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Emergency Remote Education Amid COVID-19 Pandemic

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Abstract

The COVID-19 health emergency has created an unprecedented crisis in many areas. In education, it caused the suspension of face-to-face classes at all educational levels to prevent the spread of the virus and mitigate its impact. In extraordinary circumstances, such as those faced since 2020, the governments and the corresponding educational authorities found it necessary to apply strategies that would allow continuity to the learning processes remotely, causing a series of changes. The teacher, for example, required a transformation in his/her role as part of the social isolation demanded by the pandemic, for which it should be noted, he/she was not prepared; compelling him/her to act mainly as a mediator in the teaching-learning processes, and rely on the use of technology as an educational resource. Therefore, given the particularities of the current context and the conditions required for students to adapt themselves to the challenges to come, the education needs to be structured according to the four pillars raised by Jaques Delors at the end of the last century; but from a different approach; which will be addressed through the next chapter.

Keywords: LMS platforms, canvas network, learning analytics, canvas learning analytics, academic development, academic performance

1. Introduction

The World Health Organization (WHO), on December 31, 2019, notified the outbreak of a new strain of coronavirus disease (COVID-19) in Wuhan, China [1]. The speed of spread of this infectious disease meant that a large part of the countries halted activities in both the public and private sectors and transferred them remotely.

Due to the very different strategies of facilitating learning remotely and without having teachers prepared to face this type of contingency, a new concept called Emergency Remote Education (ERE) was coined. According to Hodges et al. [2], ERE is a temporary and abrupt change in pedagogy due to crisis circumstances, involving the use of totally remote teaching solutions for instruction that would otherwise be taught in person or as combined or hybrid courses and that will return to that format once the emergency has subsided.

As a result of this extraordinary action, the work dynamics in the educational system have been modified to ensure that the curricular contents reach the entire school population. For which, home instruction has been taken as an emergent measure through the use of Information and Communication Technologies (ICT), diversifying their use.

2. Content

In this way, students have at their disposal a wide range of environments and tools from which they can draw during the educational process. So, today more than ever, learning must be flexible and adaptive. However, it must be remembered that the use of media does not guarantee the construction of knowledge, it is the activities designed to promote it that mark a differentiating point. Therefore, it becomes necessary to take into account the different learning styles that may be present in this type of educational environment, which are mainly based on sensory perceptions.

It must be remembered that sensory perceptions work as a function of the basic representational systems of neurolinguistic programming. It is important to point out that, although the student's profile must be considered for the planning of the educational process, a general rule cannot be established for the choice of representational systems. Their choice will largely depend on the discipline of study since these resources will serve different types of content depending on the learning objectives to be achieved. Representational systems are part of the VARK Model by Neil Fleming and Collen Mills, whose focus resides on the learner's sensory preference to process information in a simpler way, combining two elements—perception and memory, taking into account the following profiles:

- **Visual:** Better understand the content through visual illustrations, such as images, diagrams, videos, and brochures; since it allows you to relate them to previous ideas or concepts. Take into account shapes, sizes, distances, colors, and other physical characteristics; prefers to take notes.
- **Auditory:** Remember information more easily if it is addressed during an oral explanation. Consider the tone of voice, volume, timbre, pauses, tempo, and other nuances. You learn best through conversation, that is, speaking and listening. He likes to read aloud and use recordings, as a text may have little meaning to him until he hears it.
- **Reader/Writer:** Presents a greater ability to encode and understand messages through texts or readings.
- **Kinesthetic:** Optimally assimilates data through a manipulative approach, examining the physical world around them. It is difficult for him to sit for long periods and is often easily distracted by his need to explore. Be attentive to sensations and movements, which generates deeper learning that is difficult to forget [3].

That is movement, the senses, and even the emotions generated in the individual come into play since in one way or another these elements are involved in how the student internalizes the information. Although the data processing center is the brain, the whole body sends signals of the experiences lived.

To this should be added the student's own capacity for self-management, which translates into self-discipline, self-learning, critical thinking, and reflective analysis. Thus, students require direction to guide their development based on the use of media. Therefore, it will be necessary to promote the use of strategies capable of generating transformative experiences with diverse emphasis, inscribed in practices that allow active participation of the student in their own learning process so that it is authentic and meaningful.

