

ISSN 2410-3985

Journal of Contemporary Sociology

Volume 8, Issue 25 — July — December — 2021

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Journal of Contemporary Sociology,

Volume 8, Issue 25, December - 2021, is a journal published biannually by ECORFAN-Bolivia. 21 Santa Lucía, CP-5220. Libertadores -Sucre - Bolivia. WEB: www.ecorfan.org, revista@ecorfan.org. Editor in Chief: GARCIA - ESPINOZA, Lupe Cecilia. PhD. ISSN 2410-3985. Responsible for the last update of this issue of the ECORFAN Informatics Unit. ESCAMILLA-BOUCHÁN, Imelda. PhD, LUNA-SOTO, Vladimir. PhD, updated as of December 31, 2021.

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Journal of Contemporary Sociology

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Presentation of Content

The first article presents *Identification of learning styles as a trigger of motivation and academic interest in pandemic times*, by SÁNCHEZ-RIVERA, Lilia, ESPERICUETA-MEDINA, Marta Nieves, RAMOS-JAUBERT, Rocío Isabel and MEDELLIN-TRUJILLO, Marcela Lizet, from the Universidad Autónoma de Coahuila, as the next article is *Relationship of the happiness of education actors with health and education*, by HERNÁNDEZ-CUETO, Jaquelina Lizet, SALINAS-AGUIRRE, María del Consuelo, YAÑEZ-FLORES, Sara Margarita and ARRIAGA-REYES, Rosa Argelia, with affiliation at the Universidad Autónoma de Coahuila, as the next article is *The role of the faculty in the new learning spaces, interaction and construction of knowledge considering the COVID-19 pandemic*, by MUÑOZ-GARCÍA, Martha María de los Ángeles & MARTÍNEZ-MÁRQUEZ, Marco Antonio, with secondment at Universidad de Guadalajara, the next article is *Difference in levels of resilience in engineering students and university higher technician*, by ALONSO-ALDANA, Ruth, FLORES-REYES, Alfonso, GAYTÁN-MARTÍNEZ, Zulema and TOLANO-GUTIÉRREZ, Helga Karina, with adscription at Universidad Tecnológica del Sur de Sonora.

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Identification of learning styles as a trigger of motivation and academic interest in pandemic times

Identificación de los estilos de aprendizaje como detonante de la motivación e interés académico en tiempos de pandemia

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DOI: 10.35429/JOCS.2021.25.8.1.7

Received July 10, 2021; Accepted December 30, 2021

Abstract

The objective in this article was to explore the learning styles and how the general motivation and academic interest are integrated with the rest of the dimensions of the inventory learning processes ILP-R of Schmeck, the methodology used was quantitative, synchronic and transversal of exploratory type and descriptive. Because of the pandemic caused by SARS-CoV-2 the gathering of data was through a google form; the sample is made up of 1412 subjects of higher-level education from different cities of the Mexican Republic, the sampling was not probabilistic through the sampling by convenience strategy. The information gathered was processed through the statistic levels; descriptive, frequencies and percentages; comparative, Student's t-test for independent groups and integrational: factorial exploratory analysis. The contribution of the study lays in the empiric statistic evidence that indicates that when students feel motivated have interest for their studies and pleasure to learn, besides of their good performance and academic efficiency, memory, compromise for their studies; on the other hand, they are critics, and their thinking is abstract. Which leads to the conclusion that the motivated students have the necessary resources to promote the self-directed learning and critic thinking.

Learning styles, Motivation, Academic interest, Pandemic

Resumen

En objetivo del siguiente artículo fue explorar los estilos de aprendizaje y como la motivación global e interés académico se integran con las demás dimensiones del inventario de procesos de aprendizaje ILP-R de Schmeck. La metodología que se utilizó fue cuantitativa, sincrónica y transversal de tipo exploratorio y descriptivo. Por motivos de la pandemia causada por el SARS-CoV-2 la recolección de los datos fue a través del formulario de google; la muestra se conformó por 1412 sujetos del nivel superior de diferentes ciudades de la República Mexicana, el muestreo fue no probabilístico mediante la estrategia del muestreo por conveniencia. La información recabada se procesó a través de los niveles estadísticos: descriptivo: frecuencias y porcentajes; comparativo: prueba T de Student para grupos independientes e Integracional: análisis factorial exploratorio. La contribución del estudio radica en la evidencia empírica estadística que indica que cuando los estudiantes se sienten motivados tienen interés por sus estudios y gusto por aprender, además de buen desempeño y rendimiento académico, memoria y compromiso por sus estudios; por otro lado, son críticos y su pensamiento es abstracto. Lo cual permite concluir que los estudiantes motivados tienen los recursos necesarios para promover el aprendizaje auto-dirigido y el pensamiento crítico.

Estilos aprendizaje, Motivación, Interés académico, Pandemia

Citation: SÁNCHEZ-RIVERA, Lilia, ESPERICUETA-MEDINA, Marta Nieves, RAMOS-JAUBERT, Rocío Isabel and MEDELLIN-TRUJILLO, Marcela Lizet. Identification of learning styles as a trigger of motivation and academic interest in pandemic times. *Journal of Contemporary Sociology*. 2021. 8-25:1-7.

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Introduction

There is no doubt that the pandemic caused by SARS-CoV-2 had an impact on all daily activities around the world; Academic actions at the higher level and their teaching-learning process were among the most affected, the United Nations Educational, Scientific and Cultural Organization (UNESCO) warned that the pandemic has caused the most severe disorder on record in education systems throughout history and threatens to cause a learning deficit that could affect more than one generation of students; and that higher education could experience the highest dropout rates, as well as a reduction in enrollment of the order of 3.5%, which would result in a loss of 7.9 million students. (UNESCO, 2020)

The school - understood as the institutionalization of the socially valid training-educational process, taught either by the State or by the private administration - has had to adapt to the context of the Covid-19 pandemic. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020)

At the global, national and local level, the impact is similar to other human activities and also assumes particular forms due to the specific characteristics of the teaching research and extension activities of this educational level (Marinoni, Vant Land & Jensen, 2020)

The pandemic caused methodologies, techniques, strategies, trends in education teaching, and research activities to give way to new questions; It is known that educational systems by themselves are complex and when entering their processes it becomes much more complicated, which is why it is currently important to explore aspects of how people learn from their learning styles since it has been found that there are different factors that they intervene in such processes, such as age, sex, cognitive abilities study methods and motivation, among others.

From the above, the general question arises as to what factors of learning styles are integrated with global motivation and academic interest; dimensions of Schmeck's ILP-R learning process inventory of upper-level students.

