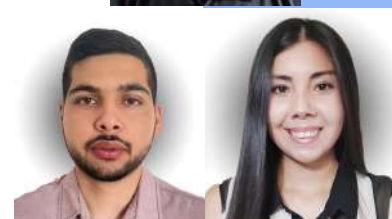
# *Promotion*

The main objective of the Promotion company is to regulate and evaluate business plans, together with the correct functioning of the management processes of the other companies that make up the Organizational Entrepreneurship Laboratory, it is also in charge of managing and obtaining sponsors through the generation of a proposal that encourages institutions to be part of the project. In addition, it is in charge of seeking sponsorship in order to professionalize the activities carried out throughout the course.

# *Briefcase of applied knowledge*

''Briefcase of applied knowledge'' is an autonomous work organization, in charge of investigating and making a contribution of knowledge to OEL. Led, in its version of the second semester 2020, by Juan Pablo Orellana Soto, Briefcase of knowledge has been distributed in five teams, of two members each, for the elaboration of investigative lines regarding the cross-cutting issue. Thus, its objective is to serve as a source of knowledge and content, both for OEL and for the companies that comprise it.

# Colloquiums

Colloquiums, a company made up of eight members, and led by Fernanda Marabolí González who, from teamwork, and constant communication, are in charge of the organization and preparation of two events during this Second Semester 2020 where the subject can be addressed transversal, in this case the Quality University Teleducation, from different points of view, being able to generate instances of dialogue and opinion between the exhibitor and the audience, nurturing the knowledge of those present.

# Symposium

We are a company led by students from the USACH Department of Industrial Civil Engineering; who, in an efficient way, bring together professionals to form a team, who will approach from their expertise the "quality university teleducation, managing knowledge towards a world to know", a highly contingent subject. Through speaker-audience interactions, we will be able to develop a collective intelligence that encompasses diverse horizons, to install the vision of teleducation as a more significant learning opportunity for today's student.

# The world and teleducation

COVID-19 has hit the world in every aspect over the past two years. This disease caused by the SARS-CoV-2 virus, originated in the city of Wuhan, China, spread to each of the 5 continents. This caused all countries to impose restrictive measures on their population to reduce and control the number of cases. One of the most affected systems was the educational system, which for the most part, had to completely change its study modality, from a face-to-face modality to a new completely online modality, thus allowing to continue delivering and imparting knowledge without risking the student life. This type of distance education is called Teleducation. But is this methodology completely new? Distance education dates back to the beginning of the 19th century, and many are the institutions that throughout history, and even before the pandemic, have already used it. Undoubtedly, the pandemic came to provoke educational changes in Chile and through the whole world, and they might be maintained when it ends.

Subsequently, it was decided to give a new approach of multiple information media to the previously mentioned method of education, in which, although printed material was still used, it was now complemented through broadcasts on television, radio and telephony where a teacher The teacher served as a bridge between the student and the knowledge, creating in this way, a two-way communication.

Already close to the 80s, and thanks to satellite and network technology advances, more direct communication was allowed between teachers and their students, through videoconferences, compact discs and audio tapes. That said, in 1985, the National Technological University (NTU) opened a university in which it offers the distribution of degrees and continuing education courses in Engineering, through satellite signals. In 1989, there would be a change in the paradigm of distance and traditional education, the University of Phoenix began to teach classes through the internet. Later, with the offer of these first professional programs, new institutions were incorporated into this modality. As an example, there is the Virtual University of California that, in 1997, already offered about 1,500 online courses. On the other hand, the MIT (Massachusetts Institute Of Technology) years later, already offered more than 500 online courses for free. All of this was possible thanks to the development and expansion of the Internet, which brought with it implementations of websites, emails, forums, among other tools that encouraged the expansion of distance education.

Over the years, we have seen technology grow considerably. The development of desktop computers, laptops, tablets, smartphones and other mobile devices have come to change everything that was known until the 2000s. In addition to a considerable improvement in the internet, where better speeds are increasingly offered with technologies such as Wi-Fi and fiber optics. In the educational context, such development has allowed the creation and improvement of new educational tools. And that is where the concept of Teleducation was born.

## Distance education and its origins

When we talk about teleducation, a type of distance education system automatically comes to mind, in which, from the comfort of home, work, or even, from a cafe in the center of the city, you can study and see the classes taught by your university, through your computer. But, the truth is that this type of education has evolved over time. Designed for people with complications in attending an institution in person, distance education went through various stages. Starting with a system through correspondence (postal mail), then by radio and television transmissions, until reaching the use of satellite networks and the Internet, as we know it today.

Distance education has been given since the beginning of the 19th century. This type of education is directly related to the technological advances available in each decade. In the beginning, it was implemented through a correspondence methodology. This means that an institution sent textbooks and printed materials via postal mail to its students. Then, the students, when completing their tasks and activities, send them back through the same route, the work done to their institutions.

For the above to be carried out, the zenith and development of the railway was important, which allowed the exchange of messages and information between cities. However, this newfangled system had no acceptance in universities due to high dropout rates.

Through this historical journey that has been made, it can be seen that technological innovations go hand in hand with the growth and development of distance learning. In addition, they bring about changes in teaching methodologies, and an increase in the use of distance education.

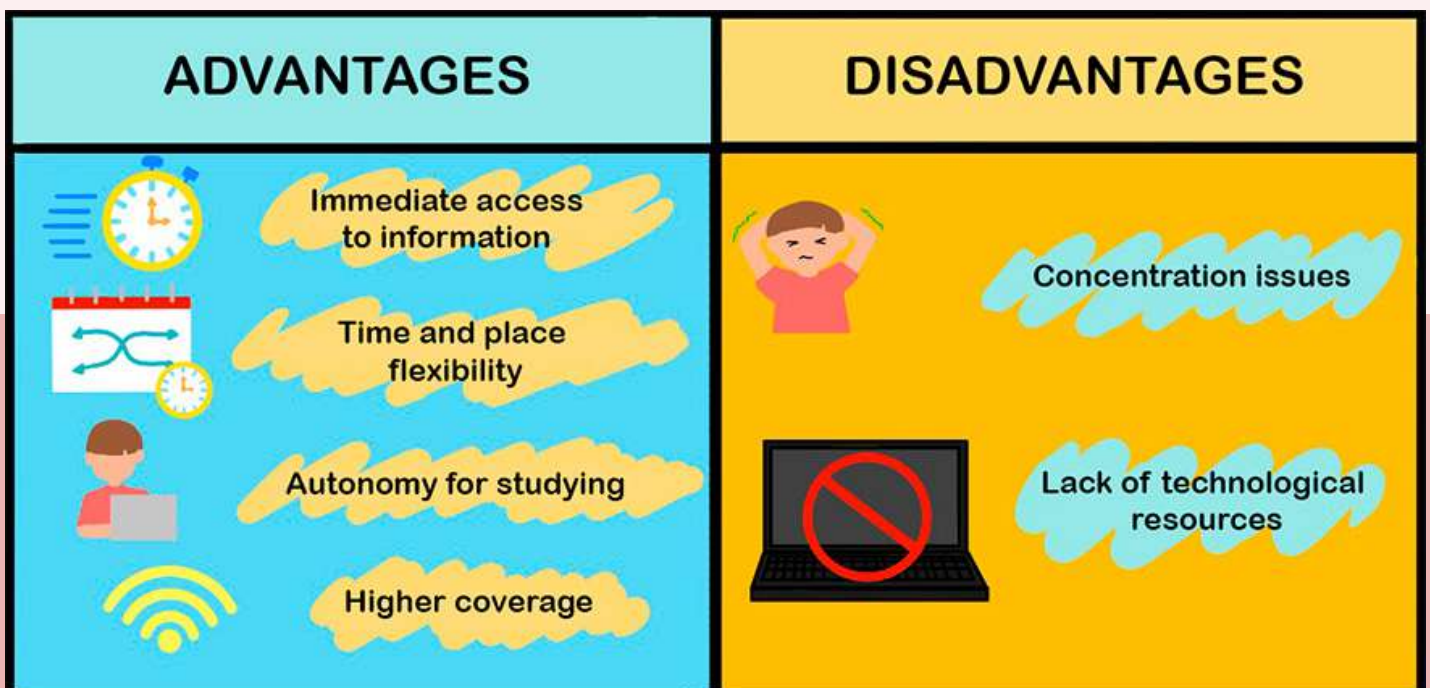## *Worldwide teleducational development*

According to an article published in the Virtual Magazine N°50 of Colombia's Northern Catholic University, a university that teaches its classes 100% online and a pioneer in virtual education since 1997, there are two related concepts: distance education and virtual education. What is the difference between them? Distance education refers to a solution to coverage and quality problems that affect a number of people who cannot enter educational systems due to their geographic locations or high costs. For its part, virtual education arises thanks to the development of ICTs (Information and Communication Technologies) that allows the development of educational programs that have "Cyberspace" as the teaching and learning scenario. This implies that a face-to-face meeting between the teacher and the student is not necessary for an

interpersonal relationship of an educational nature to be established between said parties. This concept of Virtual Education refers to what we call "Teleducation".

Now, the meaning and term of teleducation is very broad. According to a report on the state of Teleducation in Spain, written in 2001 by the Department of Communications Technologies of the Carlos III University of Madrid, the concept of teleducation can be explained as a mix between Tele-training and Tele-learning. But what do these concepts refer to? On the one hand, Tele-training is defined as the relationship between the student and the teacher, in which the latter acts as a guide or tutor of the knowledge imparted. On the other hand, Tele-learning refers to the attitude and disposition imposed by the student in their learning, that is, the main person responsible for his own education. It is important to note that both concepts are governed by the logic of the use of communication and information technologies.

Therefore, teleducation can be defined as that process in which a student learns under their own responsibility and disposition, with the help of the use of information and telecommunications technologies, and with the help of a teacher who will act as a knowledge guide.

How can teleducation be implemented? Nowadays, the main pillar of a correct development of teleducation are technological devices and the Internet. These allow you to use and take advantage of the tools provided by university institutions. Among the devices that



**ADVANTAGES**

- Immediate access to information
- Time and place flexibility
- Autonomy for studying
- Higher coverage

**DISADVANTAGES**

- Concentration issues
- Lack of technological resources

can be used are desktop computers, notebooks, smartphones, tablets, and even smart televisions to view audiovisual content.

In general, institutions create virtual platforms in which professors or teachers, in an asynchronous mode, have the ability to upload content and study units so that their students can review and study them at any time of the day. On the other hand, in a synchronous mode, videoconferencing applications can be used that allow communication in real time between teachers and students. The latter would be very similar to a face-to-face mode and allows greater interaction between the parties, compared to the asynchronous mode. For this, participants need to have at least one microphone that allows them to communicate orally. On the other hand, the type of evaluations will depend on each strategy implemented by the institutions and their respective teachers. The most common are: tests, exams, activities, papers, and online quizzes.

This educational teaching method can bring multiple benefits to those who choose it. In the first place, there is flexibility in terms of study times, that is, each person manages their time according to their duties, even allowing them to work and study at the same time. Second, the information, content and educational resources are available for free use. Also, fully interactive resources are offered that facilitate learning, such as multimedia resources, texts, simulators, among others. On the other hand, there are no transportation costs to go to the study center and added to this, another very favorable point and no less important, is that it allows people with disabilities or geographically isolated people to access an education simple and uncomplicated.

We cannot also avoid certain difficulties in the development of teleducation. One of them may be the environment. If the student develops in an uncomfortable environment, both physically and psychologically, there will be serious concentration problems. It is also known that all people learn differently, which is why people who require a face-to-face guide can get complicated with this modality.

Another difficulty that usually occurs in this teaching method is dependence on technological resources. At present, although there are students who own their devices, there are still no minor cases in which students must use the same devices with their family group, which implies that there is no freedom of use on the part of the student and they must organize in shifts. On the other hand, a fast and uninterrupted Internet connection is vital for the proper development of teleducation. However, it is not always possible. There can be several causes that prevent this. One is due to the fact that most electronic devices depend on the use of the network, which generates a saturation of the connection, causing signal cuts and slowness if you do not have a large bandwidth. Other possible causes are the problems that Internet and telecommunications service providers have, since, for example, in Chile in the first half of 2015, 53,790 complaints were filed with the National Consumer Service (SERNAC). the services of the main telecommunications companies in the country. On the other hand, it is important to note that, according to a report delivered by "We Are Social" (online marketing and communications agency) and "Hootsuite" (social media management platform), only 59% of people worldwide They have internet access. Consequently, all these situations can harm, and even make it impossible, to opt for a tele-educational modality.

This method of distance education has been reported to have both benefits and difficulties. However, day by day it will be perfected with curricular changes and with the advancement of new technologies, and therefore, it is expected that these disadvantages may decrease and solutions to the problems can be found. As an example, progress is already being made in a new type of Internet, which would allow having a signal anywhere. How is this possible? This project is being carried out by companies such as Starlink, TeleSat and LeoSat, who, through satellites, seek to distribute the network on planet Earth. A completely innovative idea that has a lot to offer. Undoubtedly, with this type of progress, it would be interesting to see public policies that allow obtaining a signal for free for all citizens.



## *From face-to-face education to distance education in an emergency context*

COVID-19 is an infectious disease that is caused by the SARS-CoV-2 virus. This virus is highly contagious and has kept everyone in a state of emergency and with preventive measures to prevent its spread. According to WHO figures, until the end of 2020, there were about 84.1 million cases and 1.83 million deaths around the world. Without a doubt, it is a virus and a difficult disease to control.

Now, and as a result of this disease, in the vast majority of countries worldwide, governments have had to impose certain regulations and strategies so that citizens carry out quarantines, avoid crowds, respect social distancing, wear masks, among other measures. This, in order to prevent the spread of the virus. In this way, educational institutions have also had to adapt to this new reality. The high contagion rate of the virus and the closed space that a classroom presents, resulted in the impossibility of the development of face-to-face classes. Thanks to the teleducational method, which was already growing, the traditional world educational system came to be governed by a tele-educational method. Consequently, it has been allowed to cope with the development of the classes despite the difficulties.

The use of video conferencing tools and software began to grow. The face-to-face classes were transferred to virtual classrooms, in which the teachers, through cameras and digital presentations, began to teach their classes. E-learning platforms became popular, a virtual space that is focused on providing knowledge at a distance, where you can create classrooms that facilitate interaction between the student and the teacher, carry out evaluations, consultations in forums among other things, in addition to the use of institutional websites and emails increased significantly. Without a doubt, the educational paradigm changed completely.

But, not only educational institutions have been forced to adapt to the current context, but also large companies, such as Google and Microsoft, who have had to improve their tools and services due to the great demand they have had as a result of the new normalities. among them, teleducation and telework. Video conferencing platforms such as Zoom, Google Meet or Hangouts began to increase in popularity and use. In fact, Zoom, in January and February 2020, led the ranking of downloads for the IOS and Android operating systems on mobile devices. These types of applications have

had to be up to par and offer an ideal and perfect system that solves the new needs of its users. A clear example of this is the Google company that offers its application package called "G Suite for Education" to universities. This package allows its users to learn, innovate and organize interactively with each other. Among those that stand out the most, we find the Google Meet application, which, being very similar to Zoom, allows teachers and students to be connected through audio and video.

On the other hand, there was also a boom in applications such as Google Classroom, Google Task and Google Form, applications designed to create classes, tasks and assign questionnaires respectively. In addition, tools such as Keep and Calendar allow you to write reminder notes and schedule meetings.

This series of Google applications has also been joined by its competition, Microsoft, who with its Teams platform offers free online meetings, chat and cloud storage. It also has an integration of its Onenote tool whose function is to be a digital notebook that facilitates note-taking and multi-user collaboration. Thanks to these tools, many university institutions have also been interested in and have hired the services of these companies mentioned above.