The end is not only the communication or the distribution of the contents in a massive way through the use of different representational systems, but learning and skills development. These competencies will allow the integration of knowledge, skills, attitudes, and values that will train the student in knowing, doing, being and living together; being these basic pillars to achieve integral development in a complex, changing, diverse, and interconnected world like the one we live in today. The intention is that the student can function in various situations and contexts of personal, social, and work-life, where today the use of technology has taken on a highly important role.

This has required the teacher to make use of their digital skills, which were sometimes not well developed. Digital competence, as explained by Callejas et al. [4] "refers to a set of knowledge, capacities and attitudes, necessary to search, obtain and process information, as well as to use it critically and systematically."

The ideal is for teachers to use digital tools appropriately, which implies the development of strategies aimed at improving, expanding, and transforming learning through the combination of spaces, times, and technological resources. The DigComp Model proposes five categories for classifying digital skills:

1. *Navigation and data literacy*: Browse, search, select, analyze, classify, save, retrieve information and useful resources for your teaching procedure.
 - Data browsing, searching, and filtering.
 - Data evaluation.
 - Data management.
2. *Communication and collaboration*: Interact on social networks, establish communication with the group, share information and content of educational interest, participate in educational communities (pedagogical networks, for example), collaborate in a network, follow netiquette, respect the license of use, and manages the digital identity.
 - Interaction in social networks.
 - Share the content of educational interest.
 - Participation in educational communities.
 - Network collaboration.
 - Monitoring of netiquette.
 - Digital identity management.

3. *Creation of digital content*: Create educational content and share it. If required edit, adapt, or modify digital resources or content. Respect copyrights, as well as the corresponding licenses and configure programs or digital tools according to the agreed needs. Development of digital content.

- Integration and adaptation of digital content.
- Copyright and licensing.
- Programming.

4. *Security*: Take care of electronic communication devices, protect data, know privacy policies, use digital tools responsibly, and promote their correct use and the reduction of energy consumption. Device protection.

- Protection of personal data and privacy.
- Protection of health and well-being.
- Environmental protection.

5. *Problem solving*: Detects, identifies, and solves technical problems, and identifies and assigns tools for each declared objective, to meet particular learning needs (skills to be developed). He uses technology in a creative way, identifies both personal digital deficiencies and those present in the group, and seeks solutions to correct them.

- Resolution of technical problems.
- Identification of technological needs.
- Creative use of digital technologies.
- Identification of gaps related to digital skills [5].

Although we can identify a series of changes in education as a result of the health contingency, it must be remembered that the strategies corresponding to an ERE are not the same as those required by face-to-face education, which is why great efforts have been required, both of teachers, as well as students and parents to try to continue with training processes that ensure the acquisition of knowledge that, according to the study plans, should be acquired.

In the ERE, the learning process acquires a high presence and in turn a greater relevance. This is because the student must take a highly active role since he usually has to study alone. For this reason, the means of communication used by the teacher must fulfill a special function, facilitating the presentation of content, and learning resources, so that students do not require constant clarification or interpretation. Today, the environment demands that students be largely autonomous and actively participate in their educational process.

It should be clarified that the ERE is not synonymous with Distance Education (EaD). This last concept represents a planned experience that from the beginning has been conceived and designed through the use of communication media.

The educational process must be structured according to at least four fundamental learnings that in the course of each person's life will be their pillars of knowledge. Depending on its fulfillment, the challenges that the Mexican educational system will have to face in the face of the new global scenarios that this pandemic has brought with it and the current dynamism in science, technology, and knowledge must be recognized; requiring the development of transversal skills aimed at building the four pillars of knowledge that Jacques Delors spoke of.