With the following specific objectives:

- Show the frequency of the gender variable.
- Identify the differences between the 23 and 18-year-old samples regarding global motivation.
- Contrast the differences of opinion of students who have an average of 89 and those who have an average of 80 around global motivation
- Detect the factors that make up global motivation.

Now, regarding the subject of learning styles (Maldonado, 2014) he comments that understanding the concept, as well as its different types, generates a fundamental step for the design of diverse but effective teaching, opening a range of possibilities for positive intervention that it will translate into better student performance. Each student has an individual and distinctive style of learning style that determines the quality and pace of knowledge acquisition, so the teacher must be aware of this.

For its part, (ALCÁZAR, 2009) says that everyone has a different learning capacity that leads to very varied mnemonic strategies as a consequence of the environment where we develop, the methods we use, the situations we face, the types of activities that we carry out, the cognitive processes that we put into play and so on. The approach of the teaching styles to the learning style supposes a wide knowledge on the part of the teachers of the mental processes that sustain it. Aspects such as prior knowledge and mnemonic strategies in the development of task execution are dimensions that teacher need to handle with great precision. This has led to a multitude of explanatory models that can give us the key to the door of student learning since they correspond to stable processes of organization and elaboration of the information that happens in class. For Schmeck (1988) learning style:

“is simply the cognitive style that an individual manifests when faced with a learning task, and reflects the preferred, habitual and natural strategies of the student to learn, hence it can be located in somewhere between personality and learning strategies, because it is not as specific as the latter, nor as general as the former”.

Schmeck defines the learning style as the predisposition of the subject to adopt a particular learning strategy regardless of the specific demands of the task; it refers to a stable consistency in the way of attending, perceiving, and thinking in the application of learning strategies, in short. The Schmeck model focuses on learning strategies and considers that the student, in a conducive school setting, performs double learning; the one related to the pedagogical contents and the one related to the thought process, in order to develop understanding synthesis and analysis, elements on which the thought processes are based. Three learning styles are proposed, each one involves the use of a particular learning strategy by the individual: deep style elaboration style and superficial style. (Schmeck, Ribich, & Ramanaiah, 1977).

In relation to academic performance (Rodríguez, 2019) mentions that it has been a recurring theme in research; Arguments about the importance of education justify its importance and explain the interest in continuing to inquire about the factors that produce performance differences. It has been shown that in favorable social and family contexts (parents with university studies, from middle and privileged occupational strata, whose family relationships are characterized by affective support) the probabilities of academic success increase; and, consequently, they decrease when students live in disadvantaged contexts or with fewer opportunities. When addressing learning styles in relation to gender, Reyes et al., (2020) carried out an investigation entitled Influence of gender on learning styles, which aimed to determine the learning styles for the differentiation of gender in students of the Educational Units of Chone, with 150 men and 150 women.

Among the main results, it was found that the logical hypothesis is accepted: learning styles significantly influence the gender of Chone Educational Units. Concluding in the review study and the field research, that the predominant style of both men and women is reflective, however, individual differences that characterize both genders are evidenced, which modify their style to the extent that progress in their studies, that, although the reflective style prevails, it was established that women are more active and practical in fulfilling tasks (Reyes, Ávila, Andrade, & Alcívar, 2020).

On the subject of motivation, the Pintrich motivational model cited by Anaya & Anaya 2010, says that motivation is a psychological construct used to explain voluntary behavior. Academic motivation implies a desire to perform "well" in the classroom and this desire is reflected involuntary behaviors that eventually lead to a verifiable performance. Class attendance is a voluntary behavior, which is combined with others to reflect the level of academic motivation. Pintrich explained the academic motivation in the class in terms of reciprocal interactions between three components: a) The context of the class, b) The feelings and beliefs of the students about their motivation c) The observable behaviors of the students. The first two determine the third: observable behaviors in students. According to Pintrich, the observable behaviors that reflect the level of academic motivation are, in turn, of three different kinds: making choices between alternatives, being active and involved in tasks, and having persistence in them. Students make many choices: they decide to take a course, work on an assignment, attend a class session, or do something else. (Cited by Anaya & Anaya 2010).

Methodology to be developed

For the development of this research, an observation of the state of the art of learning styles was carried out to later develop the question and general objective; being the guide for the course of the investigation.

We worked with the inventory of learning processes ILP-R of Schmeck that is made up of 10 questions of general data and 150 items that make up the dimensions of the investigation with a scale of 1-6, the dimension of global motivation that is highlighted It is made up of 30 simple variables and only three general data are used: gender age and average. The methodology used was quantitative, synchronous and cross-sectional, exploratory and descriptive. Due to the pandemic caused by SARS-CoV-2, the data was collected through the google form; The sample was made up of 1412 subjects from the higher level from different cities of the Mexican Republic, the sampling was non-probabilistic using the convenience sampling strategy.

The information collected was processed through statistical levels: descriptive: frequencies and percentages; comparative: Student's t-test for independent groups and Integrational: exploratory factor analysis.

Results

1. Descriptive Analysis

1.1 Frequencies and Percentages

In the processing of the general data, the frequencies and percentages of the responses obtained from the application of the instrument to 1412 subjects were reflected; which allows us to characterize the study sample, by reading the most significant results.

It was found that the sample consists of 64.3% female respondents (n = 909), 35.05% (n = 495) male and 0.56% (n = 8) who answered "female, male". Likewise, it is observed that the ages of the subjects range from 15 to 52 years, the most representative age corresponds to 21 years with 17.4% (n = 803).

On the other hand, the general average of the students ranged from 60 to 100, however, those with an average of 90 represent the majority of the population with 15.7% (n = 223).

2. Comparative Analysis

2.1. Student's t-test for independent samples

To compare the study groups through their arithmetic means and find significant differences, Student's t-test is processed for independent samples, with a confidence level of 95%.

The readings corresponding to the different comparative analyzes that are of interest to the study are presented below.

- Comparison between gender vs global motivation.

In the first comparison, the gender variable was considered to group the sample subjects by means of the "female" and "male" group; while the questions of the survey were the dependent variables of the global motivation dimension.

There are eight significant variables within the comparison of gender and global motivation, of which it can be said that the male gender rarely uses the library, easily gets bored with most of the things he has to read at school, I prefer to read the abstract of an article than the original article, he is more interested in obtaining a bachelor's degree than in the content of the courses he is studying, he rarely uses the dictionary, and he goes to university because he has to go. On the other hand, the female gender is enthusiastic about learning new things, and for them college means learning interesting things.

- Comparison between ages in years completed to April 20/2021 vs global motivation.