However, this context in a pandemic leads us to reflect on the following; Is teleducation considered as an emergency and provisional method while we are in a state of pandemic? Or will it be a system that will continue to be developed, and in the future will replace the current one? There are divided opinions among students and teachers about this new teaching method and especially at the university

level. On the one hand, some believe that it is an improvised method and that it developed very quickly, without training for the participants, and that therefore, poor learning and no growth will be obtained as a result. On the other hand, there are positions that support this system and project that the option of a hybrid model between the traditional method and teleducation will be encouraged, where the implementation of technologies in favor of education will accelerate the learning process, becoming a component comprehensive for the educational training of each student.

Teleducation has been a controversial issue for the participants of the various educational communities, especially for those who had to adapt to a model of which they were not accustomed or trained. The truth is that with technological progress and with new educational strategies, teleducation may continue to function as a complement to traditional education in a post-pandemic period.

# Chile: Walking towards teleducation

The educational system in Chile, both at the school and higher level, has always been characterized by using a conventional method, in which students attend a classroom and the teacher teaches classes. All this in a face-to-face context of lectures, where the main study materials are texts or guides assigned by the teacher and which in some cases can be sent via email.

As technology has progressed, and education has adapted to it, there have been evolutions in people's educational processes. A clear example of this are the presentations that students must make. It is possible that you remember, or have been told, that the presentations had to be done on paper, with a simple design and made by hand, to be used as support material on the board. Nowadays, this has been replaced by presentations made with slides, through computer software, such as Microsoft's program, Power Point, which allows creating attractive designs, inserting animations, including graphics, adding videos, sounds, among others. This style of presentation favors the presentation of a topic, or the realization of a class, to be less tedious and more interactive, both for the presenter and for the spectators. On the other hand, Chilean university institutions have implemented the use of digital platforms, web pages and online conversation forums. As an example, the Faculty of Engineering of the University of Santiago has the intranet platform "LOA". This allows direct communication between the professor and the student of the university. In addition, the student can review their grades for their different subjects, view the curricular meshes of their career, contact their classmates, among other things.

Not only have these types of tools been implemented in favor of education, but also, institutions have dared to implement new teaching modalities such as "B-Learning" which is a mix between face-to-face classes with a complement of material, courses and online resources. Institutions such as the University of Chile, Santo Tomás University and the University of Santiago have courses in this modality. The latter, for example, in their English courses at the Faculty of Engineering, their students must complete, study and exercise the units of each content through a web platform, and also, they must attend face-to-face classes in which a / The teacher will guide them on the path of this learning.

Just as blended modalities have been implemented, 100% virtual modalities have also been incorporated. In 2004, as pioneers of virtual education in Chile, is the University of Arts, Sciences and Communication (UNIACC), which decided to teach university degrees and professional programs in online and blended mode. Later, the Bolivarian University and La República University, private universities, began to join. According to an article written by Josefina Martinez in AmericaEconomica.com, in 2018, there were 23 university institutions, technical institutions, and training centers that offered an online modality in Chile. However, virtual education has had very little preference on the part of students. Only 2.3% of the students enrolled in 2018 did so in this modality. This low enrollment percentage could be explained by the low number of accredited online programs. Only 16.1% of these types of programs were accredited until that date. However, no one would imagine that two years later, these data would change considerably.

With the appearance of the pandemic caused by COVID-19 and its arrival in Chile, a change was generated in all aspects of our daily lives. One of these was, as in the whole world, education. Because face-to-face classes cannot be held, the institutions decided to take action on the matter and chose to instruct their students through the internet, a measure that due to the speed with which the pandemic arrived, it had to be taken hastily.

Obviously, this new modality was designed in such a way that it worked in a similar way to a face-to-face class. However, to achieve this purpose it was necessary to focus on new strategies for online education. To carry it out, in the first place, academics, teachers, and

even students had to take part in training to begin to understand and perfect themselves in the field of teleducation. Get to know software, which for many was completely new, and begin to apply and understand new teaching and learning techniques. With regard to the Internet connection, the statistics presented by the surveys carried out by the Undersecretariat of Telecommunications, indicated that in our country there were 87.4% of people with internet access. But, in practice these results were irrelevant. The real situation evidenced the inequalities, which was shown in students who did not have access to the internet and in others who, although they had a connection, this was unstable, which made it impossible for them to participate in their classes. This was demonstrated by cases such as that of Paulina Ramos, 18, a first-year Chemistry and Pharmacy student at the Autonomous University of Temuco, near the town of San Ramón in the Araucanía region, who had to climb on the roof of her home in order to receive internet signal and be able to attend their virtual classes.

On the other hand, some students only have the internet available from their mobile devices, or they only have a single computer available to connect to the internet at home, which must be shared in turns with the other members of the family. Situations like these in which economic inequality was demonstrated, generated discontent in educational communities, which in turn generated student paralysis in some institutions. Universities, such as U. de Santiago, anticipated this and offered help through connectivity grants and equipment loans so that all the students in their community could be part of the learning process.

The arrival of COVID forced both Chilean students and students around the world to adapt to a tele-educational modality which they were not used to and although there is still a long way to go, new digital tools emerge every day that allow communication distance is of higher quality and on the other hand, internet connections improve and reach all areas of Chile.

# Quality university teleducation: *managing knowledge towards a world to know*

by **Claudia Hernández**, *Language and Literature* Teacher, Degree in Education Spanish ~ USACH

Chlorine, mask, internet down, gloves, black screens, guides, readings, share screen, "¿it looks?", "yes it looks", "¿listening?", "not really", "¿and now?", silence and sometimes, more silence than necessary. However, what happens when a new world is formed before everyone's eyes, ¿is it possible to be quiet? ¿What voices emerge in this moment of confusion and creation? ¿Which are the words that begin to resonate in the classroom?

A new world originates behind the fall of old structures, where people reflect on their reality and the necessity to transform it, in the words of the teacher Rivera (2012) "One of the main ways that human beings have to modify their relationship with reality to make it softer, to mold itself into it without succumbing to its violence and without idealize it, and to be able to love it, is education "(p. 243). That process of awareness and construction implies recognizing the necessary skills for building the world of tomorrow. These skills have a favorite space where they have to be developed: classrooms, be them school or university, as areas of learning and human development.

## Were the skills of tomorrow being cultivated in the classrooms of yesterday?

During the complex situation that societies are experiencing in the world, educational reality has been adjusted to virtual space, which has generated a bunch of scenarios: work in home, guides, absenteeism and, in most universities, virtual classes in relation to autonomous exercise (Cáceres, 2020). The health emergency has made visible a reality that already prevails in the classrooms, well as mentioned by Iglesias, González, Lalueza and Guitart, who follows Coll (2013) there is a "deep crisis of meaning and legitimacy" (2020, p. 184): which could be caused by the lack of humanity in schools and universities. Although the relationship between education and humanity is intrinsic, sometimes it is optionally applied (Barba, 2005). This trait is evidenced in the little concern for building relationships, where to vinculate with each other has meant an accessory more than a priority, in addition to devaluing the particularity in the face of homogeneity.

The reality of teleducation is an invitation to reflect on the true principles of the educational model, effective teaching practices, the role that has been given to students and their creative capacity, builders of themselves , of the world and the relationship we establish with it. In other words, it's thinking about the meaning of education, for today, for tomorrow. Where teaching practice is based on connection and recognition of each other, as mentioned by María Milagros RIvera (2012):

> My attention to listening to the students, who configures the appropriate mediation for each teaching relationship, includes their word, their attitude and their gesture, my word, my attitude and my gesture. Their word is rarely given in the university classrooms where I teach, because it is inhibited by their overcrowding (p.71).

## What principles should govern teleducation in the current context?

Following the master Paulo Freire (1979), education, recognized as part of human development, is a means to freedom (in Martínez, 2016), and therefore, it must get rid of all those ties that imply a submission of the learners. From this perspective, all educational media must prioritize this purpose, including the digital field. It is to assume that teleducation, from its technological peculiarity (with its difficulties and benefits), must adapt and find its way to the true meaning of educating: converting virtual classrooms into spaces of freedom. And seek to understand current reality as "an object and curricular vehicle based on its problematization-interrogation for pedagogical purposes" (Iglesias, González, Lalueza & Guitart, 2020, p. 188).

The experience of the year 2020 and that could be projected to 2021, is summarized in virtual classes and/or autonomous work, where the teacher is a guide and the student is the one who manages their time. This has caused a collective sensation, on the one hand, believing "that nothing has been learned" and, on the other, "lack of commitment and enthusiasm", in other words "The feeling that students and teachers have at this time is that we have lost school, we lost classrooms "(Díaz, 2020, p. 19) but it is worth asking, ¿have the school and university given them the opportunity to develop self-management? ¿Is integral development a priority? ¿Or is it restricted to the transmission of knowledge? During the XXI century it is necessary to develop a series of skills to live/contribute in the future, the skills are defined as ""the 4 Cs" (communication, collaboration, critical thinking capacity and creativity)" (Scott, 2015, p. 4)

From this crisis emerges the opportunity to rethink and re-feel education, to seek and create new ways of approaching the educational institution and practice. Well, as the thinker Hanna Arendt (1996) affirms

> At any time, a crisis in education gives rise to serious concerns (...). And this is so because education is one of the most basic and necessary activities of human society, which does not always remain the same but is constantly renewed (p. 197).

And in the face of the global health emergency, it is possible to reflect on "our weaknesses, our defects and weaknesses; but also, humbly, of our strengths and potentialities (...). A responsibility that must be woven from our hands (actions), our heads (intelligence, ideas, reasons) and our hearts (feelings, wishes, emotions)." (Iglesias, González, Lalueza and Guitart, 2020, p. 193).

It is a call for educational renewal, where it is possible to promote self-discovery, strengthen the ability to reflect and criticize, value their life experience (along with that of the rest), appreciate their decisions and manage them consciously. These certainties recognize the student who enters the university motivated by their own desire, and that they see in the classrooms (face-to-face and virtual) an opportunity to learn from themselves, from others, from the world, so that they grow and transform themselves, and together with them, the world does too.

Source: www.usach.cl

# Education testimony in pandemic time

by **Jeanette Cortés**, Professor in English and professor at the department of Industrial Engineering at the University of Santiago de Chile

This pandemic context has been a challenge for me and it has allowed me to learn, changing my paradigm.

The virtual communication, redefined the way to interact with my students, setting a new treatment, with new codes, trying to navigate and adapt in this new volatile, uncertain, complex, and ambiguous scenario.

In the exercise of my 2020's teaching, I learnt to learn alongside my students, experimenting the new technologies and creating a diverse climate in this virtual classroom where I saw mostly off cameras, with voices that greeted me while I stared at eyeless and mouthless silhouettes and I did realize that behind of that were a student when I asked questions and a lot of times some of them texted me in the room chat to tell me "Miss, I need to talk with you in private".

This year I also learnt to take care of my mental health implementing reset techniques to disconnect and avoid stress. I also think that I emotionally supported my students when they were writing through e-mail or when they were connecting early to the class or they stay after class, only to talk.

I learnt to unlearn that I knew of evaluation implementing new knowledges of how to evaluate in this virtual context, where the formative evaluation was fundamental and my students not only depended of the connection quality for an oral interaction, but they should interact from a space that simulates a classroom and it was unavoidable the interference of noises or distractions from their own homes or some of them connected from their workplaces and told me that, when they have to make an oral presentation, they had to record it very late at night to avoid the noise level of their houses.

Undoubtedly, the students learnt to adapt and creatively they were solving their difficulties and they learnt to collaborate between them virtually for a subject which main objective is the oral communication with another person.
The students had to learn to self-manage their learning through asynchronous activities uploaded to the "U virtual" platform.

Finally, as a teacher, I received from the Industrial Engineering Department a huge support through e-mail communications from the different headquarters, video-conference meetings, training options and, I have been invited to be part of the project "digital twin" that meant the virtualization of the Industrial "Civil" Engineering and Implementation Engineering career.

# Together for a quality remote education

by **Marcela Rosinelli**, Engineer. Deputy Director of Media Linkage. School of Industrial Engineering. Universidad de Santiago

Without a doubt, with the Internet integration and the Information and communication technologies in the classes, we were in front of the promise of a whole revolution that put headlong and challenged the educational organizations and their key actors: teachers and students. While these students, from the functional perspective, they look like fishes on the water in digital environments, the firsts, have been getting on the car of "ICT" and tele-training in gradual and delayed form, understanding the problem of falling behind.

The thing that the ICT came to do in sharp form, how it´s done by the Covid-19 pandemic, is catalyze the educational scene. The educational institutions have to adapt to the change quickly. Particularly our own department was already doing developments and remote educations pilots, that allowed the great success in the second semester of 2020 with the first virtual pre-grade training offer of USACH: Civil and Implementing Industrial Engineering. But the objective was not to only have a remote training offer, furthermore it was required the accomplish of the quality standards of the institution.

Nor the guidelines themselves of the Quality Management System nor own virtual educative project was enough to generate a change on the organizational culture. With that in mind, we saw the obligation of manage de change and manage the knowledge, inviting the teachers to trainings and inductions.

However, after a little time, this process of change showed the shy participation of the other key actor: the students. The invitation to the teachers not necessarily came along with more participation and engagement from the students. It is usually seen that the participation in remote classes get confused with only connect to the class. Spontaneous rises with absence of screen faces, mics off, among others, all these manifestations are read like the abdication of being protagonists on the scene and testimony of the eventual aggregated value that the ICT presence promised. Is usual, even, ask if are they there while the teacher have the role of facilitator-animator.

The university has deployed huge efforts to get in tune with the new teaching skills and the required connectivity requirements. The invitation is clear, it becomes necessary that students revalue their efforts for their own formation, according with the level of excellence that characterizes them. Therefore, the idea is that together we stand for a quality remote education!!!!

# UNIVERSITY EDUCATION IN TIMES OF CRISIS

With this new normality, university teachers and students have had to change the way they used to learn and work, using:

**TELE-EDUCATION**

## Should everyone keep doing everything like nothing happened?

Many families have stopped receiving income

Stress and anxiety have increased

Besides, some people have problems of connection or difficulties to accessing it

## Is it possible to find something positive in these circunstances?

It's important that teachers and students remember that the university is not just work and study

Also, it's an opportunity to empathize and help each other in tough times

Fuente: "The Stress of Coronavirus Means We Should Get Rid of Grades and Use Universal Pass" ABDULLAH SHIHIPAR en Teen Vogue.

1. $3^2 \cdot 3 \cdot 3 \cdot 3 =$

2. $2^{-3} = \frac{1}{2^3}$   T/F

3. $\sqrt{64} =$

4. $3[8 + (4+2)] =$

5. $9^5$

$(-1) =$

# Mental health and COVID-19:

## *Impact and palliative measures*

The COVID-19 outbreak changed all people's life, triggering multiple consequences such as uncertainty and high levels of fear, anxiety, and stress, harming the population's mental health with different intensity. While the sanitary measures established to reduce infection rates, generate isolation and loneliness as secondary effects, decreasing social support networks, and showing how neglected mental health is in the country. After 10 months in this context, it is important to consider two questions. What consequences do people face? And What can be done about it?

# Crisis context and its immediate consequences



The health crisis revealed problems related to mental health and how people of Latin American countries suffers the consequences where mental health is not a cornerstone on the agenda.

Worldwide, access to quality professional mental health help is beyond the reach of the population.

As for people's mental health, the United Nations (UN) last year indicates in a publication that around one billion people in the world suffer from a mental disorder and a suicide is registered every 40 seconds.