- *Learning to know*: This is a means and an end of human life. As a means, it consists of learning to understand the world, at least enough to live with dignity, develop professional skills, and communicate with others. As an end, its justification lies in the pleasure of discovering and understanding. This supposes in the first instance the exercise of attention, thought, and memory. This is because the dizzying succession of information from the media threatens the discovery process, which requires a deepening of the information captured for its subsequent permanence.
- *Learning to do*: This notion demands the development of skills that enable the individual's ability to cope with a wide range of situations to be able to influence their own environment. The main purpose is that the student can develop in terms of autonomy, judgment, and personal responsibility.
- *Learning to live together*: It implies achieving values of pluralism, mutual understanding, and peace, to promote the participation and cooperation of individuals in all human activities for the subsequent development of common projects.
- *Learning to be*: This abstraction requires the development and promotion of imagination and creativity in children and young people, as well as their freedom of thought, judgment, and feelings. The intention is to ensure that these develop a comprehensive way so that they can reach fullness [6].

Given that the ERE requires a series of conditions and capacities to enable independent study, it is essential that the teacher provides the student with sufficient materials, information search strategies, examples of the use of technological resources, and the necessary motivation for the student to commit to your own learning. In this sense, the guidance provided by the teacher is very important. This is why the teaching-learning strategies, the preparation of materials, and the evaluation process are elements that should be oriented considering the context and the particularities that this new reality implies. The student can develop her autonomy and the well-designed learning environment enables self-instruction, so study methods play a crucial role. Each student can explore different learning styles through a process of introspection and based on this, look for better alternatives that allow them to enhance the acquisition of knowledge.

Taking into account the changes that the ERE demands in the current educational system, the exchange of experiences among the teaching staff becomes a core element to enrich, correct, and strengthen the dynamics corresponding to the teaching-learning process; particularly in terms of access and use of media, evident in the current digital divides.

Although, many of the schools and educational institutions worldwide have opted for online resources as support instruments; according to the UNESCO Institute for Statistics (UIS) and Teacher Task Force, approximately 50% (826 million) of students

who have been out of class as a result of the pandemic do not have a computer at home, and 43% (706 million) do not have internet access. Some of them (56 million) do not even live in regions served by mobile networks [7].

While, in Mexico, according to the National Survey on the Availability and Use of Information Technologies in Households (ENDUTIH) carried out by the National Institute of Statistics and Geography (INEGI), before the pandemic only 56% of households had fixed or mobile internet connection, 44% had a computer, and only 45% used it as a support tool for school purposes [8].

Considering the existing technological gap in the country, to give continuity with remote learning in basic education, the use of television and radio programs has been used as the main means, being that television was already a medium present in 93% of households [8]. The interest of these broadcasts goes beyond the needs of the students, seeking to provide intergenerational learning where health and emotional well-being issues must be considered [9], mainly with the intention of providing support for the entire population affected by COVID-19. However, the use of these two media as tools for remote teaching delivery has represented a series of challenges for the federal government that go beyond accessibility; highlighting among them:

- The generation of significant content in quantity and quality in such a short period of time.
- The level of competencies required by teachers and students to move from a face-to-face teaching-learning process to a remote one.
- The importance of carrying out an adaptation of the evaluation process.
- The need to provide greater attention to students in situations of vulnerability, since there is a risk of increasing inequalities within the system, generating lag and dropout.
- The very reduction and bureaucratization of the educational messages that the student receives. This is because in face-to-face teaching the teacher not only transmits knowledge but also values and forms of behavior; basic elements to guide the integral development and structuring of the “learning to be” pillar.

Although the use of radio and television has proven to be highly suitable means of addressing the digital divide in the education sector, important questions remain to be reviewed. Therefore, it is necessary to plan on the current reality and the experiences lived, recognizing the need to take into account the lessons learned, reinvent ourselves, and strengthen our educational system in the long term; for which dialog and horizontal participation play a crucial role.

According to Castro et al. [10], “horizontal participation promotes free, responsible, and respectful dialog between the different people who participate, everyone has the possibility to share, raise their ideas, be heard and valued” (p. 39). The emphasis on learning is placed on the quality of the arguments and not on the hierarchical position of the speaker. In this sense, dialog is conceived not only as a communicative act of interaction but intentional actions of all members of the group are crystallized, which are oriented toward the common good.

To adapt the current work methodology to the needs of the present educational context, it is necessary on the part of the teachers and the corresponding managers, a restructuring in terms of leadership. This restoration in terms of leadership derives from the need to achieve the design of best and new practices with an emphasis on dialog and horizontal participation that enables permanent analysis and discussion of the local, national, and international reality.