In the following comparison, the variable Age in years completed on April 20/2021 is considered to group the subjects of the sample into two groups, which are "23" and "18" years, and on the other hand, the items corresponding to the Global Motivation axis. We can see that the 18-year-old part of the sample is enthusiastic about learning new things, they rarely read beyond what is pointed out in class, they rarely sit down to reflect on the topic they have just read, they prefer to read the summary of an article than the original article, they rarely use the dictionary, they think that learning is fun, and for them college means learning interesting things.

- Comparison between age vs global motivation.

The following analysis contrasts the groups "89" and "80", belonging to the Average variable, with the items corresponding to the Global Motivation axis. From this comparison, two relevant results were found, from which it is stated that those with an average of 80 rarely use the dictionary, and go to university because they have to go.

3. Integrational Analysis

3.1. Exploratory Factor Analysis

To establish the underlying structure of the subjects studied, the exploratory factor analysis is processed, with normalized varimax factor rotation and an $r \geq 0.33$; with the R^2 Multiple Communalities procedure.

Next, 5 factors are read, which support the work proposal.

- Factor 1. Learning styles motivation and academic interest

In the first factor, it is observed that in the type of student learning, global motivation stands out from the academic interest, which integrates dimensions such as study method, elaborative, deep, analytical processing self-affirmation and self-efficacy as well as literal repetition and printing manual.

It is observed that students who feel motivated have an interest in their studies and a taste for learning, in addition to good academic performance and performance memory and commitment to their studies; on the other hand, they are critical and their thinking is abstract.

- Factor 3. Security

In factor three, it is observed that students are very sure of themselves, they trust their study habits, as well as their product, and they know with certainty that they are capable of doing what they set out to do.

- Factor 4. Synthesis-Forecast

Factor four allows us to observe that students work on the information from summaries and graphs, feel motivated to prepare for their exams, spend time studying the content, and are interested in learning new terms.

- Factor 6. Academic Performance

In factor six, it is observed that students consider learning fun and fruitful, they have good grades, and their ability to retain information is quite good.

- Factor 11. Academic Commitment

The factor reads the students' interest in their studies, the motivation for their academic performance, their responsibility, the goals that have been set around their education and the positive attitude they show towards it.

Conclusions

According to the results obtained from the different statistical levels, this chapter presents the conclusions that show the perspective of "Identification of learning styles as a trigger for motivation and academic interest in times of pandemic"

It is concluded that the male gender enjoys less academic reading than the female gender, in addition to viewing their education merely as an obligation, which can be an obstacle to their school performance. Regarding the female gender, it is deduced that they feel more motivated by their studies and this is reflected in the interest they show in the contents of their career, so this attracts their benefits for their academic performance.

It is concluded that 18-year-old subjects are enthusiastic about learning new things, they rarely read beyond what is pointed out in class, they rarely sit down to reflect on the topic they have just read, they prefer to read the summary of an article than the original article, they rarely use the dictionary, they think that learning is fun, and for them, college means learning interesting things unlike students who are 23 years old.

It is concluded that unlike students who have an average of 89, students with an average of 80 perceive their education as an obligation, for the same reason they do not feel interested in learning or knowing the meaning of new or relevant terms for their training. Because of this, those with the above-mentioned average will finish their degree satisfactorily, however, their learning and skills will be insufficient.

It is denoted that students who feel motivated have an interest in their studies and a taste for learning, in addition to good performance and academic performance memory and commitment to their studies; on the other hand, they are critical and their thinking is abstract. This allows us to conclude that students have the necessary resources to be students who are characterized by promoting self-directed learning and critical thinking, they are active elements of their own process.

Likewise, it follows that, by knowing their own scope and limitations, students have the ability to excel in personal qualities and academic performance; Being self-confident gives the student the added value they need to learn effectively. It is concluded that students who feel motivated to prepare for their exams, dedicate time to study the contents and are interested in learning new terms, have the ability to use different resources and prepare for when they are required to implement them, on the other hand, they synthesize the most important contents of their classes so that they can access them easily, which allows them to be more organized and save time.

It follows that when students feel motivated, it impacts their interest in learning, their reading, reasoning, and speaking skills, together they guarantee that the student's academic performance will be as expected and could even be outstanding.

Finally, it is concluded that the student recognizes their education as a very beneficial element for their professional development, for which they feel intensity and emotion to start and carry out learning activities, this energy in action connects the person with the activity and therefore generates positive academic performance.

Therefore, the implementation of an educational model based on learning styles is proposed, where personalized attention is given to each student, so that in this way both academic performance learning and the development of skills and competencies, are specified according to individual needs.

In addition, to develop motivational methods for students, through the opportunity to visualize the importance of carrying out their higher-level studies, the leading role in the development of their learning, favoring qualitative evaluations over quantitative ones, planning activities based on the needs and tastes of the students, focus the content on daily practices; All of the above with the understanding that motivation is a vital part for learning to become meaningful, knowledge to be put into practice, and skills and competencies to be realized; In the face of the pandemic caused by SARS-CoV-2, it is possible to work virtually or through hybrid modality.

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Relationship of the happiness of education actors with health and education**Relación de la felicidad de los actores de la educación con la salud y la educación**

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DOI: 10.35429/JOCS.2021.25.8.8.12

Received July 15, 2021; Accepted December 30, 2021

Abstract

The problems observed from the contingency and consequences of the COVID-19 pandemic have made it necessary to consider new elements in the construction of learning environments in educational contexts. It is observed the need to classify happiness as an index of emotional well-being in academic groups to enhance the positive emotionality of educational actors to promote learning. This research aims to show the relationships between what the respondents consider brings them happiness with the intention of changing the conceptualization of the school as the place of rules or impositions for the place where they go for their own pleasure to nurture themselves as a person and learn things that will bring more happiness by being in a process of personal construction.

Resumen

Las problemáticas observadas a partir de la contingencia y las consecuencias de la pandemia del COVID-19 han obligado a considerar nuevos elementos en la construcción de los ambientes de aprendizaje de los contextos educativos. Se observa la necesidad de tipificar a la felicidad como un índice de bienestar emocional en los colectivos académicos para potencializar la emotividad positiva de los actores educativos para favorecer el aprendizaje. Esta investigación pretende mostrar las relaciones entre lo que los respondientes consideran les brinda felicidad con la intención de que cambie la conceptualización de la escuela como el lugar de las reglas o de las imposiciones por el lugar donde se va por gusto propio a nutrirse como persona y a aprender cosas que brindarán más felicidad por el hecho de estar en un proceso de construcción personal.

Happiness, Health, Education**Felicidad, Salud, Educación**

Citation: HERNÁNDEZ-CUETO, Jaquelina Lizet, SALINAS-AGUIRRE, María del Consuelo, YAÑEZ-FLORES, Sara Margarita and ARRIAGA-REYES, Rosa Argelia. Relationship of the happiness of education actors with health and education. *Journal of Contemporary Sociology*. 2021. 8-25:8-12.