In low and middle income countries, 75% of people with mental health problems do not receive any type of treatment. In general, governments spend less than 2% of health budgets on this coverage. It budgets much less than the 10% recommended by the WHO, in addition, in Latin America mental health problems are not covered by private health insurance (Isapres in Chile).

In Chile, in a context before Covid-19 and the social crisis, a study published by Cadem in July 2019 shows that 7 out of 10 Chileans declare they suffer problems associated with mental health. Among the most mentioned are anxiety, depression, sleep disorders and both academic and work stress.

Most of these disorders do not receive treatment, since the population faces the search



for care in a saturated public system, where there is a community mental health center (COSAM) for every 140 thousand inhabitants, when the standard established by the WHO is one institution every 40 thousand people, or to be treated in the private system paying the expenses that this implies.

When considering a basic treatment of 10 sessions with a minimum value around 200,000 pesos, it is out of reach of many people considering that, according to the National Institute of Statistics, in 2019 72.4% of the employed population received less than $ 620,528, Average income for the same year.

By 2020, the social and health crisis the world is going through has altered people's daily lives. In Chile, quarantines began on March 17, and in mid-January of this year 642 thousand cases and 17 thousand deaths were reported. To reduce infections, confinement was set, physical distancing was implemented, plans were canceled or postponed, jobs were lost, among many other peculiarities related to the new context.

Universities had to adapt to this new panorama, and on site classes began to be taught through a screen, beginning to provide emergency distance education.

Health measures altered people in different ways and intensities, according to every individual context; but it has undoubtedly affected everyone in their normal life in one way or another.

By moving the routine to everyday home life, the responsibility of reconciling work, academic and family life, fell on the shoulders of the educational community. Both teachers and students faced the difficulty of distributing the times between these 3 aspects.

Linked to the overlap of these three contexts due to deficiencies in spatial conditions, absence of a support network and family responsibilities, an increase in anxiety and stress levels is associated with a considerable increase in mental workload, due

to a double or triple presence in different contexts, in addition, combined with the particularities of each case, it can trigger serious illnesses such as reactive depression.

Another visible problem is the increase in cases of gender violence, problems of family coexistence and domestic violence. According to the Ministry of Women and Gender Equity, the calls to the "Fund for Orientation and Help for Women Victims of Violence" had increase by a 70% compared to 2019. This situation, in addition to its seriousness, directly influences health of all affected family groups.

Therefore, the symptoms associated with mental health have increased, a situation that is shown in the study "Chile that comes - September 2020" issued by Cadem and published in La Tercera. 89% of those surveyed reported feeling anxiety, nervous, distress, stress or fatigue as the first mention during June.

According to this report, respondents affirm that at least one person in the family group suffers or has begun to suffer, since the beginning of the crisis, any of the following problems: sleep disorder (61%), panic attack or anxiety (56 %), work or academic stress (50%), overweight or obesity (39%), depression (33%), eating disorders (32%), irritable bowel (32%).

# Collapse between the private and the virtual

The educational systems and the working hours carried out with a telematic methodology transgressed the private space, and the wear generated challenges the entities to rethink their operations, systematizations and methodologies. Therefore, demanding better inputs and quality in the instances linked to the educational process.

Gloria Zavala, Ph.D in Psychology at Universidad de Chile

Traditional education assumes equal conditions. The students present in classroom interact directly with teachers, structure the programs and evaluations so that they can be prepared with material available within the institution's resources, in addition, they have spaces designed for personal and group work among the different university campuses students

The pandemic arrived and the dining room became a classroom, the livingroom into an office and both teachers and students were forced to accommodate their personal and daily lives to the new context, generating a cross between the private and the public.

Added to this are problems such as the weak internet connection, lack of equipment, inadequate spaces and the interpersonal difficulties that this generates when occupying common spaces with other people in the home. Just as the different particular conditions of each member of the educational community create processes where personal, academic and work life overlap, generating constant uncertainty. This is what the current literature conceptualizes as the "collapse of contexts".

This is how daily life becomes disorganized, fracturing the personal and social structure, shaking family life and mental health, making the teaching-learning process difficult.

Dr. Gloria Zavala, academic and postgraduate coordinator of the Department of Psychology at the University of Chile, an expert in organizational psychology and work and organizations psychology, says that "in general, the discourse is based on the individualization of responsibility in distribution of times, and this distribution tends to work well in people who live with very few people and have no people in charge".

She also tells us that the development of the necessary skills to distribute time and reconcile the academic and the private, requires a supportive context, since when working from home the division of work and personal life becomes artificial, generating a double presence , which increases the mental charge considerably by adding family and home responsibilities to those of work and / or study.

In addition, according to Dr. Zavala, the increase in mental load brings as a consequence an increase of anxiety, fatigue and stress, making continuous work difficult and producing somatization that manifests itself as problems starting and maintaining sleep, muscle aches, gastrointestinal problems, among others.

Emergency distance learning can contribute to emotional welfare, by giving purpose to various daily activities, structuring a new daily life, and providing continuity between the pre-pandemic context and the new context. However, if it is misguided, it can become an additional source of tension, frustration and stress.

Addressing this collapse, generating spaces of trust to mitigate uncertainty is fundamental, but the construction of virtual educational spaces challenges teacher and student interaction and requires a review of programmatic and content expectations designed for on site education, in addition, flexibility and empathy take a leading role to not aggravate the unstable situation.

It is worth to remember a reflection about times of crisis by Hannah Arendt, philosopher, teacher and journalist: "A crisis becomes a disaster only when we respond to it with pre-established judgments, this is, with prejudices. Such an attitude exacerbates the crisis and also prevents us from experiencing reality and takes away the opportunity to reflect on what that reality offers us".



## Rethinking the educational proposal

Traditional teaching leadership deploys its tools and methodologies in the classroom, where they can be monitored on site through control variables linked to face-to-face interaction.

The expert in Organizational Psychology affirms that traditional methodologies are weakened or even vanished when the interaction is mediated through screens, where many times the cameras and microphones are kept off by the students, due to a certain feel of comfort and the safety that gives anonymity, but on occasions it confronts teachers with classes with a monological approach, reducing the framework of possibilities when developing a class.

Both students and teachers have to be flexible in proposing new agreements wich adapt to the current problem. The opportunity to reform evaluative instances as systemic processes of reflection, monitoring and improvement, and not as simple summative or control instances.

Margarita Guarello, director of continuing education at the Universidad Catolica, poses in conversation with the collective "Chile Científico", a practical approach, where autonomy and leadership in students is increased, making them protagonists of their own evaluating processes, generating their own objectives and strategies appropriate to each context, projecting with this the objectives proposed for each evaluation and directly relating the evaluation instances with the students' appropriation of the same process, raising the difficulties and objectives of each student, reinforcing the need for teaching support and generating communities where evaluation and monitoring strategies are shared, also promoting self-evaluation and peer evaluation.

The proposed approachment focuses on raising the particularities of each person and not on the appropriation of content, then, the evaluation becomes complex to build, requiring more time and tools for its design and the systematization of results for taking decision in this new learning space.

Similarly, the Postgraduate Coordinator of the University of Chile believes that "Teachers take a leading role, requiring support through continuous training in new methodologies and technologies that provide the necessary tools to generate and motivate participation and restructure the chair to the online mode".

## *Basic requirement for good telematic performance*

Dr. Gloria Zavala, an expert in work psychology, defines a set of minimum spatial conditions to carry out distance working and studying adequately.

Access to an internet connection and suitable equipment is required. Brightness levels between 300 and 500 lux and ambient noise should allow a conversation to be held from 5 meters away. Parameters recommended by mutual security companies. The provision of adequate furniture that prevents the development of musculoskeletal diseases, together with training linked to the structuring and improvement of work or study places.

Another important factor is to receive education on time management, in order to reduce double presence. That the designated space is as exclusive as possible contributes to the conciliation of contexts. It is also necessary to evaluate the particular conditions that each one has, to manage the times according to the family characteristics.

University institutions provide support through the Student Affairs Directorates (SAD), adopting and implementing measures and protocols to address these shortcomings with which workers and students deal.

Some of these measures consist of providing technological equipment, subsidizing the internet for a better connection, psychological assistance if needed, and promoting collaborative work between students and teachers.

The implementation of this basic requirement is complex, because the institutions have limited financial and logistical resources. Respect for the private aspect of the home adds another difficulty when guaranteeing what is proposed.

At the end, Dr. Gloria advises as a psychologist that experiencing suffering or causing it in another person for a month, it is a reasonable time to search for professional mental health help.

## Did you know...?

It is important to maintain a distance between 65 to 70 centimeters to the screen, since when focusing on very close objects for long periods of time they make the eye slightly myopic, by repeating this daily a permanent myopia can be recorded.

This effect can be mitigated by following the 20-20 rule, that is, every 20 minutes in front of the screen, focus on an object more than 6 meters away for 20 seconds, relaxing the eye muscles responsible for contracting the pupil and converging the eyes.

# Confinement: diet and physical activity to the rescue

**What does the future hold to health after months of stress? People health has been diminished, being an important factor the feeding at their homes, however, there are many way to solve it. Through nutrition and physical activity, the performance and quality of life of the educational community can be enhanced.**

After so many months with increased mental charge and stress, according to an article published by the British Broadcasting Corporation (BBC) in 2018, it names anxiety, heartburn, headaches and insomnia as the consequences most cited by professionals. These symptoms, when present for long periods of time, produce a series of devastating health effects.

When you feel stress, your body creates a hormone called cortisol, which enters the bloodstream. For short periods, cortisol can help regulate many of the body's natural functions, including sleep, weight, and blood sugar. However, when you're under long-term stress, your cortisol levels remain elevated.

This kind of chronic stress can weaken the immune system reducing its response to invading agents, facilitating the occurrence of viral illness and infections. In addition to increasing the time needed to recover from injuries or illnesses. Also heartburn, reflux, bloating or constipation are some of the most uncomfortable effects when stress becomes chronic. The digestion and absorption of nutrients is also altered, producing nutritional deficiencies linked to a deterioration in metabolic regulation. Cortisol for its part increases the appetite for sweets and carbohydrates, promoting weight gain.

All these pathologies are aggravated by a poor diet, often restricted by the family budget. Already in August 2019, the representative of the Food and Agriculture Organization of the United Nations in Chile, Eve Crowley, told Diario Universidad de Chile that, as a consequence of the pandemic, "Severe food insecurity could to affect a million people in our country, so immediate actions are required to prevent and face it ". These actions did not arrive on time, and they did not give the expected results. Proof of that was the reappearance and increase of a large number of common pots in various sectors of the Metropolitan Region.

The delicate economic and health situation that the country is going through has had a profound impact on the income of the most vulnerable families and, consequently, has not made it possible to allocate the amount of money necessary for adequate nutrition.

The Surgeon, Pediatrician from the University of Chile, Master in Gastroenterology and Pediatric Nutrition from the University of Andalusia and currently Director of Extension and Communication of the Institute of Nutrition and Food Technology, Sylvia Cruchet, recommends "Buy fruits and vegetables from the station. As well as legumes, because one of the most expensive foods and that we need the most are meats mainly due to the proteins that they contribute to our body. By consuming legumes together with a carbohydrate which can be rice, noodles or quinoa, we complete the amount of amino acids that form, more or less, the scheme that meat gives you in nutritional needs".



Sylvia Cruchet, Director of extension center and communication at the Institute of Nutrition and Food Technology

But it is not only hunger that worries the scientific community because, according to the latest OECD report carried out in 2019, 74.2% of Chileans are overweight or obese. The situation is more discouraging when data associated with childhood obesity are reviewed, because according to the 2019 Nutritional Map prepared by Junaeb, there is an increase in severe obesity in children, of 0.3 percentage points on average, compared to the same study carried out in 2018, which revealed that 23% of children were obese. According to the Director of Extension and Communication of INTA, this trend has been maintained during the pandemic with an increase in obesity, especially in children and adolescents. The cause of this increase is due to the fact that foods rich in fat and / or sugar are usually cheaper, tasty and filling, but unfortunately they are causing tremendous damage to the population.

Another factor to consider is the confinement and lack of exposure to the sun, since it is essential to produce vitamin D, which according to Dr. Cruchet, "It is very important because it has a direct relationship with immunity, when it is low, the person has more infections, the risks of cancer, autoimmune and allergic diseases increase. As well as, patients do not absorb calcium well, which can lead to long-term diseases such as osteoporosis.

This vitamin is essential and is found in few foods since generally these must be fortified, most of these products are dairy. By not being exposed to the sun, a young person should consume 2 or 3 daily servings of dairy products and hopefully some nutritional supplement. Children lately are with a great deficit of this vitamin, mainly due to the lack of exposure to the sun, the excessive use of sunscreen and the little variety of foods that contain it".

Various health professionals agree that in recent months there has been an increase in diseases such as depression and anxiety. The pandemic has made both its diagnosis and its treatment difficult. And there it is where diet plays a fundamental role according to what was stated by the gastroenterologist of the University of Andalusia, who to combat depression and depressive symptoms, recommends including in diet the consumption of unprocessed sugars from fruits or from

fruits or from vegetables about 3 or 4 times a day.

It also emphasizes that if processed foods rich in sugars, such as a piece of chocolate, are consumed, these will provide an increase in energy to the brain and cause emotional satisfaction. However, its consumption must be controlled and never in large quantities, since excessive consumption could cause chronic diseases such as obesity and this can also trigger others such as hypertension, diabetes, joint problems, among many more.



# Did you know...?

"Glucose is the main food that provides energy to the brain, due to this it is recommended to eat some fruit or dairy before studying or teaching, since they are relatively light and have good nutritional quality".

For people who suffer from anxiety disorders, he suggests eating pieces of carrot, celery and fruits in general, always remembering that their consumption should be moderate and without falling into excesses.

The doctor maintains that one of the best ways to calm anxiety, reduce food intake and use up the possible excess sugars in the body is through physical exercise, which she considers essential, stating that "without routine physical activity it is very difficult to achieve good health in every sense, including mental health".

So also thinks the Kinesiologist and Graduated in Physical Education from the Pontifical Catholic University, Master in Medical Biophysics from the University of Chile and head of the Biomechanics Laboratory of the MEDS Clinic, Ronny Silvestre, who assures that performing routinary physical exercise "It's very good for general physical and emotional well-being. In addition, the release of a protein called BDNF (Brain-Derived Neurotrophic Factor) has been studied, which is present mainly in the muscular system, so that physical exercise would be related to mental health in broad terms.

The release of endorphins associated with the feeling of euphoria, welfare and happiness has also been studied. This chemical substance acts as a growth factor, strengthens neuronal connections and helps preventing neurodegenerative diseases"

People are recommended to exercise preferably aerobic, 3 times a week, between 30 and 45 minutes at an intensity between 30% and 40% of the individual physical capacity to do it in a healthy way and avoiding injuries.

Ronny Silvestre, head of the MEDS Clinic's biomechanics lab

According to the specialist, the confinement is associated with lack of movement which also generates a gradual decrease in muscle mass and encourages the appearance of pathologies associated with sedentary lifestyle. It is precisely sedentary people who have suffered the most, because at least before they used to move to work.

"For patients with major depression, it is essential to complement pharmacological treatment with physical exercise, controlling variables such as heart rate and pressure. This treatment has proven to be effective with an intensity of 60% ", comments Dr. Ronny Silvestre.