Teachers have faced great challenges having to transition from a face-to-face education to a remote one in such a short period of time. While, within a classroom, the teacher has the immediacy of communication that allows the creation of close links; in a remote education event, this interaction depends on other elements, such as media availability, connectivity, data transmission speed, and connection quality. This flow of communication, which implies a space–time disparity, generates psychological exhaustion, both in the teacher and the group; particularly because a greater effort is needed to establish communication, to be able to express oneself correctly to transmit the desired message and to be able to understand the other. Therefore, even communication loses spontaneity, requiring prior planning. This, in turn, becomes more complex depending on the level of digital competencies maintained by the group and the parents or guardians in charge of providing support, particularly in the early stages of training, since it represents a core factor in the determination of the learning tools to use and, to a large extent, the success they achieve. Time also plays a crucial role during the interaction, mainly in the resolution of doubts; since there may be a time lag as a consequence of the teacher's schedule and the availability of the technological medium in the home, especially if it is shared among several members of the family.

Children and young people face taking their classes in an environment full of distractions, such as television, food preparation, cleaning the house, and the noise from the interaction between other members of the home; which generates anxiety and emotional disorder. Therefore, teachers have faced the challenge of maintaining student interest through the implementation of mostly interactive dynamics and exercises.

In the understanding that virtuality is now the new reality, at least temporarily; the change of environment where the place has become the classroom is also a factor to consider. The home has become the space where all the activities of the day are carried out, including study, work, leisure, and rest. This change, from the emotional aspect, also denotes being somewhat complex; so, it is an element that must be assumed, understood, and worked on.

The ERE has aroused tensions between students, parents, and teachers. The change generated breaks in routines that demand adaptation to a new reality, from which learning is expected to help improve education through the use of technology. Additionally, to this are added other challenges of comparable importance, in which the classroom can influence to improve education; including:

- **Narrow the current digital divide:** This health contingency has exposed the notable inequalities that the country faces in terms of access and use of media.
- **Promote a relevant motivation:** The isolation or the feeling of loneliness, feelings generated as a result of the pandemic, has caused some children and young people to present symptoms of demotivation.
- **Take advantage of digital resources:** Teachers have had to adapt their work methodology, transferring content to remote-learning environments through the use

of media; to guarantee comprehensive training capable of coping with the social and technological changes present in today's environment.

- Increase socialization: Since confinement has largely isolated us from our family circle, this has had a considerable impact on children in the early stages of formation. So, it becomes necessary to re-educate in collaborative work to find that social cohesion, necessary even in remote-learning environments.
- Reduce early school-leaving rates: Students with the highest risk of dropping out of school are those with whom direct contact has not been established to continue the educational process. In this regard, the United Nations Organization for Education, Science, and Culture (UNESCO) declares that projections worldwide manage to indicate that almost 24 million children and young people from primary to university could drop out of classes [7].

It must be remembered that the incorporation of virtual learning environments should not arise from a transfer of what occurs in a face-to-face environment. It requires the work of experts in the field of education that enable the design of an adequate structure to achieve timely monitoring of each of the work stages, ensuring a study sequence through the use of quality resources that allows the achievement of an optimal learning experience.

- Provide a punctual accompaniment to the students who need it most: It must be remembered that remote education represents a challenge not only for students but also for their families. Not all of them can provide children and young people with a punctual accompaniment or a space free from distractions. There are even students who, given the current economic situation, have had to leave their school activities to enter the world of work, mainly to support their homes; which could lead to an educational lag if the corresponding proactive measures are not taken.
- Manage time based on fundamental learning: When students have fewer hours for study, it is a priority to dedicate them to addressing fundamental learning for life.
- Support the final grade students of each educational level: Likewise, it is advisable to prioritize this accompaniment in children and young people who are in their last grades of each educational level; for example, the third year of pre-school, sixth of primary, third of secondary and last grade of upper secondary, since these students will hardly be able to recover the learning lost in the next school year, due to changing educational level.
- Make the most of the resources available at home: The intention is to achieve an experiential education, even remotely. Therefore, it is necessary for each family to take advantage of the available resources to reinforce the educational process. These resources are not only technological means but also the knowledge of parents or guardians can be beneficial for the learning of children and young people, since their experience can be taken as part of a process of development and growth. Other resources are books and games available at home, which if used appropriately may have the potential to serve an educational purpose. Daily activities can even be useful to develop observation, analysis, and reflection.