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Introduction

The world has witnessed an unprecedented situation regarding the COVID-19 pandemic, people have manifested emotional peaks and overflows in terms of controlling their feelings or the attitudes that are created from their feelings. It was not unusual that, since the appearance of this virus, there were frequent displays of discomfort, anguish, fear or lack of empathy on the part of the actors of the educational sectors, including teachers and students. And it is not that they did not exist before, what happens is that the need to develop mostly online or virtual education that was generated by the contingency, made it easier to have evidence of said events of emotional collapse, this coupled with the fact that the uncertainty potentiated the negative emotionality of those involved, it was palpable that what they were doing did not make them happy. And what happens is that the transmission of emotions is palpable, an unhappy person will surely make his environment unhappy, while a person who feels fulfilled, full or happy, will tend to create a friendly context.

Faced with such a situation, the importance of envisioning an area in which people are more human arises, because, although they seem analogous concepts, they are not, it is not a question of nomenclature, but of semantics. In the field of education, the need to create awareness about issues that previously were not supposed to correspond to the institutions, such as the fact that their actors are happy, is strongly positioning themselves. Because it is a fact that there are few educational curricular designs that consider happiness as an objective or purpose to be achieved through academic processes or obtaining degrees. It is easy to affirm that education does not care that there are happy people, but prepared ones, however, and this is where the emphasis of this study is placed, the emotionality attached to happiness with which it is related.

This research tries to elucidate the above through a quantitative study with a correlational scope between the axes of happiness, health and education as part of the elements that describe the well-being of the subjects in a general way.

Conceptual framework

Within the theoretical perspective of development in emotional intelligence that directly affects the happiness of the subjects, Goleman (1995) indicates that:

People with well-developed emotional skills are also more likely to be satisfied and effective in life, and to master habits of mind that promote their own productivity; People who cannot bring order to their emotional lives have inner battles that sabotage their ability to focus on work and think clearly. (p. 57)

This work tries to know how the respondents would be happier, through what inputs. The theory helps reveal that satisfaction is an important topic when it comes to understanding happiness as a particular topic.

For the Royal Spanish Academy, happiness is:

1. f. State of pleasant spiritual and physical satisfaction.
2. f. Person, situation, object or group of them that contribute to make you happy.
3. f. Absence of inconveniences or obstacles. (par. 1)

The foregoing is a bit concise in terms of delimiting the term, since as can be seen through the results of this research, happiness is subjective and depends on the hierarchy that each subject gives to the elements that provide that emotional stage.

Another related concept is that of empathy, which is referred to as:

The word "attention" comes from the Latin *attendere*, which means "to reach out". It perfectly defines what it is to focus on others, an attitude that forms the basis of empathy and the ability to build social relationships, the second and third pillars of emotional intelligence (the first is self-awareness). (Goleman, McKee, Waytz, et al, 2019, p. 3).

Happiness in people, being an emotional representation of them, also has a social reminiscence, so the empathic perspective plays an important role.

A proposal made by Goleman & Senge (2020) is mentioned, to strengthen education in an emotional trend, they called it Social and Emotional Learning and that in a pragmatic way and by its acronym in English is referred to as SEL. Which is posed with:

The active ingredients were reduced to a handful of emotional and social skills, which included self-awareness, that is, knowing what you feel and why, self-management, what to do with those feelings; empathy, knowing what other people think and perceiving and understanding their point of view; and social skills, and ultimately putting it all together to have harmonious relationships and use all these emotional intelligence skills to make good decisions in life. (p. 15)

Finally, it can be observed through this laconic theoretical expression that happiness is a set of particular and subjective elements that are intrinsically linked to the emotional intelligence of the subjects.

Methodology

The instrument has 59 simple variables, of which 40 are numerical ratios with a decimal scale. Same that are divided into 3 axes of research: health, education and happiness.

To classify the sample, the variables age, sex, maximum level of studies, career, economic situation, marital status, number of children and whether they work were used.

In the Health axis, five dichotomous variables and six decimal ratio measurement variables are included, for the present analysis only the numerical ones were used. Within the type of information that they seek to obtain is what refers to how individuals catalog some elements related to their physical well-being.

In the case of Education, 18 decimal ratio measurement variables were considered that account for aspects that the subjects consider to have achieved with the studies carried out.

The happiness of the subjects is measured through 16 decimal ratio measurement variables, in which elements are incorporated that characterize the possibilities of increasing this topic, either through material, social, personal or emotional issues.

The methodology developed for this study consists of a quantitative investigation with correlational scope, for which a Pearson Product Moment analysis was carried out with which it was intended to find the underlying relationships of the concept of happiness in this group in accordance with the health axes and education. The significant correlational coefficient is 0.19 / -0.19 and was determined by the sample n of 100 subjects and the probable level of error at 0.05.

Results

Frequency and percentage of the respondents' data

The sample is comprised of 100 students; from the Faculty of Science (n = 65/65%), Education and Humanities and the Bachelor of Spanish Letters (n = 35/35%) from the UAdeC. The majority are women (n = 77/77%), while 23% are men (n = 23). Their ages range from 18 to 65 years, with the 20-year-old stratum being the most dominant (n = 23/23%), followed by 19-year-olds (n = 17/17%); 21 (n = 18/18%) and 22 years (n = 12/12%). With regard to Marital Status, the majority are single (n = 89/89%); no children (n = 91/91%).

Correlation of the axes Happiness and Health

In the first instance, the results referring to the underlying relationship between what the responding individuals indicate would give them greater happiness and the variables that represent health are presented.

Happiness	Keep it	Sick
Love	0.20	0.01
Peace	0.02	0.00
Friends	0.22	0.13
Sweetie	0.26	0.09
Knowledge	0.31	0.13
Economic Seg	0.29	0.05
Recognition	0.22	0.04
Health	0.21	0.15
Stable	0.18	0.23
Social group	0.14	0.04
Understood	0.23	0.07
Self esteem	0.18	0.06
Less Uncertainty.	0.10	0.17
Emotional Seg	0.18	0.09
Nice	0.08	0.13
Education level	-0.16	-0.12

Table 1 Correlational analysis of the Happiness and Health Axes

It is observed that there is a relationship in the increase of aspects that make subjects happy, such as if there was more love in their life, they received more love, they had more friends, more knowledge, economic security, health, they received recognition for what they do and were understood with the concern to preserve health. This is explained by the fact that the happier they feel, the fear of losing their health arises and with it the possibility of continuing to enjoy positive emotional inputs. From this it follows that positive emotionality can cause people to tend to take care of themselves and their physical conditions in terms of health due to the fact that they feel loved.