## Did you know...?

"A good posture is one in which you feel comfortable, in comfort and have the minimum energy expenditure or cost"
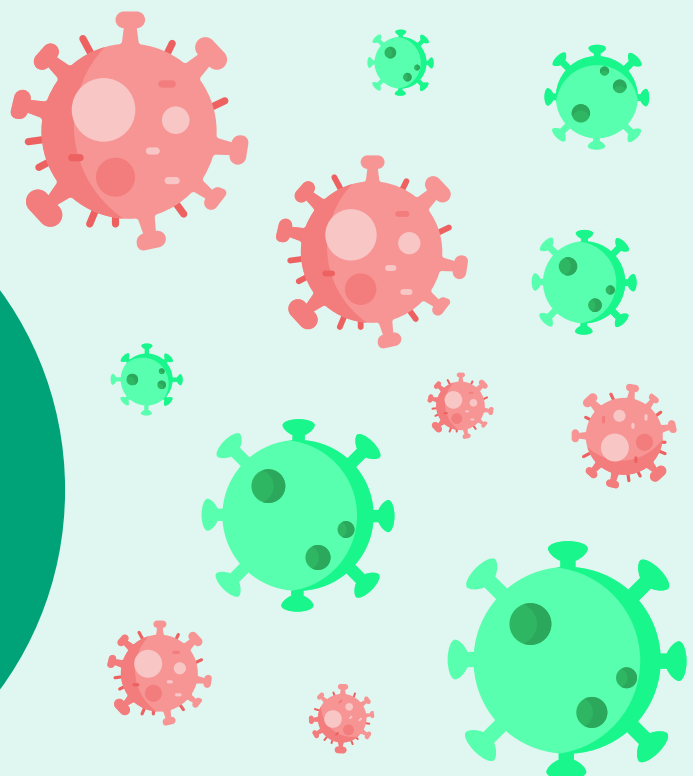
# A black screen

by **Catalina Bobadilla Rocco**, President of the Student Center of the **Public Administration** career of the University do Santiago de Chile

On April's 20th of 2020 began the online semester on the "Universidad de Santiago de Chile" University, without knowing that those weeks would become a year or maybe more.

The pandemic has strongly stroked our country. The truth is that it not only left at discover the inequalities that exists since decades and have been made invisible for long years.

Long distance education they called this kind of plan b, but. How can I study in online program if I do not have a computer, internet or a suitable environment?
To solution this, the university started to give connectivity allowance of economic aid, made covenants with telecommunications companies, it gave psychological support, where also each faculty joined the above.

Despite the effort made by all the people that conforms the university community, it wasn't enough, because the conditions of the students aren't the same yet or ideal to continue this huge challenge. So, on June 10th, the activities paralyzed by the students. It was close to 7 weeks where the student's representatives of each career, worked hard to level the field and get ahead the online semester.

With new rules and conditions, the second online semester started. But day after day, it was foreseen that the pandemic wouldn't finish in 2020, where the temporary retirees increase, the connections to classes decrease and the will to continue this pandemic year was almost zero, for not being able to keep the emotional charge from the absence of physical contact with other people, being this fundamental on a social being like the human being.

On this time, I assumed a challenge, that I never imagined that would be present on this way, where the job to do becomes more and more heavy and tedious. Get to solve situations, improve the academic environment, carry out extracurricular activities after class time or give information, it becomes complex if you can't see your classmates, know if they really listen or are even there.
But nevertheless, represent my classmates, takes another sense. Is unavoidable get involved and go further because I am equal to them.

In each home there´s a different reality, where we never will know what happen, but today more than ever we should support each other, give words of encouragement, because this is the way to end this pandemic.

# Inclusion and education on pandemic times

by **Kimberly Cruz Leiva**, Vicepresident of the
***Center for Students with Disabilities***
at the University of Santiago de Chile

We see how in base of the actual situation we are exposed to the adversity on the learning, the lack of resources, social stress, the possibility of acquiring a virus that could become fatal and the lack of certainty of what is going to happen on short term make us live on total uncertainty and the difficulties of the process that these situations integrated between them.

What we are living is complex, anyways we must bear it the better we could, the measures and the circumstances urge to take it to that point, but how truly integrated are we to this context?

A critic made as students is that we see lack of inclusion on the technology systems that we, handicapped people, have been faced and how these do not accomplish the integration on the education for those who requires it. Despite the measures taken, these do not manage to contain the great debt of the universal accessibility, the commitment is present within the authority and the community, but it doesn't reach entirely the long-awaited inclusion.

Although as a definition is the effect of include, is not yet possible see it clearly, if it doesn't go hand in hand with the integration of everyone in the community, thus highlighting small minorities that have been most affected by the situation, there isn't much we can progress. Therefore, based on the knowledge acquired in international treaties, laws, and rights, we must be guarantors of the called "inclusion", not only in the student sense, but also, be guarantors and participants on a three-part way. The university community today need more than ever be part of itself and seek the support that this implies in its own foundations and history.

Therefore, as a community we must improve processes, with the tools, workers, and strategies to involve everyone, make emphasis in the accomplishment of our authorities in improving learning spaces and made them accessible. We see the enormous effort that is made, but still, we are in debt with those who most require it.

Perhaps this is the inflection point where we should rethink the educational model and seek better strategies to address the learning, thus alleviating the burden and the stress on the students and professors, who in turn has faced the technology challenge but also has been overwhelmed by it.

Different emotions can be associated with how you breathe.
If you feel anxious or angry, your breath will be:

FAST, SHORT AND IRREGULAR

In situations of stress or anxiety, it may be difficult to calm down when someone tells you to do it.

CALM DOWN

DON'T TELL ME TO CALM DOWN

On the other hand, in situations of happiness and tranquillity, your breath will be:

SLOW, DEEP AND REGULAR

Nasal breath is crucial in the coordination of brain signs that regulate emotions.

When you inhale from the nose, cardiac frequency accelerates. When you exhale, it slows down. A good technique to relax is:

1. Inhale counting to four.

2. Exhale counting to eight and repeat the exercise for a couple of minutes

This easy technique can help to keep an overall wellness and decrease the levels of stress in the study and the work.

Fuente: "Research: Why Breathing Is So Effective at Reducing Stress" Harvard Business Review

# USACH:
## Addressing problems for the sake of their students

COVID-19 appeared and shook the lives of a large part of the world's population. Societies, their forms and customs have been altered by this deadly virus that in Chile has already infected 625,000 people to this day. The high rate of transmission of the coronavirus forced governments to impose quarantines to stop the spread and thus keep the population safe. The days, weeks and months of confinement began to accumulate. The way in which they studied and worked had to be rethought due to the impossibility of leaving. If before, people traveled kilometers to reach their destination, crossing thousands of people on the way in a bus or subway car, from one moment to the next they began to do everything from home. Teleworking and teleducation were born.

# Facing the pandemic crisis in Usach

As elementary forms of life, work and education cannot be suspended: it became imperative to find ways to carry them out at a distance. A computer, a webcam and an acceptable internet speed became essential tools to be able to carry out the different tasks and thus be up to date with homework. The workers and students of the University of Santiago de Chile experienced it firsthand.

More than 23 thousand undergraduate students had to forget about the classrooms and pay attention to 2,626 teachers through a screen. Ten complete faculties evicted the mythical Central Station campus to transfer all the teaching to the web. Due to the magnitude of the challenge, and above all the diversity of students that Usach houses, challenges began to emerge quickly.

Not all students had high-speed internet at home; some did not even own a computer. Many found it impossible to connect to Zoom or Microsoft Teams - the applications par excellence for holding virtual meetings - and thus attend their respective classes. For these students, Usach provided a series of benefits, both material and supportive of the quality of life of the students.

"It has been supported significantly with a total of 209 talks with a capacity of 6,814 attendees on the zoom platform on the various topics related to: mental health, physical health and healthy eating. Some of the talks on mental health have been held to support the psychological adaptation to the new study modality ". The head of the department of quality of student life, Patricia Pérez, points out.

Regarding the university professors, Dr. Julio Romero, academic vice-rector of the University of Santiago, comments as follows: "A notable effort has been made to support, with human and material resources, the professors to develop their virtual classes through continuous improvement processes, which are part of the Institutional Virtualization Project".

"A large number of licenses for programs such as Zoom, Canvas, JOVE, and ANSYS have been acquired; in addition to hiring some thirty graphic and instructional designers who are directly addressing the needs of teachers... In addition, monitoring units are being created to evaluate and project these actions in the short, medium and long term", he adds.

The aforementioned by the vice-rector could not only be useful temporarily but will last over time, as he alludes here: "The post-pandemic challenge implies a rapid adaptation that involves all the learnings of this period and continue using, diversifying and perfecting the methods, tools, instruments and platforms that have been consolidated during these months. The teaching-learning processes of the XXI century must consider these alternatives to facilitate the processes of student training, their well-being and their comprehensive training".

University life as such is quite an experience, and the Usach can teach it. Students value and need to be in their classrooms, see their teachers and, above all, exchange with their classmates and students. Not doing so affects both their ability to learn and their social development. And in the case of the new members of the "usachina" community, the so-called "Cubs", this can be even more damaging.

intercambiar con sus compañeros y alumnos. No hacerlo afecta tanto su capacidad de aprendizaje como su desarrollo social. Y en el caso de los nuevos integrantes de la comunidad "usachina", los denominados "Cachorros", esto puede ser todavía más perjudicial.

In the Academic Vice-Rector's Office they are aware of this, for that reason they have designed the Transition Plan to University Life, which will help new students to better integrate to the demands of this new student stage: "The Transition Plan to the University Life is in the development phase and is being coordinated by the Academic Vice-rector and where PAIEP is contributing...", explains Romero. "This plan consists of a 5-week virtual program (1 induction and 4 classes for leveling content in 4th grade), with synchronous and asynchronous activities, which will be carried out for all new students before starting their regular subjects study plan", he adds.

In addition, during this academic year the University has implemented various tools in order to interact, guide and support its first-year students in this context of a pandemic through" Future Puppy", which has social networks such as Instagram, Facebook and Twitter, in where a series of activities and talks are disseminated to facilitate the transition to university life.

On the other hand, on January 4 of this year, a platform called "Usach supports you" was created, in order to coordinate and facilitate responses to the concerns of students and teachers, whether economic, connectivity or academic needs. Despite the fact that this site was developed in a pandemic period, its functionality is expected to extend over time.

"This activity has been joined by an active presence on social networks, instagram, facebook and youtube both of the VRAE and of each unit of the Vice-rectory (health center, psychological health promotion unit, food services unit, artistic vocation and sports department)." assures Patricia Pérez.

# Did you know...?

The University of Santiago de Chile has 2,626 academics of which 881 are women and 1,745 are men (based on the statistical yearbook for 2019).

Regarding the university's concern for the health of its students, the health center is in charge of providing medical-dental care of a curative and preventive type to the students as a priority, which are mostly free , but given the health emergency, its face-to-face doors are closed, which is why Patricia tells us about its current operation:

"The Usach Health Center has been operating in telemedicine mode since March 2020 to date. Dentistry is a specialty in which it has only been possible to carry out orientations online. The Seremi, product of the pandemic, has required dental specialization throughout the country to make adjustments for its in-person operation, this implies the acquisition of suction pumps for each dental chair, a sanitizing equipment for use in the area, and having ventilation in each box to open windows after each attention. This for the health center, implies the change of all the windows of the dental sector of the building. Currently this entire process is under tender by the Campus Construction Unit."

In the current context, the return date is uncertain, but even so, the university must be prepared, thinking ahead and implementing strategies appropriate to the different health protocols to provide safety and comfort to the entire university community.

Given this, the academic vice-rector indicates the following: "Today, with the support of the Safe Campus Committee, headed by the Pro-rector and where authorities, specialists in biosafety and public health, professionals and representatives of students and officials participate, all the guidelines to ensure current tasks and project future activities on the university campus, a platform has also been developed (https://campus.usach.cl) that contains the protocols, training and traceability system that are allowing development today critical activities on campus, as well as ensuring the gradual return to face-to-face activities. " He also adds, "This enormous effort will allow a gradual return when sanitary conditions allow it to ensure and protect the health and physical and mental integrity of the entire university community. In this sense, the essential face-to-face activities (laboratories, workshops, etc.) of the first and second semester 2020 have been carried out in coordination with the academic units. These activities are voluntary for students and have virtual support for those who do not attend".

The rector of the University of Santiago, Dr. Juan Manuel Zolezzi, assured that there is still no specific date for the opening of the university campus. However, he points out that "it will only be returned once we have protocols and relevant security measures, and always in stages and in shifts".

Source: www.usach.cl

# The unknown and valuable work of the UPS: the unit that takes care of the mental health of the "usachinos"

*"In a recent survey conducted by the Department of Student Quality of Life, users of individual care at UPS report 83% of feeling satisfied and very satisfied with the care," says Beatriz Painepán, head of the Psychological Health Promotion Unit (UPS).*

The University of Santiago, to assert its slogan "Forming people, transforming the country", promises to fulfill its institutional work through high quality standards, innovation and relevance in an environment of mutual respect. A very important aspect to maintain these high quality standards is the concern for the mental health of its students, which is why there is the Unit for the Promotion of Psychological Health (UPS) of the Vice-rectory for Student Support, whose mission is to promote and develop the comprehensive education and health of students, addressing the psychic dimension as the main engine of well-being and personal development, supporting their academic performance and adaptation to the university system.

The importance of the UPS lies in the close contact to be able to attend and solve the problems that affect the student body. However, the health crisis in the country makes this impossible, so UPS had to reinvent itself in a short period of time. This is how the educational psychologist Beatriz Painepán and the teaching coordinator of the Unit, María Eugenia Villarreal, comment. "The pandemic, the quarantine and the instructions for care reached the UPS and the University in the same way that it does to everyone: unexpectedly. For this reason, we had to quickly adapt our operation to virtual contacts. The transition period to coordinate us was quick, between one and two weeks, to be operational on a regular basis. In other words, our individual care was transformed into care via telepsychology, workshops and talks to conversations via zoom, virtual meetings, among others", says Villarreal.

There are many reasons why a student could go to the UPS, that is why they have a free service in both individual and group modality, focusing on areas such as Individual Psychotherapy, Support for Academic Performance, Personal Development, Comprehensive Training and Promotion of Healthy Behaviors. These services, as Painepan points out, have had to accommodate the online



mode: "At UPS we are working and operating adapted to the context, identifying needs and reviewing possibilities for improvement. We are delivering the adapted traditional service, reviewing new proposals and using the daily use of social networks (Instagram especially) to communicate with the educational community in general and on a daily basis."

Thus, through their social networks such as Instagram and Facebook, they share informative and attractive material for students, with which they disseminate study methods, self-help both to cope with the current situation, as well as thinking about a future post-pandemic, and information about various conversations that touch not only student areas, but also areas of daily life. For example: the consequences of low self-esteem, a topic discussed in the last discussion held on Tuesday, December 22.

Among the activities that have been carried out in order to support students —in university settings and in everyday life—, the services that this unit continues to provide are varied: "Virtual individual attention, telepsychology; weekly conversations via zoom, proposing mental health topics that could be of interest and preventive against mental health problems that may emerge in the community. We are also coordinating and conducting talks for students, teachers and officials via zoom ", explains the Unit's teaching coordinator, who adds that" the opinions about the services provided have been positive and the attention has been valued by those who have received it".

Virtual classes may be comfortable for some students, even above face-to-face classes, but for others they can be truly stressful as a result of the different existing domestic realities. That is why the UPS has taken care of those students whose current university process becomes overwhelming, formulating strategies to liven up the day to day and thus better deal with stress and mental fatigue. Next, the educational psychologist details what has been done in this regard: "From the Unit, two subjects are taught for the Faculty of Engineering, which due to their characteristics (subjects of personal development and effective communication skills), required adjustments in their work methodology. This has meant that the UPS teaching team meets periodically to review and adjust initiatives that are better in their implementation, thinking about the needs of the students, and have contributed to the virtualization of the teaching of these subjects".

The UPS has not only interacted with students, but has also been concerned with supporting teachers in this new teaching challenge, "given the type of subjects it has been instructed that teachers can accompany the adjustment process of students, providing diverse methodologies, adjusting and making the forms of evaluation more flexible, to achieve the acquisition of content and skills effectively despite the difficulties that the virtual teaching-learning process can generate", asserts Villarroel.