- Strengthen the culture of care and prevention: Although all the points that we have just mentioned are fundamental from an academic and emotional point of view, it is also very important to promote health care in our children and young people. Try to reinforce prevention and care habits in your group, such as keeping a healthy distance and washing your hands frequently; during the time recommended by the health authorities, avoid touching your face and do not leave the house.
- Use technology: One of the most valuable resources available today is the internet. This is why, as a consequence of the pandemic, many countries have launched valuable educational platforms and open resources, such as those presented in the previous section. One of the tools that have gained a greater presence in Mexico is Google Classroom, offered by Google for education in collaboration with the SEP, which has allowed the preparation of classes, the development of activities, and their evaluation. There are also some other tools that you could use.
 - For example, to teach online classes you can use Teams, Google Meets, Facebook Live, Zoom, or Skype; all with free versions that allow you to develop videoconferences.
 - To send or receive tasks you can use Google Drive, Dropbox, or Mega.
 - In case you or your students do not have an Office 365 license to use Word, Excel, or PowerPoint, you can use or suggest the Open Office option, which is free.
 - And to maintain an immediate communication flow for the resolution of doubts or to follow up with your group, you can resort to the use of instant messaging applications such as WhatsApp, Telegram, or Facebook Messenger.
- Provide and receive emotional support: Currently, we are in times of stress and uncertainty not only because of the fear that contagion represents, but also as a result of the abrupt changes that this health contingency has brought with it, such as confinement and social isolation, increased responsibilities, job instability, the current financial crisis, or caring for sick family members. These are elements that can affect the learning capacity. That is why, as teachers, we must take into account the emotional and mental state in which our students are, to be able to support them and provide them with the necessary tools that allow them to restore their well-being. For which, in the first instance, we must practice self-care since a teacher in a state of stress will hardly be able to provide effective support.

As mentioned at the beginning of this chapter, the ERE maintains a series of peculiarities; for example, didactic processes. These processes include the way in which classes are approached, the use of TAC, the dynamics of group participation, and the methods for evaluating performance. These changes and transformations arise mainly from the communication media used in this type of study.

- *Printed*: Considering paper materials used for educational purposes, such as books, manuals, or workbooks.

- *Radiophonic*: They use only sound elements, so the production of this type of material is easier. An example is educational programs broadcast on the radio.
- *Audiovisual*: They are based on the use of images and sound for the transmission of content, such as educational television.
- *Digital*: Include resources encoded in a machine-readable format, such as videos, audio or digital images, computer programs (software), video games, pages and websites, social networks, and blogs [11].

At no time in our recent history have TACs been more in demand than they are today. By tradition and prior to the pandemic faced worldwide, technology has served as a facilitator of education. However, today, the educational process is intrinsically dependent on it. As social isolation prevails, technology can no longer be viewed as a peripheral instrument, but as a basic element to make education viable.

In recent decades, the use of technology in education has gained a high profile. Particularly in the international context, this transformation reached its peak in the 1990s. However, in Mexico, the integration of these resources over the years has been slower. It is that these efforts have been oriented to cover access to technological resources, however, students and teachers also require the coverage of other types of more basic needs, such as access to electricity; particularly in remote rural communities.

It must be remembered that remote education is not exempt from being affected by the social and economic context. For what will have to be recognized in the first instance, the characteristics of each region, and on the other the attributes of the family and community environment; since the intention is to reduce the gap in access or appropriation to resources, not to increase it. The implementation of technological programs, without a pertinent diagnosis and adequate planning that enables an improvement in educational conditions, can generate situations of inequality and lag. Technology represents an element of high value today to create an environment in which the needs of the context can be efficiently addressed, highlighting TACs in this category.

Although education outside of face-to-face education in Mexico has already been on a path that consists of more than 50 years, it is still a modality in deployment that requires a process of evaluation, analysis, and continuous improvement in more than one aspect; particularly in basic education. This is because formal education involves more than overcoming the physical barrier that exists between the teacher and her group. It requires the application of relevant strategies that go beyond generating a temporary solution for an extraordinary situation. It needs planning and development that does not appear overnight.