When stability affects happiness, this is related to the extent to which they get sick, which indicates that diseases are conditioned by a lack of tranquility. Another aspect to infer is that there is no significant relationship with the other health indicators, as they consider that your physical health is good, you exercise, you eat properly and you are satisfied with your body. This is worrying because it is a fact that physical activity concatenates emotional and cognitive well-being and that the type of intake also intervenes in this.

Correlation of the axes of Happiness and Education

The results of the significant relationships between what the subjects indicate would give them greater happiness and the variables that represent what their studies have allowed them are presented.

Happiness	Decent job
Friends	0.19
Sweetie	0.20

Table 2 Correlation of the axis Happiness and the simple variable Decent Work

The increase in happiness if they had more friends and received more affection is linked to the fact that education has allowed them a decent job. Which is significant in the sense that social interaction often allows job positioning, it is necessary to promote emotionally warm environments in the prospect of work.

Happiness	Critical
Love	0.22
Peace	0.20
Economic security	0.26
Recognition	0.21
Understood	0.22
Less uncertainty	0.29

Table 3 Correlation of the axis Happiness and the simple variable Critical

By typifying happiness through whether there is more love and peace in their environment, having financial security, recognition for what they do, less uncertainty and being more understood establishes a positive correlation with the fact that studies have allowed the respondent to be critical. This is justified by the fact that critical people analyze their environment objectively, suspending value judgments as much as possible, so that the context in which such a person operates is permeated with positive emotional inputs and materials.

Happiness	Memorize	Understand
Peace	0.28	
Economic security	0.20	0.26

Table 4 Correlation of the axis Happiness and the simple variable Store

Happiness anchored to having more peace in the environment and having economic security is linked to the fact that studies allow the memorization of information. This position is very interesting, since memory as a cognitive process is stigmatized as low level, however, demystifying memory and understanding that it is a process sine quan non learning would not be possible, it turns out to be related to the subjects being feel safe, either calm or with economic inputs, perhaps because it is inherent that in some fields the retention and evocation of computer elements is necessary; What is striking is that in the case of understanding it is only linked to economic security; being that this cognitive process has been idealized in a superlative way.

Happiness	Use Experiences
Peace	0.20
Understood	0.19

Table 5 Correlation of the Happiness axis and the simple variable Use experiences

The fact that schooling allows the use of experiences implies that learning has been significant and at the same time pragmatic, which leads the respondents to feel happiness when they have peace in their environment and are understood. This is to highlight the fact that it is not necessary to be anchored in the acquisition of programmatic content, but rather that it is necessary to build from them, that they are pretexts for the development of skills, that is, the observable.

Happiness	Cond	Infe	Prac	Remun	Probl
Friends	0.21	0.08	0.12	0.18	0.18
Affection	0.02	0.05	0.21	0.23	0.08
Acknowledgment	0.23	0.22	0.20	0.13	0.19

Table 6 Correlation of the Happiness axis and the simple variables Conduct, Inferences, Practice, Remuneration

The elements that in this reading are part of happiness are identified with a social need, basically that of recognition of what he does, which is linked to the fact that education provides to modify behaviors, make inferences, put knowledge into practice and solve problems. However, this is only personal, since it is not related to having a well-paid job, which in turn is associated with receiving more affection. Having friends helps to change behaviors.

Happiness	Target	Self-knowledge	Correct
Friends	0.14	0.25	0.24
Sweetie	0.22	0.22	0.06
Knowledge	0.05	0.21	0.15
Recognition	0.15	0.29	0.16

Table 7 Correlation of the axis Happiness and the simple variables Objective, Self-awareness and Correct errors

Finally, some metacognitive processes are presented that the respondents indicate they developed from their studies, such as being objective, self-aware and correcting mistakes, which is associated with the fact that happiness increases if they had more friends, affection, knowledge and recognition, than like the Previous correlations show that it is subject to the social aspect and external stimuli; However, it should be noted that self-awareness shows great significance in the correlation, which indicates that when it is present, so do several elements that represent happiness for the subjects.

Conclusion

It is concluded that the subjects are in diversified contexts, so it is necessary to speak of integration and complexity in their construction and academic training. Not only are you a student or a teacher, but you play multiple roles that do not inhibit one another, but rather complement each other.

It is necessary, as observed in the results, to promote what makes the study group happy, since when this positive emotionality occurs, so do many cognitive and material inputs that make it predict that they will be successful at work.

The fullness of human beings has a profound impact on what they feel and on the way in which they increase their happiness, having implications in the way in which they develop in the educational field and in that of their own health. It is not surprising that situations such as those mentioned in the preamble to this document and regarding COVID-19 have made a dent in the way in which students approached distance education, as well as the role that educational figures played in his own lecture to society that had the opportunity to observe situations that were not entirely positive. This is how it is concluded that it is necessary that education and health as areas of human development care that people feel good. That what you learn makes you be a better person, earn more money, but above all be happier.

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The role of the faculty in the new learning spaces, interaction and construction of knowledge considering the COVID-19 pandemic

Rol del profesorado en los nuevos espacios de aprendizaje, interacción y construcción del conocimiento ante la pandemia COVID-19

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DOI: 10.35429/JOCS.2021.25.8.13.20

Received July 20, 2021; Accepted December 30, 2021

Abstract

The present work constitutes a theoretical approach to the role that, in the face of current needs, immediately forced the professors to move from a face-to-face modality to a virtual modality; starting from the research question What are the theoretical considerations that support a pertinent role of professors in the face of the COVID-19 pandemic? In order to respond, it is proposed the objective of proposing a faculty role that responds to the new learning spaces, interaction and construction of knowledge generated by the current situation. Within the methodology used, it is used a documentary review that transits between Brunner's pedagogical theory by pointing out the importance of scaffolding in professor mediation as a fundamental part to support the student in the construction of knowledge when guided by his interlocutor ; Vygotsky's sociocultural theory that recognizes the benefit of collaborative work supporting others, for joint interactions that enrich both individual and collective learning; Freinet's pedagogical theory that provides the basis for a living school, where the student is the center of teaching in the face of the solution of problems and realities of the environment, which together with the basic notions of connectivism integrate a co-constructor faculty role of the knowledge in collaboration with their students. The faculty role, in everyday situations cannot be a spontaneous conception or the result of an improvised activity, therefore, its foundation and consideration must be present in the face of the diverse realities that arise.