It is from the above that it can be deduced that students are not the only ones affected by this pandemic, since teachers are also exposed to many changes given this new modality, which brings with it more workload as a result of carrying out tasks not contemplated in the face-to-face format, such as editing and uploading all the videos to a web platform. Regarding this, Painepán tells us the following: "From UPS, different activities have been developed, and continue to be carried out, aimed at the university community, including teachers. The objective is to attend and provide support strategies in the face of the complex situation that has been generated in a pandemic, for example, at the request of careers and faculties, talks have been developed, for students, officials and / or teachers, in order to address issues of mental health, on issues such as stress, anxiety, time management, among others, that directly impact the personal and academic sphere. Academics during this period have also had the possibility of receiving personal psychological attention at the University Health Center".

Undoubtedly, this unit in charge of meeting all the health needs of the members of the university community, has been and will continue to be a fundamental support to be able to face and cope with the current pandemic situation, as well as thinking about the future in a possible return to The normality.

# Oportunities
## The educational conjuncture towards the *future*

Taking the subway to work, attending classes, or going to see a loved one used to be part of many people's daily routine. However, after the appearance of the SARS-Cov-2 coronavirus, such simple actions became risky activities that threaten people's well-being. This new context forced people to rethink how to perform actions such as working or even attending medical check-ups, and therefore, try to carry them out virtually.

"**Pandemic**" and "**Technological Development**" have been two of the main themes that have characterized the year 2020. Thus, with little more than a year has passed since the appearance of the virus, it is necessary to analyse and question the direction that the future of society will take after this crisis.

To do this, it is necessary to contemplate the various projections that have concerning teleducation and its possible insertion in the traditional format. It is also relevant to be aware of the technological tools that are currently being developed, as well as new job opportunities that are closing as a result of technological progress, at the same time as combining the presence format and distance work.

# Projections of authorities for teleducation

The challenge posed by teleducation to the authorities is multidimensional in nature and must address various aspects, both human and technical. In the human feature, the psychological and physical effects generated by this online modality are considered. While in the technical aspect, the equipment and tools necessary to support distance education are covered. All this to offer a service of the highest possible quality, taking into account the current context.

To implement an efficient and effective solution, the earlier mentioned challenges requires high-quality management, to direct and manage all operations necessary to carry out proper functioning throughout the educational process at the digital level.

The commitment of the authorities concerning this issue is fundamental for the correct development and implementation of quality teleducation. The various strategies and methodologies that are implemented will mark a before and after in how education is perceived at the national level.

This report will address three main topics: The future of teleducation; Emergency education; and Infrastructure in Chile for teleducation. It is expected to answer several questions that clarify to the reader how teleducation is projected in the future and how it is perceived today. Finally, the issue will be discussed at an intra-university level.

## *The future of teleducation*

Nowadays, teleducation at the university level is a model in constant evolution. Its effectiveness in learning is been questioned. Also, it is considered that it diminishes the level of interaction between people. On the other hand, it hinders the process of delivering practical and theoretical knowledge online.

Despite the above, this format also has advantages. For example, the time savings that are usually invested in transfers, also allows the recorded material to be available for review as many times as necessary.

What will the future of education be like? According to data from the newspaper El País, in its web article "Así es el futuro de la educación universitaria", published on July 23rd, 2020, the educational model of the European University proposes a mixed development between virtual and face-to-face teaching. The above, innovating with new teaching and learning methods, "Aprendizaje Experiencial HyFlex", which reconciles the needs of face to face and online advantages of this teaching format.

This model is based on three pillars: classroom practices, the Extended Classroom, and the Digital Block. With the help of technology, the university adapted its campus so that careers in various areas, such as engineering or communications, among others, have access to on-site laboratories and all the support they need. Here, they can experiment and make simulations. Meanwhile, the extended classroom is a virtual room experience, which has several cameras and microphones to increase the feeling of immersion in the class. Finally, the Digital Block is a virtual platform where students receive all the virtual content, such as courses and online workshops.

Undoubtedly, pandemic and virtual classes have forced universities to change their teaching methods and use new technologies and strategies. An abrupt change that demands an adequate infrastructure and the training of teachers and students, as well as new learning methods, where Chilean universities will have the opportunity to innovate and write the future of university education.

## Emergency education

The suspension of face-to-face classes, throughout the country, caused 3.6 million students to stop attending educational establishments. As published by Universidad de Chile on its website, on May 5, 2020, various academics prepared a report to the Ministry of Education intending to address problems posed by this new way of educating. Some proposals put forward to include making evaluations more flexible and expanding the means of transmitting information, taking into account the physical, socioeconomic and emotional needs of students.

The Ministerio de Educación (Mineduc), on its website, published on Wednesday, March 18, 2020, in its article "Coronavirus: Ministerio de Educación activa plan de acción para instituciones de Educación Superior" a series of active measures in response to the health emergency. Among them, it is mentioned the implementation of a committee to manage the measures in the crisis, the delivery of online platforms for institutions that do not have any, delivery of funds to projects aimed at improving online education, partnership with higher education institutions to share practices and train teachers, as well as a regular update of information and benefits for students.

The efforts of both the universities and the Mineduc have been fundamental in confronting the crisis that aggravated the pandemic. However, when one speaks of teleducation and not of emergency education, one must differentiate the context in which it is found. The transition to a quality teleducation model is slow and requires a change in the educational paradigm. In turn, it requires diverse resources, both human and technological; infrastructure improvements, teacher training, integration with web platforms and technological tools, and practical laboratories where students can experiment, simulate, and study.

## The infrastructure in Chile for teleducation

Is Chile prepared for teleducation in terms of its infrastructure? The arrival of online education and teleworking has driven a greater demand for Information and Communication Technology services.

In the educational context, several tools, such as Zoom or Google Meet, have covered the emergency needs, but, other resources are required, such as stable Internet connectivity and equipment, such as computers, cell phones, among others. Besides, it is necessary to have an environment that promotes learning, comfortable space for students and teachers where they can develop their daily work. Whether it is a proper desk, an ergonomic chair, a capable computer, and a good Internet connection, many of these factors, which contribute to effective virtual learning, are not present in all cases.

The website "El Mostrador" with its article: Expertos analizaron debilidades de educación a distancia y coinciden en que "no estamos preparados" published on March 30, 2020, states: "According to figures from the Ministry of Social Development in 2019, 632 localities distributed in 170 communes of the

country do not have access to the Internet, which means more than 76 thousand people without digital connectivity. This data is led by the Region of La Araucanía, with 136 sectors; followed by the Region of Los Lagos, with 107; and Coquimbo with 70. In the Metropolitan Region there are even two sectors where it is not possible to access the web". This is evidence of the lack of resources and infrastructure affecting some households in the country.

On the web page of the Chilean Undersecretary of Telecommunications, information from December 30, 2020, they cite the following statistics: 85% of the complaints increased in the telecommunications market, where 31.7% of the complaints are due to problems in mobile telephone services. While 27% are for fixed multi-services and 19% for fixed Internet. And when the reasons for the complaints are analysed, it is verified that the main one in fixed services is "technical quality and/or service problems", while in mobile services it is "attention and/or information to clients".

University tele-education in Chile is affected by all these variables, which support online learning. It is expected in the future that the infrastructure and connectivity will improve, providing an optimal space for virtual learning.

# Usach vision



Ph.D Julio Romero. The Academic Vice-rector of the Universidad de Santiago de Chile

The Universidad de Santiago de Chile (Usach), founded in 1849, has been a participant in various national and historical changes. It has actively contributed to the formation of highly trained professionals who serve the society with an ethical and social commitment. For this reason, in the area of emergency education and teleducation, it does not lag and proposes various solutions and strategies to address the health crisis and the paradigm shift that the present 21st century brings to education. The academic vice-rector of the university, Dr. Julio Romero, and the teaching assistant director of the Department of Industries, Dr. Luis Quezada, comment on the subject.

*How does Usach conceive the future of university teleducation? In what areas are the authorities interested in starting to develop distance education outside of an emergency context?*

L.Q. "The superior authority of the University of Santiago has just defined a policy on institutional virtual education (Resolution 6.369 of 27/11/2020), which is an indicator that the institution wishes to incorporate this modality in all its educational processes from now to the future, beyond the pandemic. I do not know if specific areas are considered, but the policy leaves room for undergraduate, graduate and continuing education teaching to be provided in this way. My view is that the institution is open to all areas.



Ph.D Luis Quezada, Deputy Director in the school of Industrial Engineering

On the other hand, the university authority is developing a virtualization project for the entire university. For this purpose, virtualization units have been created at the faculty level, which has assigned personnel for the execution of the project. The aim is for the faculties themselves to develop initiatives in this regard, according to their reality and environment.

For its part, the Department of Industries already has offered the program of continuation of studies in Industrial Civil Engineering and Industrial Execution Engineering, under the online mode, which will be maintained beyond the pandemic. Our goal is to "virtualize" other programs, initially continuing education and graduate programs.

It is important to mention that this does not mean that we leave out the face-to-face. What we do intend to do is to maintain the face-to-face format, but with strong use of new digital technologies and thus continue to improve our teaching".

*Prepare and conduct classes. Reviewing and attending to student consultations and preparing audio-visual material are just some of the functions teachers have performed in this teleducational context. What alternatives does the Usach offer so that teachers can optimally execute tele-education, in such a way that the needs of students are meet while respecting the time allotted for teaching work?*

J.R.: "Today, in addition to the Virtual Campus platform, the university develops the implementation, training and support in a set of systems that consider the use of Zoom, Canvas, the Digital Twin platform just to name the most relevant. All these tools allow two relevant aspects: the exploration of new teaching and learning methodologies and the possibility of establishing these methodologies in a synchronous and asynchronous way, which facilitates the work and dedication of students and teachers".

*Each teacher has his or her way of conducting classes, but now they are forced to transmit their knowledge over long distances. As a result, have new methodologies been implemented to encourage and facilitate the teaching process by teachers?*

J.R.: "Today the university has a Virtual Education Policy, for teaching in undergraduate, graduate and continuing education, which considers the general guidelines and defines the support structures of the academic units at the service of university teachers.

A remarkable effort has been made to support teachers with human and material resources to develop their virtual classes through continuous improvement processes, which are part of the Institutional Virtualization Project. This has resulted in the acquisition of a large number of licenses for programs such as Zoom, Canvas, JoVE, ANSYS, among others, for a more specific use, requested by academic units for their respective careers. Likewise, about thirty graphic and instructional designers have been hired, who are directly addressing the needs of teachers to optimize the use of virtualization tools in their subjects on the platform to have 100% of the courses with consolidated virtual support during the current year. Also, follow-up units are being created to evaluate and project these actions in the short, medium, and long term".

*Regarding the development of professional skills and abilities, would you consider that a student trained in tele-university out of an emergency context would be equally or better qualified than a student trained in face-to-face education? How can the results of the academic training of both modalities be measured and contrasted?*

L.Q.: "I don't dare to give a reliable answer, since I would need data from the results of universities that are already using this modality. I can only make judgments. I believe that the result will depend on the objective of the program, including the skills and aptitudes that one wishes to develop, and the profile of the students. I think that the face-to-face format, in many cases, is part of the training. Leaving aside the situations in which face-to-face activities are required because of the nature of the subject (for example, the work of a biology laboratory), I think that physical interaction between people is very important.

To compare the results between modalities, experiments can be carried out. Groups are formed and different teaching-learning modalities are applied. Tests are used to compare the results obtained. I understand that research has been done in this field".

# Education and technological development: A new look towards the future

The pandemic was a scenario that stimulated a process that had been developing strongly for the last two decades. In it, the evolution and development of technologies have had exponential growth worldwide. So much so that, according to a study published by McKinsey during the pandemic, the world advanced in eight weeks what was expected to be advanced in 5 years in terms of digital adoption.

On the other hand, in one of its studies, the leading company in technology recruitment and IT outsourcing, Harvey Nash, points out that during the health crisis, the growth rate of world technology expenditure was the highest recorded in the history of humanity, increasing global expenditure to US$ 15 billion per week.

In this context, those organizations that had not yet considered the idea of digitizing their processes and services had to adapt to this new reality. This is how they began to change their work schemes, invest in equipment and in the technologies necessary to carry out their activities at a distance, and quickly resolve the complications and problems that the implementation of digital modalities brought. All this while still trying to understand the magnitude of what was happening in the world.

Today, society is in a techno-globalizing stage, amid a pandemic, and where the need to reduce the time and cost of processes prevails to improve the experiences offered by the various goods and services. Studies made by the Swedish telecommunications company, Ericsson and the study "COVID 19 and the Future of Business" made by the IBM Institute for Business Valu indicate, respectively, that 5G networks and Artificial Intelligence are technologies that are being strongly projected towards the future, due to their extensive fields of action, and the new possibilities that are opening up in multidisciplinary terms.

Reports indicate that 5G networks are capable of significantly outperforming their previous versions in terms of download speed, bandwidth, latency, and the number of connected devices. This opens up a range of possibilities for developing other technologies, whose potential was restricted with 4G networks, such as the Internet of Things (IoT), for example.

In an educational context, the benefits of having real-time control of technological devices is relevant to the development of learning. One application of this was made by Davidson High School computer science teacher, Mary Claire Wright, who points out that one of the main problems she faces as a teacher is the loss of attention of her students when faced with sessions that are very long. Therefore she had to do something to stimulate their attention. So using the IoT-enabled lighting setup to make the lights in your classroom bright or dim, hot or cold, has helped you solve this problem and redirect your students' attention.

Today, technology and education professionals are focus on the potential of Artificial Intelligence (AI) to improve teaching processes. Thus, from May 16th to 18th, in the year 2019, an international conference was held in Beijing, organized jointly by UNESCO, the Ministry of Education of the People's Republic of China, and the Commission of the People's Republic of China on AI.

The focus of this conference was to discuss the potential of this technology to contribute to educational processes through the monitoring and study of learning outcomes. Among the guests was the Deputy Director of the Institute of Education and TVET of Senegal, Mona Laroussi, who explained that one of the possible advantages of the incorporation of AI in the educational systems is to make learning much more personalized, given its incredible ability to analyze the behavior and responses of students by giving each one effective and rapid feedback.

On the other hand, Ikka Tuomi, founder and chief scientist of the Finnish Processing organization, who also participated in the conference, points out, in one of his studies on Artificial Intelligence, that there is little evidence about the benefits that its implementation

in education are not due, in principle, to the intervention of technology in learning but to how education professionals make use of this

## Did you know...?

DeepMind developed the AlphaFold AI system. This has been a solution for the past 50 years, one of the biggest challenges in biology and which experts say will bring a complete revolution to scientific research, medicine and bioengineering.

technology in a pedagogically significant way. For this reason, he states that collaborative and joint development between the use of technology and teachers is very important.

On the other hand, Ikka Tuomi, founder and chief scientist of the Finnish Processing organization, who also participated in the conference, points out, in one of his studies on Artificial Intelligence, that there is little evidence about the benefits that its implementation could bring to the education systems. He says that improvements in education are not due, in principle, to the intervention of technology in learning but to how education professionals make use of this technology in a pedagogically significant way. For this reason, he states that collaborative and joint development between the use of technology and teachers is very important.

In a similar vein, Inge Molenaar, from Radboud University in the Netherlands, points out that the use of this technology can help in the learning process of students and the training of teachers. Therefore, she emphasized that today, efforts should be focused on making

it much easier to handle these technologies to be optimally applied in educational contexts.