This modality implies generating a space that enables the achievement of authentic and meaningful learning through the meaningful use of the means and available resources, placing them in the corresponding context.

In this time of school isolation, it has become urgent that our basic, upper secondary, and higher education teachers get ahead in the use of means and resources; specifically in digital matters. It is the characteristics of remote education that differentiate it from face-to-face education that have an impact on the teaching-learning process, as well as on the actions of the teacher and the didactic strategies of it.

Today's teacher has put his creativity to the test in preparing his classes and for the first time, they are experiencing all the potential afforded by one of the greatest

distractions present in the classroom environment—cell phones; since mobile telephony is today one of the main instruments for accessing digital content.

The presence of technology has driven society to move towards a 180-degree change in its daily life. These transformations have not only had an impact on technical issues, since the use of these devices goes beyond the instrumental nature; it represents a decisive element in the system of relationships, customs, and knowledge of each individual.

Therefore, in this time of change and transformation, digital skills together with advanced cognitive skills, such as communication, teamwork, creativity, critical thinking for problem solving, and the ability to aspire to learn throughout life; and emotional skills, such as empathy, adaptation, perseverance, and resilience; they are the best buffer to deal with uncertainty [12].

Each medium has a symbolic system, a technological potential, and a processing power that affect the interpretation and construction of mental models. Therefore, different types of content merit the use of different resources and involve different ways of learning them to achieve a meaningful experience.

TACs cannot be perceived as mere vehicles to transport information and make access to content feasible; Hand in hand with a good method, a relevant instructional design, and an adequate learning environment, they can contribute to greater cognitive efficiency [13]. As explained by Aguirre, et al. [13], this cognitive efficiency represents “a lower use of brain resources obtaining a better execution.” (p.16).

While TACs have become a common fixture in education today, many other key pieces have remained largely unchanged, including the curriculum and teacher pedagogy. In this sense, its selection should require a detailed review, since this type of technology is capable of modifying the way in which students construct their own learning by connecting them with their context and with previously acquired knowledge. It does not mean that this technology is the key to knowledge, represents only a support to enable an optimal work methodology, especially if we consider that education does not focus solely on the content, on the teacher, or on the students; rather, it contemplates a comprehensive vision.

Therefore, at this time, it is necessary to have a coherent proposal to this vision and the present needs, both of the students, the teacher, and the community. It will be necessary to take into account individual trajectories, depending on which one must opt, among other things, for personalization. Prior to the pandemic, these valuable resources have enabled educators to scale-up education intervention and reach normally excluded areas. However, in contemporaneity, few countries have managed to take optimal advantage of it to better respond to the current situation facing the educational system. No country was prepared to respond to the abrupt change that this event has brought with it, however, some have managed to experience more favorable results.

As we previously reviewed at the beginning of the chapter, remote education strategies differ from face-to-face education. Although they may maintain common aspects, the logic behind planning, the use of resources, as well as the role that each of the agents involved maintain are elements of each modality. However, in remote education, these must be analyzed with dedication and diligence; since face-to-face communication is eliminated. In function of all the present changes, one of the indisputable properties that current education must maintain is adaptability; a concept defined as “the ability to respond adequately to the demands of the environment, regulating behavior to achieve homeostasis” ([14], p.68).

But not only teachers must be willing to change traditional teaching strategies and urge more participatory roles. It is also important that students seek new

transformations that allow them to translate the current situation, generated by the pandemic, into a change at the educational level that lasts over time; aiming at improving educational quality. And it is that this health emergency has brought to the fore a series of elements that are worth adapting to consolidate an educational culture focused on the skills demanded by the 21st century:

- *Learning and innovation skills*: prepare for the increasing complexity of life and work environments. Consider creativity and innovation, critical thinking and problem solving, communication and collaboration.
- *Skills related to information, media, and technology*: typical of the environments in which we live today, marked by technologies and access to a large amount of information. They include information literacy, media literacy, and digital literacy.
- *Life and career skills*: they have a social and emotional character, allowing us to navigate the complexity of the environments in which we develop. They include flexibility and adaptability, initiative and independence, social and cross-cultural skills, productivity, leadership, and responsibility [15].