Learning, Construction of knowledge, Faculty role

Resumen

El presente trabajo, constituye un acercamiento teórico al rol que, ante las necesidades actuales, obligó de forma inmediata transitar a los docentes de una modalidad presencial a una modalidad virtual; se parte de la pregunta de investigación ¿Cuáles son las consideraciones teóricas que fundamentan un rol pertinente del profesorado ante la pandemia COVID-19? Para dar respuesta se plantea el objetivo de proponer un rol del profesorado que atiende los nuevos espacios de aprendizaje, interacción y construcción del conocimiento generados por la situación actual. Dentro de la metodología empleada, se hace uso de una revisión documental que transita entre la teoría pedagógica de Brunner al señalar la importancia de los andamiajes en la mediación docente como parte fundamental para apoyar al educando en la construcción de conocimiento al ser guiado por su interlocutor; la teoría sociocultural de Vygotsky que reconoce el beneficio de trabajar colaborativamente apoyando a otros, para de forma conjunta se den interacciones que enriquecen los aprendizajes tanto individuales como colectivos; la teoría pedagógica de Freinet que aporta las bases para una escuela viva, donde el alumno es el centro de la enseñanza ante la solución de problemas y realidades del entorno, que en conjunto con las nociones básicas del conectivismo integran un rol docente co-constructor del conocimiento en colaboración con sus alumnos. El rol docente, ante situaciones cotidianas no puede ser una concepción espontánea ni resultado de una actividad improvisada, por lo que su fundamentación y consideración debe estar presente ante las realidades diversas que se presenten.

Aprendizaje, Construcción del conocimiento, Rol del profesorado

Citation: MUÑOZ-GARCÍA, Martha María de los Ángeles & MARTÍNEZ-MÁRQUEZ, Marco Antonio. The role of the faculty in the new learning spaces, interaction and construction of knowledge considering the COVID-19 pandemic. *Journal of Contemporary Sociology*. 2021. 8-25:13-20.

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Introduction

The objective of this article is to identify some theoretical elements that support the role of teachers in the face of the COVID-19 pandemic, which contributes to the students moving initially towards learning and later reaching a construction of knowledge. Thus, it is necessary to mention that in history education has gone through different stages, where it has sought to prepare man to be and be in society, a task that has a high degree of complexity and that for its analysis we are going to place ourselves in what dictates the report of the United Nations Educational, Scientific and Cultural Organization for the Education of the XXI Century, where it argues that the challenge of the classroom and of the teachers is to achieve "... learning to know, learning to do, learning to live together and learning to be "(Delors, 1994, p. 91); This has various implications that oblige the teacher to facilitate and mediate learning from these four pillars, placing emphasis not only on the cognitive, but also on skills and abilities, social coexistence and ethics. All this leads to propose a teaching-learning process [E-A] aimed at teaching how to learn to learn. (Moreno, 2012)

But how to get students to learn to learn? It is also necessary for students to take a step forward in the search for solutions to environmental problems that support the construction of knowledge. This is where the obligation to think about education and the goals that are pursued in it resides; but better still, consider the role that the teacher should play with this scenario and direct actions to ensure that the student reaches educational achievement, which has emerging scenarios such as the one posed in the COVID-19 pandemic caused by the SARS-CoV virus. 2, where a challenge is not easy at all, since learning spaces and new forms of interaction have been modified, even when technology was already present in EE processes, with different conceptions and uses by teachers and teachers. which invites us to rethink the role that teachers must play in the face of these various modalities that will undoubtedly continue to be present.

Background

The COVID-19 pandemic, came to disrupt various areas of daily life, including education, turning towards a distance educational practice, where teachers did and reproduced what research prior to the pandemic showed at the time that there is limited use of technology by teachers (Martínez, 2018) and the use is based on the conception and belief of teachers (Arancibia, Cabero and Marín, 2020), this implies that the use of Information and Communication [ICT] is made from a belief and visualization of the teachers that they have of it, rather than with a pedagogical foundation that accompanies the students at first to learning and later to the construction of knowledge.

The spaces for interaction and learning have changed over time, what was initially known as a privilege to access education, turned to a social need that had various purposes, from preparing to be good citizens as in Rome, or to prepare labor in the industrial era (Moreno, 2012); What if, there is a huge abyss in the way in which learning is generated today since what served as selective individual learning, national education systems have seen the need for more people to access it, so that the bases and mechanisms for mass education were established, but it is time to think that individual learning is no longer our own, since the same society requires people prepared to act for the benefit of the community and with it, seek that it occurs that knowledge where each one contributes what corresponds to them from their training and knowledge and faces the great challenges that today permeate society.

A clear example of making individual contributions and participating in the construction of knowledge that addressed an emerging problem in an immediate time, was the vaccine against the pandemic virus, where various professionals used their knowledge to identify the necessary reagents to deal with the need of humanity; Well, this example serves as a basis, to enhance efforts to generate individual learning in various disciplines that students have to contribute when they are in collaboration with others and that together they have to provide solutions, as a way of life and exercising.

The hand is learning to learn, but also, working with others in the design of archetypes, whether they are physical, such as the vaccine, or conceptual constructions that will lead them to generate knowledge and not be left alone in the consumption of it.

That is why the urgent need for dialogical participation among the members of society to reach a consensus on where we are going as a social group, and it is that, currently in an environment represented by the globalization of internal markets, by the intensive use of information and by the establishment of novel connectivity systems, our world has become highly complex, characterized by the rapid and continuous change of technology, systems, processes and even products. In it, organizations must act beyond traditional management systems, which are still valid but insufficient and therefore inefficient, and must seek sustainable factors over time that allow them to provide competitive advantages.

Thus, the work of the teacher becomes relevant as a social agent in the EE process, he has a great responsibility, but above all the task of asking questions about what he does and what the educational systems dictate, so that, with a high critical sense and responsible, know the role that corresponds to you in the face of the huge wave of emerging technology that facilitates interaction and that, therefore, must be analyzed.

The theory has focused on the analysis of individual learning processes and some theories have emerged that try to demonstrate how to learn with others, but again we are facing a challenge of paradigm shift that forces us to think about what in the classroom or classroom. virtual is done.

Theoretical discussion

It is interesting to recognize that learning spaces diversified during the pandemic, learning at home, virtual classrooms and distance education; With this, the role played by the teacher also has significant changes in the face of these new scenarios in two aspects, on the one hand, having to support their students to build knowledge and in the same way, document the actions they carry out through the systematization of experiences and contribute to the theoretical field the results of the analysis of their practice, taking care that the learning and knowledge that is developed is not only momentary, but that skills and abilities that last for life are generated, with "... learning to know, learn to want and feel, learn to do, learn to live together, learn to be, learn about knowing, wanting, feeling". (Delors, cited in García, 2009)

In this task of learning for life, educational institutions have put into practice various strategies that allow students to remain in the educational process regardless of the space and modality that each of the schools has adopted; But, it is the teacher who is in the first line and who mobilizes the resources, competences and concepts of the educational task to achieve it. The commitment is arduous, since it is necessary to provide students with resources and opportunities so that they can, in addition to learning, have formal access to education at a distance, through a series of actions that integrate didactic situations that support learning to learn.