The academic from the University of Santiago de Chile and expert in technological matters, Carlos Pinto, gives his opinion regarding the condition in which Chile is, compared to the rest of the world, in terms of the advancement of new technologies that enhance and improve the teleducation system. He states that, in general, the cost of the technologies involved tends to decrease over time, so that as far as technological tools are concerned, there are no major differences between Chile and developed countries.

Where you do see a difference is in the production value of the courses since they involve infrastructure such as studios, cameras, among others. And that, in that sense, our institutions are still in their infancy. Finally, the academic comments on how the process of incorporating technologies in the virtual classrooms of the University of Santiago has been carried out. He indicates that the last technological initiatives implemented by the institution of higher education are going in the right direction. In general, he still observes an opportunity for improvement in the interactivity of the multimedia resources, explaining that the classes are simply videos and that in other more advanced platforms, the videos have interactions, for example, that the professor in the video poses a question and inside the same video the student has the opportunity to intervene answering some questionnaire or problem.

# From teleducation to teleworking, a new path to know

Social upheaval and pandemic. The strong restriction of people's mobility and the functioning of certain economic activities brought about a drop in the production of goods and services in the country, leading to unemployment. This is shown by the database of the Central Bank, which shows that in October 2020, unemployment reached a rate of 11.6%.

Carrying out teleworking brought negative repercussions on the mental health of workers. Studies conducted by Trabajando.com, shown that 70% of remote workers suffer from stress and other types of mental burdens, due to various reasons caused by teleworking. Whether it is the lack of time, the pressure from headquarters, the lack of adequate space, and others.

Nevertheless, an investigation carried out by InvestChile, from the business perspective, mentions that 66% of the companies have not defined end date for the labor extension, which is interpreted by the organization as a sign that "the impact could transcend the crisis, potentially generating a cultural change to the extent that this 'forced experiment' has positive results".

Under the eyes of workers and organizations, the following question arises: Is Chile prepared for an eventual technological transformation in the field? According to the report by the International Labor Organization (ILO), many developed countries have adopted measures to coordinate the mitigation of both the rate of infection and the effects of low economic activity.

One of the pillars of political action is the "Support of employment and income maintenance" by taking certain measures such as promoting the reduction of paid working hours, the preservation of jobs for migrants in case of illness or isolation, and the extension of unemployment benefits and/or social assistance benefits to ensure income stability.

Another pillar of political action is the "Promotion of economic activity and demand for labor", where countries grant effective fiscal measures and flexible monetary policies, for example, reducing central bank interest rates, extending mortgage payment terms, among others. And by providing loan measures and financial support to specific sectors, including the health sector, where countries like Ireland which allocated a budget line of 435 million Euros to its public health system. This financial support to the public service was also shown in Chile.

According to the government, on September 20, 2020, the President of the Republic presented the public health budget for 10 billion pesos and it was approved by the third joint sub-commission on October 22. This budget "contemplates a fund to accelerate the waiting lists and the largest public health infrastructure plan of the last years, to build hospitals and community health centers," mentions the Minister of Health, Enrique Paris.

Concerning workers on June 1, the "Employment Protection Law" began to apply, which aims to safeguard the stability of income, through the use of unemployment insurance for formal employees. This, in cases where the company cannot carry out its normal functions or when they should stop operating due to health indications from the authority.

This has been a big problem since before the social crisis, according to statistics from the National Institute of Statistics (INE) informal employment rate was 28.5%. Then, during the health crisis and the scarce economic activity in the country, it was slightly reduced to 23.5%, in which the majority are women.

Companies and businesses had to bet on digitalization given the big drop in physical sales. This is how e-commerce, an electronic commerce system, which has been growing exponentially since 2010, is helping companies and businesses to increase the commercialization of their goods and services. This reflects in the statistics of the Chamber of Commerce of Santiago, which show that the companies of the commercial area declare that 75% have concentrated their sales in electronic commerce and is in this context that the growth of this modality of commerce was 150%, causing that the delivery system and the use of mobile applications also had significant increases, trying to maintain the little economic activity of the country.

However, this mode is not completely regulated. Only last October 20, the Undersecretary of Labor called on companies to

improve the working conditions of delivery workers, showing that there is no protection for the workers of these firms.

However, this mode is not completely regulated. Only last October 20, the Undersecretary of Labor called on companies to improve the working conditions of delivery workers, showing that there is no protection for the workers of these firms.

Despite this complex scenario, several opportunities have arisen, especially for those who saw entrepreneurship as a survival mechanism in the face of this social and health crisis. Many of these businesses have arisen in a scenario of quarantines or restrictions on the operation, often from home. A context that must also be taken into consideration to make proposals to improve conditions.

Digital Transformation (DX) has undoubtedly permeated different work environments. On the one hand, it has changed practices known up to now, but new opportunities have also emerged, essentially to overcome the effects of the crisis.

"The digital transformation has arrived and there is no turning back," said Patricia Canepa and Patricia Merino for the BBC World site, who responded that "teleworking is here to stay. In LEO XXXVlll magazine, some considerations and tips are left for those who will implement telework in the future:

a) Infrastructure: Having a proper desktop and physical environment, good Internet signal, and good electrical power supplies are indispensable to perform the work well. In Chile, 90% of people who have purchased Internet plans during the pandemic admit to having problems with the signal, according to Sernac.

One idea to combat these infrastructure problems is put forward by David Mott, co-founder of Oxford Capital, on BBC Mundo, who comments on five office models of the future that promise to complement teleworking. These are:

1. Remote office: 100% out-of-office system. Allows for the democratization of the participation of workers who do not come from the same geographical area.

2. Hybrid model: Allows to be one or two days a week in the office and the rest of the days remotely.

3. Remote "plus" model: This model consists of working three weeks remotely and one week at the office.
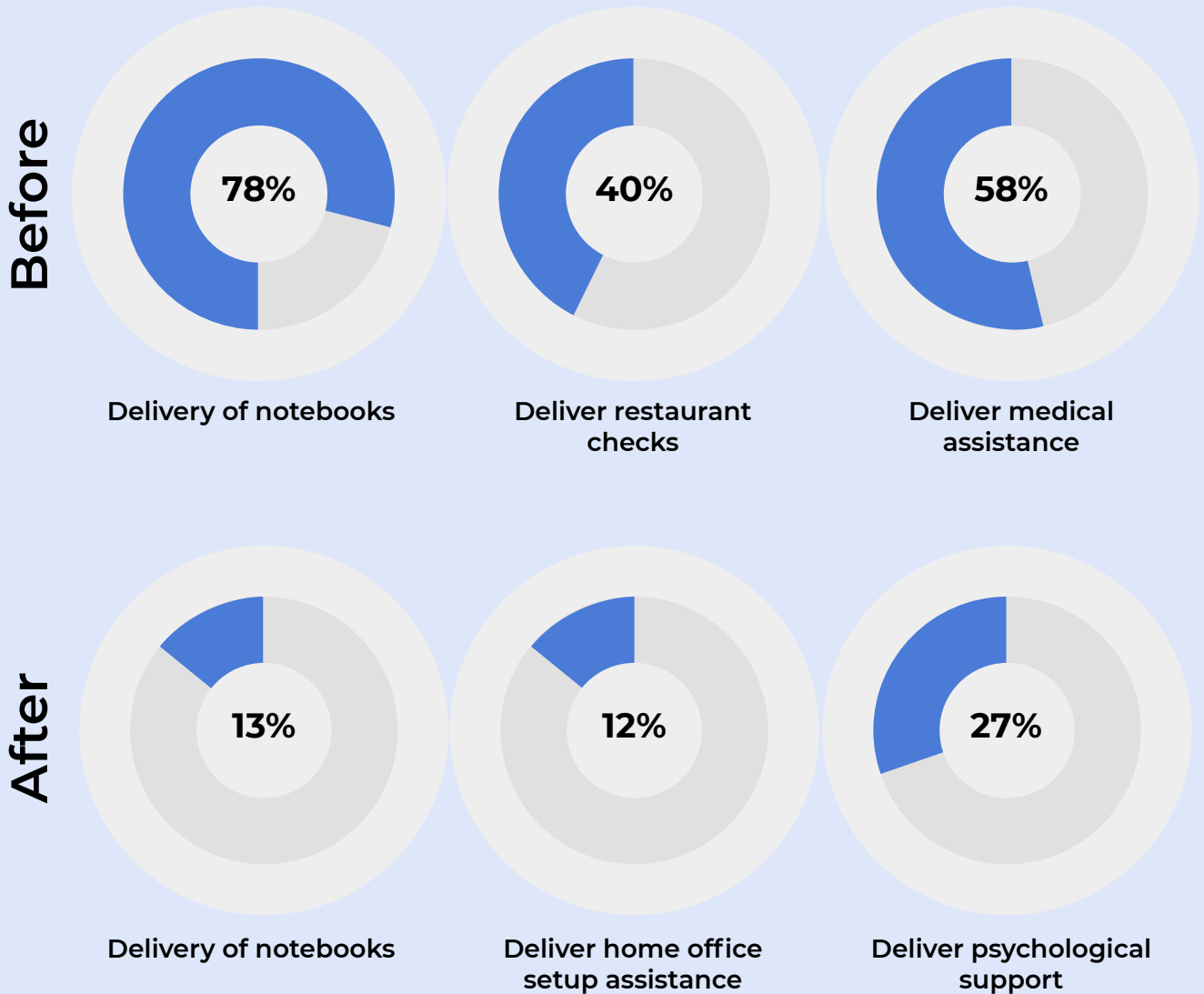
Both the hybrid model and the remote "plus" model allows you not to miss the activities that should be practical.

4. Hub & Spoke: This consists of the company "expanding with remote offices in other cities or countries to take advantage of local skills," explains Mott.

5. Quality time: This model prioritizes the quality of production, no matter if the employees work more or fewer hours, what matters is that the time is productive.

b) Legislation towards teleworking: On March 26, 2020, the National Congress approved Law 21.220. This consists of the modification of the Labor Code in the area of distance work. It adds a chapter that mentions teleworking since it does not imply a reduction in the rights that the law recognizes for workers, especially in terms of remuneration.

# According to the recruiting firm, *Robert Half*, workers talk about the support they had *before the pandemic* and *during the pandemic*:

**Before**

**78%**

Delivery of notebooks

**40%**

Deliver restaurant checks

**58%**

Deliver medical assistance

**After**

**13%**

Delivery of notebooks

**12%**

Deliver home office setup assistance

**27%**
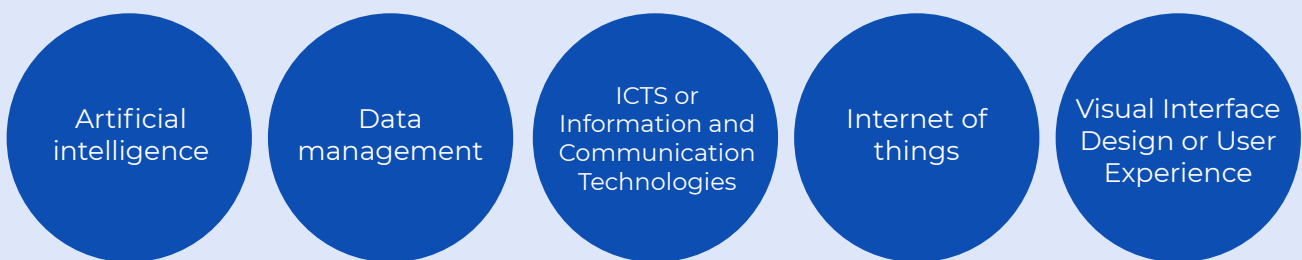
Deliver psychological support

Data collected by Sochergo and the University of Concepción show that 65% of the workers say they are unable to respect the working hours, since domestic activities, headquarters, colleagues, students, or customers do not respect the rest times.

c) Technological skills: The digital age. The world is advancing and technology is taking a big part day by day, from simple tasks like setting up an alarm on your cell phone, to more complex use like working collaboratively with colleagues around the world, using cloud platforms.

The use of these tools becomes indispensable, especially for the labor area, where "more than 50% of Chilean companies have been involved in some automation initiative, with very diverse results. Among them we should highlight the most used technologies such as RPAs (Robotic Process Automation) and cognitive agents, among others," says Mario Toledo, head of business consulting at Everis Chile.

This digital growth of the labor world gives room to the search of workers, with an exit profile, which contemplates the use and management of technological tools, which are:

- **Artificial intelligence**
- **Data management**
- **ICTS or Information and Communication Technologies**
- **Internet of things**
- **Visual Interface Design or User Experience**

Which jobs will be part of the past and which ones are part of the future? Automation puts an average of 42% of jobs in Chile at risk. This means that more than 1 million jobs will be replaced by autonomous machines and systems, according to a study by Clapes UC, published in CNN Chile.

The most affected industries will be those that have routine and mechanical processes, jobs such as public transportation, where there are already advances in cars with an autonomous management, and also call center services, since some organizations are implementing virtual assistance. Also, services such as bank tellers, supermarket tellers, and store tellers have been added after Amazon Go launched its first supermarket without tellers. But, just as some jobs will disappear, others will prosper thanks to these digital trends. As they incorporate technological skills into their exit profiles, it will be essential to their promising job future.

It is projected that by 2023, robotics will have great participation in areas such as logistics, medicine, inspection, and maintenance, among others. This list corresponds to IFR.

d) Core skills or soft skills: The world of work is not only moving in the technological field, the human factor is key for decision making because they are tasks that the Artificial Intelligence systems cannot yet achieve.

Collective intelligence and conversational leadership, the need for organizations to find leaders who manage these skills. On the following page, Catalina Román and Francisco Plaza, two graduates from the Civil Industrial Engineering career of the University of Santiago de Chile, bring an article on this subject.

## Did you know…?

The jobs that could disappear are: tollbooth operators, bank administrators, documentalists, call center operators, printers, and the jobs that will resist the era of the robot are: basic education professionals, mental health professionals, artists, judges.

# Collective intelligence and conversational leadership
by Catalina Román and Francisco Plaza

by Catalina Román and Francisco Plaza

## *An essential combination in complex moments*

In different educational and job levels teamwork is encouraged and valued, understanding this as a group of individuals whit a common goal, who collaborate in the performance of different tasks to achieve that gold. For this group, to be considered a work team, it is necessary that the members to be considerate as members of the same and perceived themselves as a unity different from the others, along to develop rules and norms that regulate the interaction between them.

The use of this work form brings a series of benefits, both to the organization and to the individuals, and we cannot separate one from the other as seen in table 1.

| Organization | Individual |
| --- | --- |
| · Higher productivity<br>· More effective communication<br>· Greater commitment to the goals<br>· The teams are flexible<br>· Improves working environment<br>· Higher success rate at complex tasks<br>· Eases direction, control and supervision<br>· Gives his members a new social dimension<br>· Eases coordination<br>· Improves satisfaction | · Satisfy need of affiliation<br>· Increases personal satisfaction<br>· Eases personal and professional development<br>· Stimulates creativity and innovation |

Thus, according to the previous definition, teamwork, can be understand as tasks realized by a group of people to achieve a common goal, but among all the possibilities there is a key resource that highlight by its impact potential.

As stated in "Comunidad Empresas de Entel" publication, in simple words, the collective intelligence it is defined as the dynamic inside a company where the team members give them opinions and knowledge that feeds all work processes and where each person gives a teaching to the team that allows, at short term, become in a self-managed group able to adapt to changing environments (Entel s.f.). That is to say, collective intelligence can be understood as the process that combine intelligence, knowledge and opinions from the team members, in order to obtain a greater variety against a situation or problem. This sum of knowledge is what allows to companies innovate, having a better adjust to real environments and grow to a higher rate.