Even in remote mode, these skills can be worked to a lesser or greater degree by involving the student not only with their cognition but also with their senses and emotions. As you reviewed in the previous topics: we learn with the whole body! T.

Therefore, in these times of change, the purpose is to promote comprehensive training and encourage adaptability and resilience in our students, this being the “ability to adapt effectively to adverse, traumatic or highly stressful situations, even learning from them they are already improving” [16].

As Maggio [15] explained, a resilient individual has the ability to face adversity, has self-control and autonomy, optimistically faces the future, openly manifests his feelings, develops empathy, maintains a good mood, is persistent in failure, and has the ability to constructively handle pain, anger, frustration, and other upsetting aspects. So, it is conceivable that a resilient individual is a person with good emotional health. Due to COVID-19, the social environment and consequently, the school environment have been changed abruptly. Normality as we knew it before is likely not to return for some time, so the way in which this social distancing is faced represents a challenge for children, youth, and adults. However, this scenario can result in individual, family, and even community strength if we know how to properly manage change and learn from it. In other words, resilience is a function of adaptive capacity.

3. Study

The effect of teaching online education on the study skills of postgraduate students was investigated. A sample composed of two groups of students who were enrolled in a Project Management course offered at a business school was considered. This course was randomly assigned as an experimental group (N = 20); while the other was considered as a control group (N = 27). The control group was traditionally taught using a textbook-focused lecture and the LCD screen/projector was used from time to time, quizzes and paper assignments were used frequently. The same content in the textbook was used for the experimental group, but in electronic format using the e-learning platform. Moodle was the LMS used, in the second semester of 2021

and was the space used for the delivery of the course requirements. A validated scale consisting of 60 items covering nine dimensions of study skills was administered to the two groups before and after treatment. Statistically, significant differences were found between the groups on the pretest. As a result, multivariate analysis of covariance was used for the post-test data analysis controlling for differences in the pre-test. The differences between the experimental and control groups in their performance on the post-test appeared to be statistically significant on all dimensions. All these differences were in favor of the experimental group.

The study shows that the use of an LMS in instruction seems to be able to improve skills as the experimental group outperformed the control group with statistically significant differences in all dimensions of study skills if we control for the difference in their performance on the pretest from one dimension to another. All these differences were in favor of the experimental group.

It is worth noting that although the experimental group outperformed the control group in all dimensions of study skills, a decline was reflected in their performance with a statistically significant difference in two dimensions, which were—essay writing and effective listening. The decline in essay writing may be due to the nature of the course selected to be taught on Moodle. The Project Management course where less effort is given to report writing and more effort is given to hands-on activities using the software. In terms of the experimental group's decrease in effective listening, it could be explained based on the fact that teaching in an LMS gives little emphasis on listening, which is a crucial factor in the traditional lecture method. Therefore, it is logical to obtain such a result.

The study showed that the LMS was influential in improving most of the dimensions (6 out of 9) of study skills, the overall improvement of the experimental group was not statistically significant. The implication of this finding is that researchers should always verify the effect of any new instructional method on the subfactors and dimensions of the target variable or aspect. The overall effect could be masked by one dimension over the others.

Finally, although the results of this study support the use of an LMS in graduate-level instruction, more research is needed in several courses before a conservative generalization can be made.

4. Recommendations

Thus, it becomes crucial to generate a community resilience, this is the “capacity of the social system to respond to the adversities that are affecting the community at the same time and in a similar way, while the resources that already exist are developed and strengthened, to reorganize” [9]. It is worth noting that this concept is not only aimed at an individual, but also at a community facing social adversity. As the Government of Mexico explains, it is possible to reach a state of community resilience. This community resilience can be built on a day-to-day basis when we engage to improve. We can overcome the negative feelings that this contingency has brought with it through a series of compensation mechanisms, such as the following:

- Performing self-confirmation behaviors.
- Exalting own values.

- Increasing our participation.
- Acknowledging our emotions and expressing them.
- Seeking to be more assertive.
- Avoiding physical and emotional overload.
- Consulting official sources of information and sharing them with our students and fellow teachers.
- Speaking with reliable data and clear language to our group, remembering that the mental health of our children and young people also depends on our actions.

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