Therefore, in addition to the knowledge that students have to develop in the disciplinary part, there are the skills to continue learning, coexistence, cognitive and affective development and endow them with autonomy to continue learning throughout life and contribute to their learning in the construction of collective knowledge.

Hence, to achieve this, the teacher must have a clear intention in each of their actions that leads students in this transition from learning to a construction of knowledge that becomes difficult when the educational process is transferred to distance and mediates. with ICT; in the words of Fullat "... you learn by solving real problems of everyday life in order to move forward in it". (2000, p. 275)

Therefore, teachers must have disciplinary, pedagogical and technological knowledge, without eagerness to be mentioned in order of importance, it becomes relevant that technological knowledge must have an educational theoretical support and that the teacher remains in a conscious position of each of the activities that it develops, emphasizing the role that it has to develop to achieve learning and construction of knowledge in students.

The subject not only acts and learns alone, and with the issue of social isolation generated by the pandemic, it forces them not to work in education with an individual learning posture; Even in the business sphere, he acted immediately and the cubicles were moved to the homes, but always working in collaboration with others; Thus, in the educational process, sociocognitive conflicts must be generated through situations that represent challenges to groups, that use ICTs and that shorten these social, but also cognitive, distances.

The theory of sociocognitive conflict, integrates the critical derivation of Piaget and the perspective of the socio-constructivist approach of Vygotsky, a theory that supports the current challenge of providing an intellectual development, which is implicit in the equilibrium theory and that will pass from an internal conflict of the subject, made a cooperative exchange, which contributes to the modification of schemes through active negotiation with others, to reach a consensus that solves a problem of interest. (Rosselli, 2011)

Then, the teacher when posing problematic situations or challenges that integrate the urgent need to deconstruct and build conceptual schemes or physical archetypes in a collegial way through the various technological tools available to him, can develop a way for the student to learn to seek solutions in a distributed cognition that is based on the critical stance of cognitive psychology and that encourages them to make use of the tools and ideas of others that are manifested in the environment and thus contribute to social construction. (Rosselli, 2011)

Thus, the existing educational theory contributes to the search for the foundation of the role that it must have in the face of virtual modalities with schemes and platforms already designed, but also in the face of emergent situations that revolutionize their work and force them to unlearn their usual way of educating and bringing people closer together. students to knowledge; For which, we delve into answering the question: What are the theoretical considerations that support a relevant role of teachers in the face of the COVID-19 pandemic?

Method

To answer the question, an exploratory research is carried out, by making a theoretical compilation (Behar, 2008) in the absence of an established teaching role that addresses adverse situations that force the teacher to modify their practice and incorporate a form of ICT-mediated work. Likewise, documentary-type research is recognized under the qualitative approach by reviewing theories in a flexible way, based on an interpretive perspective (Hernández, Fernández & Baptista, 2017) that allows integrating a teaching role that supports individual learning and learning. later construction of the knowledge of the learners.

To achieve this, an analysis of interpretation is made in educational theories that provide elements for the design of a teaching role in situations that require the use of technology for educational purposes, or that it be used permanently in virtual learning modalities, to provide input into an intentional ICT practice.

In the search for information, the categories of analysis were raised, from the contributions of epistemological theories of how knowledge is built; psychopedagogical by how students learn, technological theories that support the incorporation of ICT in education; and finally, emphasizing in the sociological theories that base the interaction of the students in virtual modalities; with this, there are specific specifications to generate an ideal teaching role based on the integration of theory.

Results

Once the search for the theories and postulates that integrate a proposal of a relevant role for teachers has been carried out, it is necessary to group them as previously indicated, foreseeing that each of them provides elements of theoretical support to the actions and a way to integrate all the educational work that emerges from this in conjunction with study plans and programs administered and brought to life by the teaching staff; Given this, the following results are obtained.

Within epistemological theories, critical rationalism becomes relevant as a way of accessing and validating knowledge, where error is considered as a way to generate individual and collective learning, since Popper proposes that there are three types of reality or world, the objective made up of material objects, that of subjective mental experiences and the product of intellectual and cultural activity; Therefore, learning situations must be generated where the student goes through these stages and comes to build knowledge, since:

... not only does rationalism shine a light on problem solving in scientific research approaches, in science teaching and in the development of higher thinking skills, but it also raises valuable, suggestive and illuminating criticisms of the theory of repetition learning and its supposedly inductive nature, the echoes of which unfortunately continue to resound in classrooms today. (cited in Giraldo and García, 2018, p. 92)

So, we must change the paradigm of a school of learning by repetition or exposure in virtual classes accompanied by only visual material such as a power point presentation where the teacher supports himself so that in an expository way he tries to make the students learn by memorization.

Students are required to be in situations that provide a problem, a project or the construction of conceptual constructs, and being aware of the errors they have within their learning when testing their answers, project or construction, makes them internalize in a critical way their choice and have the opportunity to foresee in analogous situations the possible responses from a critical perspective.

This takes the first step, by generating situations where students exercise that critical thinking of their actions and an environment should govern that allows the student to have these spaces for reflection, either in physical or virtual spaces.

In the choice of the theories that govern the psychopedagogical section, Brunner's theory of learning by discovery stands out, where the student has the opportunity to interact with the object of study and with the support of the group, the concept of scaffolding has a great implication when conceived As a didactic approach to develop student self-regulation, both individually and collectively by the teacher and the classmates themselves, it requires its own design that supports virtual settings, where a reading, scheme, glossary, become a scaffolding or bridge to move towards the Zone of Proximate Development [ZPD], a term coined by Vygotsky and that similarly establishes collective learning in relation to others, with conceptual, metacognitive, procedural or strategic scaffolding. (López and Martínez, 2010)

Therefore, work in virtuality is made up of different edges to be taken into account, since it is not an isolated work or only individual since in each of the tools that are integrated they must contribute to considering the socialization of ideas, opinions and constructs; An example could be working in the cloud with an application such as drive, where students in synchronous or asynchronous time build written contributions and each one integrates their knowledge; Here, Vigostsky's sociocultural theory becomes relevant, since sharing and transmitting the experience of each of the students requires that it be through an intentional mediation process, where the other is supported to achieve their ZPD, the support being the teacher or the same classmates, with the use of language and with a technological setting, will be a system of oral or written signs. (Carrera and Mazzarella, 2001)

It is a great challenge to exploit the potential of technological tools and virtual platforms and for everyone to be involved in individual and group learning, but as social beings, the integration of groups must cement the work that is done in each of the groups and that the teacher is that agent who integrates the opportunities for interaction, to share reciprocally and that there is a design, which is the subject of another moment, that provides those opportunities; but since it is a feature of the necessary knowledge of the teaching staff, it requires professionalization in the field of ICT.