To encouraged this kind of intelligence inside a company, several factors must be into account, according to HRTrends article. In first place it is necessary an environment where is possible to develop an agile communication. Also, it is essential that the people who share their knowledge have different positions and professions so they can diversify the ideas. Along with the above, it is decisive that when they share their ideas, all of them are on the same level, leaving out hierarchies, where a key factor is that the leader will not have all the answers. And finally, it is important to encouraged and reward all the attitudes related to collaboration and cooperation.

Having already knowledge about what collective intelligence is, you can have a first approach to what conversational leadership is. It is important take into account this kind of leadership when facing complex situations, due to it has a goal to facilitate learning processes and getting favorable outcomes through intentional use of conversations. The above, it turns out since the paradigm perceive this as the means to relate and share different visions and experiences of the systems members, and thus being able to innovate and solve different problems.

At this point you can see the link, very direct, between conversational leadership and collective intelligence, since this form seeks to grow, quite direct, this kind of intelligence, since there is no individual conversation, it requires more than a participant to be able to enrich them. This do not happen by chance, since it is trough collective intelligence what looks to increase the variety of controlling instance, on the other hand, the conversational leadership seeks to reduce the complexity, and as it is mentioned in Ashby´s law "only variety absorbs variety", this is, the regulating system must be at least the same variety that the system regulated in order to regulate and being able to react in front of various disturbances of varying complexity.

In order to land this concepts from the theory, the practice of Design Thinking can be mentioned as a methodology that is used by several organizations with the purpose of seizing the members ability to find novel solutions, as main characteristics we can find that it considers the emotional states of the users against a problem, allows the redefinition of the problem noticing that this can evolve according to the develop of methodology, besides it is essential to integrate the whole team work capacity allowing the contribution´s members be from each one´s skills and specialty creating a limitless environment with the purpose of collect every idea that may emerge.

It is because of what was mentioned before throughout this paper, that it arises that in actual times, the future engineers and those already in the laboral work, must be instructed to leave their comfort zone and the traditional methodologies not relevant for any kind of problem and open up to conversation and a cross interaction in a multidisciplinary way. The above, in order to integrate different points of view that may enriched the solutions to problems, specially considering all of the challenges that a XXI century pandemic brings, where evolution is exponential and the social, cultural and intellectual gap are still considerable.

# Woman in *charge*

Communication, organization and negotiation, multitasking, commitment and recursive are abilities that open an entire set of worldwide work opportunities to women.

Recent studies of The **McKinsey Global Institute** conclude that if women play the same role as men in the worldwide work field, they could increase in US$28000 million to the worldwide GDP (Gross domestic product) per year by 2025. This study evidences the important role of women in the worldwide labour field.

Countries with higher **women** participation in the parliament of *South America, Caribbean* and *the Iberian peninsula* in contrast to **Chile** in 2019:

| Cuba | Bolivia | Mexico | **Chile** |
|------|---------|--------|-----------|
| 53.2% | 53.1% | 48.2% | 22% |
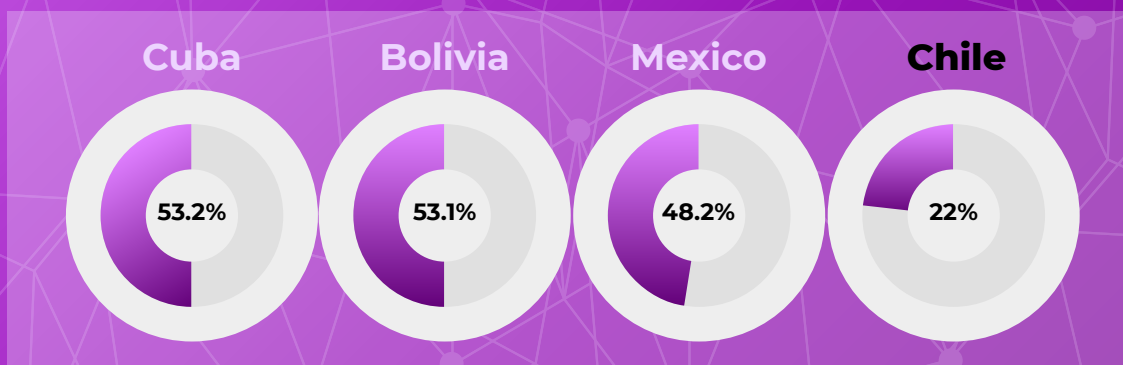
46% of more workload with telework; 92% of Chilean women also have to clean the house and cook while they work.

Women only earn between 60 and 70 per cent of a man's whole salary.

Only 36.8% of Chilean women belongs to STEMM area.

The Impostor Syndrome is when we believe that all of our achievements are because of a period of luck and not due to our intelligence.

Build up yourself with *courage* and be a **woman in charge**!

Sources: OIG CEPAL, uchile, unwomen, bcc, scielo

# Colloquium

# XXXVIII

In the XXXVII edition of "Coloquios del Laboratorio de Emprendimiento Organizacional" of Universidad de Santiago de Chile, has been received through two talking cycles the opinion that is had about the transversal theme Quality University Teleducation, this point of view comes from the professor Ninoska Huaiquinao, the engineer Estefanía Barraza, and from the journalist Fernando Paulsen.

Ninoska Huaiquinao teacher of Basic General Education (primary) Master in Research and Educational Change from the University de Barcelona

Estefanía Barraza Industrial Civil Engineer and Master in Engineering Sciences from the University of Santiago de Chile

Fernando Paulsen journalist from the Pontificic Cathotlic University of Chile and Master in public administration of the University of Harvard

Ninoska Huaiquinao answers this question from Revista-Leo team: According to your knowledge an experience in pedagogy, Hoy would you define a quality education? Do you think that classroom education is replaceable by a virtual education?

She talks from her pedagogy perspective that the definition of quality education "depends of the concept of education that every society has or as every educational institution conceives education". The expert points out that "if education has as an only goal the intellectual and cognitive develop, the educational quality will be reflected" mentioning that "the virtual could replace the face-to-face due to train for tests it is something relatively easy", on the other hand, "if our concept of education it is understood as an integral develop of those who are educated, considering in addition to the cognitive, the emotional, the physical, the ethics among others, the virtual could never, in any case, replace presence due to there are process aspects that cannot be done though a screen with the depth required".

First day

Second day

In the first day of the colloquium, the expert gave her position about what has meant the implementation of this emergency educational modality, the challenges that has brought as both teachers and students and the tools that allows a better interaction between students and teachers during virtual classes. Estefania, from her engineering point of view, talks about the different MOOC platforms that not only contributes to the democratization of education but also to other areas who are developing in a virtual environment such as teleworking.

During the second day, Fernando Paulsen points out the teleducation can overcome some infrastructure and physical distancing problems that are presents in a presence educational environment, it lacks empirical value and it is unidimensional since it only takes care about delivering content, measure and evaluate, losing human dynamic that only appears when there is a group of people. In addition to considering the important role that education professionals play, and how important it is its continuous training regarding technological tools.

# Symposium

# XXXVIII

In this XXVIII edition of the symposium, its cross theme is the quality of university teleducation, where three speakers, who perform in different professional areas, and two civil engineering students from Universidad de Santiago, will brings us their perspectives in order to reflect and produce a critical thinking in the audience in pursuit of improving online education mode.

Iván Ramos Sánchez Soto, Math y Physics professor, PhD. In Science Teaching, he is currently de physics department of Universidad del Bio Bio. Ivan will perform January 19th to talk about "Teacher and student role in online education" and also about "University didactics in virtual environments".

Federico Borges Sáiz, bachelor degree in English philology, Master in society of information, he is currently an associated professor in the English and linguistics department in Universitat de Lleida, Spain. Federico will perform in January 19th to talk about "Online student´s frustrations: causes and preventive actions".

Carolina Alejandra Becerra Sepulveda, PhD. In educational science, mention interculturality, she is currently a professor in the career of pedagogy in differential education of the Universidad Mayor. She will perform in January 20th to talk about "inclusive teleducation" addressing issues as "ways to facilitate learning to adjust to a new educational/working environment".

Cristian Saavedra Bastías, bachelor degree in Social sciences, Master in Educational psychology, he will perform January 20th to talk about "Impact of university teleducation In the learning process, social relationships and mental health in pandemic times".

# Briefcase of applied knowledge

In the ''Briefcase of applied knowledge'' five lines of research were formulated under the methodology of the Organizational Engieneering Projects develoment model, CDIP+M (Conception, Design, Implementation, Operation and Management). Investigations in which the multiple problems that arise in the context of Quality Teleducation can be visualized. With the primary objective of contribuiting to the university community by generating knowledge from the matrix of five investigations developed by the members. The topics that were investigated in these lines of research were:

''Emotionality in the work, family and work context for the develoment of teleducation.''
''Educative Inclution: Digital Age''
''The impact of the Teleducation on the Health and Wellness of the Educational Comunity''
Details on the uses of software and methodologies to bring quality education to the Educational Comunity.
Teaching strategies that can be implemented in order to motivate the disposition of the students on clases.

Topics whose contents search for a solution or a path that leads to a solution that can be plausible to be implemented on the current university education systems in order to resolve the problems that the on-line clases brings.

After the presentation, evaluation and compilation of the different evaluations made by the educational community (Students and Teachers) it has been decided to define as the best evaluated research the one carried out by Mrs. Fernanda Osorio and Florencia Salas with the theme of ''Educational Inclustion: Digital Age''. Which by way of presentation of said research has the following explanatory summary:

This line of research was inspired by the multiple difficulties that people with reduced abilities have to educate themselves. These inconveniences that have been enhanced by changes in the educational modality (from face-to-face to online), all in the context of the pandemic caused by COVID-19. It focused on the three most prevalent disabilities in Chile, these being motor, visual and hearing disabilities.

The bases for the solutions to be implemented are mainly focused on four improvement proposals for teleducation. In the first place, it is believed that it is the absolute responsibility of the educational institutions and corresponding governmental entities, to take charge of the new formation policies to be developed. Second, these must arise from people with disabilities themselves, allowing them an active rol in all stages of the policies that are being implemented. Third, a new culture of the teaching profession must be committed, always from an inclusive perspective. And lastly, to ensure accessibility to information in order to create equal conditions to all students.

# Final words

The health crisis shook our lives completely. Family hugs, conversations with friends, school attendance, and many other things were replaced by the screen, which on many occasions we felt the sense of humanity being lost but knew that all this meant something important: safeguarding the health of our loved ones.

Distance education? Most of our professors at the Universidad de Santiago de Chile were used to conducting their classes in front of the blackboard but, due to the contingency, many of them had to adapt to this new digitized world, which on many occasions meant mental and physical exhaustion, more time to prepare their classes and much more time in front of the screen, which not everyone was used to until before the pandemic.

This modality also affected us students, who were also subjected to physical and mental exhaustion, who also spent more time on the computer reading, studying much more than in normal period, who also had to do household chores, taking care of our brothers or a relative.

As the manager of LEO magazine and a student, I would like to say that this hard work was a great challenge for each of the participants, both for the teachers and the students since not having the financing to pay for it meant a greater demand on our time to get interviewees and collaborators. However, with effort, dedication, commitment, and many hours of conversation, we were able to develop and converge ideas to be reflected in this quality work.

First of all, I would like to thank professors Tamara Wong and José Miguel Araya for the important commitment they have with their students, often sacrificing hours of sleep, rest, and family time to attend to our doubts, to give us feedback, and to suggest ideas that will allow us to better guide our work. I would also like to thank the Fomento team for their significant work and for providing us with an excellent journalistic team, who accompanied us and gave us feedback during this great challenge; the Communication and Multimedia team, Colloquiums, and Knowledge Briefcase for their constant support and for providing us with useful material.

I want to show deep gratitude to all our interviewees from the health area, Gloria Zavala, Sylvia Cruchet and Ronny Silvestre, and from the Universidad de Santiago de Chile, Julio Romero, Luis Quezada, and Carlos Pinto, Beatriz Painepán, María Eugenia Villarreal, Patricia Pérez, who welcomed us with very goodwill and gave us their limited time to help us in the elaboration of our reports.

Finally, I would like to proudly thank the body of LEO Magazine composed by Juan José Arenas, Catalina Armijo, Ignacio Castañeda, Mauricio Catalán, Erich Furkert, Álvaro Huerta, Fernanda Ibarra, Jorge Ilabaca, Vicente López, and Juan Miranda, a committed and dedicated team, a multidisciplinary team that showed they had the skills and competencies needed for this work, despite mental exhaustion, never giving up or neglecting their responsibilities at the magazine.

To all of them, **thank you so muck**.

*Alejandra Lagos, Manager of OEL Magazine XXXVIII*

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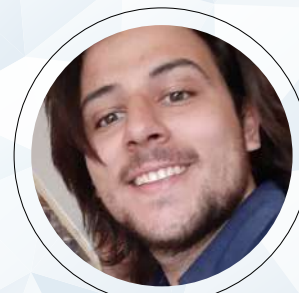*Journalist*

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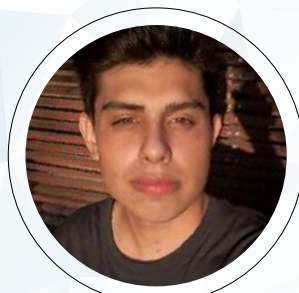
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**References**

El País. (2020). Así es el futuro de la educación universitaria. enero 12, 2021, de El País Sitio web:
https://elpais.com/sociedad/ve-mas-alla/2020-07-24/asi-es-el-futuro-de-la-educacion-universitaria.html

Universidad de Chile. (2020). Académicos proponen al Mineduc currículum de emergencia por dos años. enero 12, 2021, de Universidad de Chile Sitio web:
https://www.uchile.cl/noticias/163074/academicos-proponen-al-mineduc-curriculum-de-emergencia-por-dos-anos

Ministerio de Educación. (2020). Coronavirus: Ministerio de Educación activa plan de acción para instituciones de Educación Superior. enero 12, 2021, de Ministerio de Educación Sitio web:
https://www.mineduc.cl/mineduc-activa-plan-de-accion-para-instituciones-de-educacion-superior/

Fajardo, M. (2020). Expertos analizaron debilidades de educación a distancia y coinciden en que "no estamos preparados". enero 12, 2021, de El Mostrador Sitio web:
https://www.elmostrador.cl/cultura/2020/03/30/educacion-a-distancia-para-millones-en-plena-crisis-sanitaria-expertos-advierten-que-no-estamos-preparados/#:~:text=Chile%20no%20est%C3%A1%20preparado%20para,superior%E2%80%93%20en%20tiempos%20del%20coronavirus.&text=A%20eso%20se%20suman%20problemas,f%C3%ADsica%2C%20qu%C3%ADmica%20o%20educaci%C3%B3n%20f%C3%ADsica.

Subsecretaría de Telecomunicaciones. (2020). Ranking Reclamos SERNAC-SUBTEL: Un 85% aumentaron los reclamos en el mercado de las telecomunicaciones. enero 12, 2021, de Subsecretaría de Telecomunicaciones Sitio web:
https://www.subtel.gob.cl/ranking-reclamos-sernac-subtel-un-85-aumentaron-los-reclamos-en-el-mercado-de-las-telecomunicaciones/

64% de las empresas está probando herramientas de automatización en América Latina. (2020, 16 junio). everis Chile.
https://www.everis.com/chile/es/news/newsroom/estudio-64-de-las-empresas-esta-probando-herramientas-de-automatizacion-en-america

75% de los trabajadores chilenos ve el teletrabajo como una nueva forma laboral y no como un beneficio. (2020, 24 agosto). DUPLOS.
https://www.duplos.cl/75-de-los-trabajadores-chilenos-ve-el-teletrabajo-como-una-nueva-forma-laboral-y-no-como-un-beneficio/

Boletín estadístico: INFORMALIDAD LABORAL. (2020).
https://www.ine.cl/docs/default-source/informalidad-y-condiciones-laborales/boletines/2020/bolet%C3%ADn-informalidad-laboral-trimestre-julio-septiembre-2020.pdf?sfvrsn=7971cc97_7

Casi un 90% de las personas que han comprado por Internet durante la pandemia admiten haber tenido problemas - Portal SERNAC. (2020). SERNAC: Noticias.
https://www.sernac.cl/portal/604/w3-article-58609.html

Chileatiende - Ley de Trabajo a Distancia y Teletrabajo. (2020). ChileAtiende.
https://www.chileatiende.gob.cl/fichas/77354-ley-trabajo-a-distancia-y-teletrabajo

Conozca la realidad del teletrabajo en Chile. (2020, 29 agosto). Diario Concepción.
https://www.diarioconcepcion.cl/ciudad/2020/08/29/conozca-la-realidad-del-teletrabajo-en-chile.html

Coronavirus: ¿cómo será el mundo laboral después de la pandemia y qué habilidades se necesitarán? (2020, 7 noviembre). BBC News Mundo. https://www.bbc.com/mundo/noticias-54668226

Coronavirus y teletrabajo: 5 modelos de «oficina del futuro» que están emergiendo gracias a la pandemia. (2020, 4 octubre). BBC News Mundo. https://www.bbc.com/mundo/noticias-54356853

¿Cuándo no se considera trabajo a distancia o teletrabajo? (2020). Dirección del Trabajo. https://www.dt.gob.cl/portal/1628/w3-article-118652.html

Ecommerce crece un 150% en la pandemia: el desafío pendiente en los medios de pago. (2020, 19 junio). Revisa Emprende. https://revistaemprende.cl/ecommerce-crece-un-150-en-la-pandemia-el-desafio-pendiente-en-los-medios-de-pago/

Estudio en Chile: El 95% de las empresas ha implementado teletrabajo. (s. f.). InvestChile. http://blog.investchile.gob.cl/bloges/estudio-en-chile-el-95-de-las-empresas-ha-implementado-teletrabajo

Futuro laboral: las habilidades más valoradas por las empresas. (s. f.). DRAI UC. https://capacitacion.uc.cl/articulos/77-futuro-laboral-las-habilidades-mas-valoradas-por-las-empresas

Gobierno presenta presupuesto de salud por más de 9 mil millones de pesos. (s. f.). Ministerio de Salud – Gobierno de Chile. https://www.minsal.cl/gobierno-presenta-presupuesto-de-salud-por-mas-de-9-mil-millones-de-pesos/

Informe económico. (2019). https://www.ecommerceccs.cl/wp-content/uploads/2020/03/Ventas-eCommerce-2019-VF.pdf

La pandemia impulsa la automatización y la robótica. (2020, 20 octubre). Nuevo Periodico. https://nuevoperiodico.com/la-pandemia-impulsa-la-automatizacion-y-la-robotica/

Las 10 ramas tecnológicas con más ofertas de trabajo. (2018, 7 noviembre). EL PAÍS. https://webcache.googleusercontent.com/search?q=cache:hCmYwQcpzq0J:https://elpais.com/tecnologia/2018/11/06/actualidad/1541513949_902481.html+&cd=2&hl=es&ct=clnk&gl=cl

Ley-21220 26-MAR-2020 MINISTERIO DEL TRABAJO Y PREVISIÃN SOCIAL (Biblioteca del Congreso | Ley Chile). (2020, 1 abril). Biblioteca del Congreso Nacional de Chile. https://www.bcn.cl/leychile/navegar?idNorma=1143741

Los países ya están actuando. (2020, 19 marzo). Organización Internacional del Trabajo. https://www.ilo.org/global/topics/coronavirus/impacts-and-responses/WCMS_739405/lang--es/index.htm

Más de un millón de empleos están con alto riesgo de automatización en Chile. (2019). CNN. https://edition.cnn.com/economia/empleos-alto-riesgo-automatizacion-chile_20190703/

Modificaciones a la Ley de Protección al Empleo comienzan a regir este lunes. (2020, 1 junio). Edig. https://edig.cl/2020/06/01/modificaciones-a-la-ley-de-proteccion-al-empleo-comienzan-a-regir-este-lunes/

Tendencias del e-Commerce en Chile. (2020). https://www.ecommerceccs.cl/wp-content/uploads/2020/10/EISummit-glever-presentaci%C3%B3n.pdf

Trabajar desde casa no era lo que imaginábamos: 70% de los teletrabajadores en Chile sufre estrés. (2020, 25 mayo). La Tercera. https://www.latercera.com/que-pasa/noticia/trabajar-desde-casa-no-era-lo-que-imaginabamos-70-de-los-teletrabajadores-en-chile-sufre-estres/AQCAVIMUXFFNPDBTUSV5Q7ZBOI/

Baig, A., Hall, B., Jenkins, P., Lamarre, E., & McCarthy, B. (2020, 14 mayo). The COVID-19 recovery will be digital: A plan for the first 90 days. McKinsey & Company. https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/the-covid-19-recovery-will-be-digital-a-plan-for-the-first-90-days

Ericsson. (2020, noviembre). Ericsson Mobility Report. https://www.ericsson.com/4adc87/assets/local/mobility-report/documents/2020/november-2020-ericsson-mobility-report.pdf

Harvey Nash & KPMG. (2020).  HARVEY NASH / KPMG CIO SURVEY 2020 EVERYTHING CHANGED. OR DID IT? https://home.kpmg/xx/en/home/insights/2020/09/harvey-nash-kpmg-cio-survey-2020-everything-changed-or-did-it.html

IBM. (2020). COVID-19 y el futuro de los negocios. https://www.ibm.com/downloads/cas/PLM1DROQ

Igor, PoE Technology. (2020, 9 enero). PoE Technology Created Better Classroom Learning Environment [Vídeo]. YouTube. https://www.youtube.com/watch?v=JN22dqTa8Mw&feature=youtu.be

Tuomi, I. (2020, mayo). The use of Artificial Intelligence (AI) in education. https://research4committees.blog/2020/09/07/the-use-of-artificial-intelligence-ai-in-education/

Gallo, C. (2020, 8 julio). Los desafíos en materia de salud mental que deja la pandemia en América Latina. France 24. https://www.france24.com/es/20200708-america-latina-salud-mental-pandemia

Departamento de Información Pública de las Naciones Unidas. (2020, 13 octubre). 2020: Un año desafiante para la salud mental. Noticias ONU. https://news.un.org/es/story/2020/10/1482212

Cadem. (2019, julio). EL CHILE QUE VIENE - SALUD JULIO 2019. https://www.cadem.cl/wp-content/uploads/2019/08/Chile-que-viene-Junio-2019_Salud_VF.pdf

Cadem. (2020, septiembre). EL CHILE QUE VIENE - DIFERENCIAS DE GÉNERO FRENTE A LA CRISIS COVID-19 SEPTIEMBRE 2020. https://www.cadem.cl/wp-content/uploads/2020/09/Chile-que-Viene-Sept-2020.pdf

Cadem. (2020a, junio). Encuesta Plaza Pública - Cuarta semana de Junio (N.o 337). https://www.cadem.cl/wp-content/uploads/2020/06/Track-PP-337-Junio-S4.pdf

infobae. (2020, 13 agosto). Secuelas mentales de la cuarentena: la ansiedad y la incertidumbre afectan cada vez más a la sociedad. https://www.infobae.com/salud/2020/08/13/secuelas-mentales-de-la-cuarentena-la-ansiedad-y-la-incertidumbre-afectan-cada-vez-mas-a-la-sociedad/

La Tercera. (2020, 24 diciembre). Llega a Chile el primer cargamento de vacunas contra el Covid-19 y son entregadas al laboratorio Perilogistics para su almacenamiento. La Tercera. https://www.latercera.com/nacional/noticia/chile-recibe-el-primer-cargamento-de-vacunas-contra-el-covid-19/EHBSDMYF4FFEFALMLUN6DS2EVM/

https://www.pexels.com/es-es

Fuentes, A. (2020, 15 junio). Violencia de género: la pandemia que viven las mujeres en cuarentena. Pontificia Universidad Católica de Chile. https://www.uc.cl/noticias/violencia-de-genero-la-pandemia-que-viven-las-mujeres-en-cuarentena/

Bellei, C. y Muñoz, G. (2020, 8 abril). La casa no es una escuela: propuestas de política educativa en tiempos de pandemia – CIPER Chile. CiperChile. https://www.ciperchile.cl/2020/04/08/la-casa-no-es-una-escuela-propuestas-de-politica-educativa-en-tiempos-de-pandemia/

Guarello, M. y González, T. (2020, 29 septiembre). El colapso de los contextos en la tele-educación. Chile Científico. https://chilecientifico.com/el-colapso-de-los-contextos-en-la-tele-educacion-desafios-en-el-aula-virtual/

Mutual de Seguridad CChC. (s. f.). Recomendaciones ambientales para puestos administrativos [Ficha de apoyo preventivo]. mutual.cl. https://www.mutual.cl/Portals/0/mspyme/doc/Recomendaciones_ambientales.pdf

BBC News Mundo. (2018, 21 diciembre). 5 formas en que el estrés afecta a tu cuerpo. https://www.bbc.com/mundo/noticias-46650460

Carvajal G., C. (2020, 2 diciembre). Panorama 2020: FAO llama a los gobiernos a priorizar inversión en territorios rurales para frenar el hambre. diario Uchile. https://radio.uchile.cl/2020/12/02/panorama-2020-fao-llama-a-los-gobiernos-a-priorizar-inversion-en-territorios-rurales-para-frenar-el-hambre/

Navarro, E. R. D. L. Y. D. (2020, 8 agosto). Chile tiene hambre. radio Uchile. https://radio.uchile.cl/2020/08/08/chile-tiene-hambre/
Emol. (2019, 12 octubre). Chile lidera por primera vez ranking de la OCDE de países con más sobrepeso y obesidad Fuente: Emol.com - https://www.emol.com/noticias/Nacional/2019/10/12/964126/Chile-lidera-obesidad-OCDE.html. emol.com.

CLUBS DIR. (2018, 21 noviembre). ¿Qué sucede en nuestro cerebro cuando hacemos ejercicio... El blog del DiR. https://www.dir.cat/blog/es/que-sucede-en-cerebro-cuando-hacemos-ejercicio-fisico/#:%7E:text=Cuando%20hacemos%20deporte%20los%20niveles,las%20cosas%20con%20m%C3%A1s%20claridad

VidaySalud.com. (2020, 27 enero). El ejercicio te ayuda a prevenir el estrés y la ansiedad. Vida y Salud. https://www.vidaysalud.com/el-ejercicio-te-ayuda-a-prevenir-el-estres-y-la-ansiedad/

Déficit de vitamina D: Causas, síntomas y tratamiento. (2020, 7 diciembre). Kern Pharma. https://www.kernpharma.com/es/blog/deficit-de-vitamina-d-causas-sintomas-y-tratamiento

JUNAEB. (2020, 3 marzo). Junaeb y MDS dan a conocer resultados del Mapa Nutricional 2019, donde arroja aumento de obesidad severa en estudiantes. https://www.junaeb.cl/archivos/45307

Jardines, F. (2009). Desarrollo histórico de la educación a distancia. InnOvaciOnes de NegOciOs, 6(2). Recuperado de  http://eprints.uanl.mx/12521/1/A5.pdf

Yong, E., Nagles, N., Mejía, C. & Chaparro, C. (2017). Evolución de la educación superior a distancia: desafíos y oportunidades para su gestión. Revista Virtual Universidad Católica del Norte, 50, 80-105. Recuperado de http://revistavirtual.ucn.edu.co/index.php/RevistaUCN/article/view/814/1332

Azcorra Saloña, A., Bernardos Cano, C., Gallego Gómez, O., & Soto Campos, I. (2001, enero). Estado de la teleeducación en España. Recuperado de http://www.it.uc3m.es/azcorra/papers/2001_Informe_de_la_AUI_sobre_el_estado_de_la_teleeducacion_en_Espana.pdf

GCF Global (s.f.). Educación virtual: ¿Qué es la educación virtual?. GCFGlobal.org. Recuperado de https://edu.gcfglobal.org/es/educacion-virtual/que-es-la-educacion-virtual/1/

Servicio Nacional del Consumidor & Subsecretaría de Telecomunicaciones. (2015, noviembre). Ranking de Reclamos Telecomunicaciones. Recuperado de https://www.sernac.cl/portal/618/articles-4538_archivo_01.pdf

Galeano, S. (2020, 31 enero). El número de usuarios de Internet en el mundo crece un 7% y alcanza los 4.540 millones (2020). Marketing 4 Ecommerce - Tu revista de marketing online para e-commerce. Recuperado de https://marketing4ecommerce.net/usuarios-internet-mundo/#:%7E:text=Mientras%20que%20en%20su%20informe,%2C%20una%20penetraci%C3%B3n%20del%2057%25

Hn, C. (2020, 10 diciembre). Estudio arrojó que existen 14,8 millones de usuarios de Internet en Chile. Hosting Rápido con cPanel y certificado SSL en Chile | Hostname. Recuperado de https://www.hn.cl/blog/estudio-arrojo-que-existen-14-millones-de-usuarios-de-internet-en-chile/#:%7E:text=Un%20estudio%20de%20interacci%C3%B3n%20digital,total%20de%2014%2C8%20millones

Barredo, Á. (2018, 30 noviembre). Cómo funcionará el Internet gratuito por satélite en todo el mundo. La Vanguardia. Recuperado de https://www.lavanguardia.com/tecnologia/20181130/453233959370/starlink-cubesats-internet-salite-global.html

Campaña, X. (2020, 20 mayo). La pandemia de COVID-19 ha cambiado la educación para siempre. ITConsultors. Recuperado de https://www.itconsultors.com/la-pandemia-de-covid-19-ha-cambiado-la-educacion-para-siempre

Rodriguez, A (2020, 20 abril) Zoom: La plataforma líder para la educación online en medio de la cuarentena por Coronavirus - Noticias LC Mundo. (2020, 20 abril). Agencia de estudios en el extranjero - LC Mundo. Recuperado de https://www.lcmundo.com/noticias/detail/31/zoom-la-plataforma-lider-para-la-educacion-online-en-medio-de-la-cuarentena-por-coronavirus/

Costa, P., Celis, K., Castillo-Valenzuela, N., & Espinoza, G. (2019). Análisis de la implementación institucional de la modalidad b-learning en carreras de pregrado de tres universidades chilenas. Calidad en la Educación, (50), 216-255. Recuperado de doi:https://doi.org/10.31619/caledu.n50.722

Martinez, J. (2019, 16 abril). Educación superior en línea: ¿qué tan atrasado está Chile? MBA & Educación Ejecutiva | MBA & Educación Ejecutiva - AméricaEconomía. Recuperado de https://mba.americaeconomia.com/articulos/reportajes/educacion-superior-en-linea-que-tan-atrasado-esta-chile

24horas.cl. (2020, 28 mayo). La historia de la joven que debe subir al techo para conectarse y estudiar en La Araucanía. Recuperado de https://www.24horas.cl/coronavirus/la-historia-de-la-joven-que-debe-subir-al-techo-para-tener-mejor-internet-y-estudiar-4210497

Vicerrectoría de Apoyo al Estudiante. (2020). Unidad de Promoción de la Salud Psicológica. Recuperado de http://www.vrae.usach.cl/unidad-de-promocion-de-la-salud-psicologica

Zolezzi, J. M. (2020, 12 agosto). Comunicado Rector [A la Comunidad Universitaria"]. usach.cl. https://www.usach.cl/sites/default/files/field/uploaded_files/Comunicado%20Rector%20mie%CC%81.%2C%2012%20ago.%2014-34%20-convertido.pdf

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