In the same vein of ideas, this virtual integration is based on connectivism, which is considered "... the integration of principles explored by the theories of chaos, networks, complexity and self-organization. Learning is a process that occurs within diffuse environments of changing core elements - which are not completely under the individual's control"(Siemens, 2004, p.5). Although this cannot be considered a theory, it can be named as a pedagogical foundation proposal according to the incorporation of technology into E-A processes; but also that, through ICT, other spaces for interaction and learning are generated, so that students are constantly in learning opportunities when browsing the web, having a scope of connection of information is criticized that it is even in disjunction with constructivism or instructional design, but by leaving open the possibility of accessing information and it can be ordered, it accentuates the attention that should be given to it by incorporating part of its proposal that together with the technological scaffolding, the The student himself can be aware and position himself in his learning and document his progress in this learning to learn; and that in the end, he can collaborate with his colleagues in the construction of useful knowledge for society.

Thus, the living school of Freinet, moves to a space of virtual interaction, with problems to be solved, but that these are real, that they have a connection with their environment, that this active role that is offered, is to build a space that has life and meaning for students (Chourio and Segundo, 2008), detaching the teacher from a role that administers content, but rather that students live those contents and that allow them to develop skills and attitudes towards these problems from an ethical and constructive.

With the aforementioned theories and proposal, the following scheme is established, integrating that both students and teachers, in emerging modalities such as that posed by the COVID-19 pandemic, can contribute to the individual and collective learning of the group and at the same time, take another step in the construction of knowledge.

Teacher role

The teacher has moved from roles that range from a transmitter of knowledge, to the current teacher who requires having skills in various areas, such as pedagogical, technological and disciplinary, but being aware of current needs, he must have a role of co-builder of knowledge with his students, since he has to make available to his students the resources and materials to achieve it, articulated in situations that generate individual learning, but that support the construction of knowledge for himself, to the others and for society in general, so under that order of ideas the following conditions are established that the teacher must have at present:

The teacher, by knowing and internalizing these theoretical aspects, cannot get out of phase with learning and only place himself in teaching, but is one more learner, both disciplinary and technological, where students perhaps know a little more than he does in ICT matters , and that they should be open to being a guide, mediator, but also a learner and adopt a co-creator role, taking, if not by the hand, if in view of the path that has to be followed to develop skills of search and analysis of information, to arrive at the construction of knowledge; with which the following table is established.

Co-creator teaching role			
Focus Epistemological	Focus Psychopedagogical	Focus Sociological	Focus Technological
Popper	Bruner and Freinet	Vygotsky	Siemens
Critical rationalism	Scaffolding and living school	Sociocultural	Connectivism

Table 1 Co-creator teaching role

Source: Own elaboration

Thus, teachers must generate rich learning spaces, since it is their responsibility to delineate the beginning, dynamics, and constructive continuity of knowledge, having the conditions to generate a cognitive construction in students.

The purpose is that teachers are capable of assuming current challenges that respond to society's problems, but above all that with a high ethical sense they possess fundamental tools such as sensitivity and flexibility to delegate an active role to their students and also, who possesses knowledge to know how to guide them, therefore Abarca (2015) establishes four conditions that teachers must acquire and / or develop in order to:

1. Perceive the problems that derive from the social, economic and cultural transformations we are witnessing.
2. Be attentive to the experiences of the students.
3. Share your joy for the new knowledge, your concerns about the difficulties of understanding and facing their vital processes, which affect relationships with the school, with classmates, with the teacher and with knowledge.
4. To be receptive also to innovative proposals and to the possibilities that open up in the context of the pedagogical relationship, which is, something very different from the mechanical and uncritical adoption of the new.

Therefore, the task is not easy, since it adds the conditions to generate knowledge in its students and respond to the needs of society; Each learning situation must be carefully designed and modeled in order to have the expected effect and to achieve the stated objectives.

To the aforementioned, it is possible to integrate the technological skills necessary to incorporate ICT into their practice and enable students to learn in various settings, this in order to reach the metacognition of the students and establish by themselves the relationships that there is between what they learn and find it useful and important in their future professional endeavors.

Each theory indicated, contributes elements that are translated into actions that the teaching staff must carry out and that imply:

- a) Integrate the methodology of problem-based learning and project-based learning.
- b) Consider the flipped classroom to enrich virtual synchronous times.
- c) Being a learner together with the students, so that they are participants in the construction of knowledge.
- d) Establish networks among the students themselves, regardless of the grade or semester being studied.

Conclusions

Generating learning in students is the first step that leads to a higher step that is to generate the construction of knowledge in a relevant and collective way, so the challenges faced by the teacher require that there be a paradigm shift in the conception of their own epistemic constructions and not only classroom learning situations are developed, but ICTs are included and problems that require the use of the various competencies inserted in the pillars and ends of education are developed, since as it advances and changes society requires other responses, and if you keep doing the same thing with the same teaching practices, you will always have the same results.

The teacher as a social agent in constant change and adaptation, requires to be clear about the role that he plays and the proposal of a co-constructor role of the knowledge that accompanies, mediates, provides and establishes problematic, complex and real learning situations that with their verisimilitude to professional practice, they will allow the student to ask their own questions and needs to advance in their real perception of the world of work, not being adrift of beliefs and limited use of ICT, but with a purpose and a specific teaching proposal and guided by the construction of knowledge.

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Difference in levels of resilience in engineering students and university higher technician

Diferencia en los niveles de resiliencia en alumnos de ingeniería y técnico superior universitario

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DOI: 10.35429/JOCS.2021.25.8.21.26

Received July 30, 2021; Accepted December 30, 2021

Abstract

The objective of this quantitative study was to detect the levels of resilience in students of Higher University Technician (TSU) and Engineering (ING) to develop training strategies on the subject. A quantitative approach methodology was used. The sample chosen through a non-random sampling was made up of 274 men and 142 women, 80% studying TSU and 20% ING, aged between 18 and 30 years. The resilience scale of Wagnild and Young, 1988 was applied. The data were analyzed with the statistical program SPSS 23. The results revealed that university students achieved high resilience scores, in some engineering, compared to the TSU; In addition, there was variation in the levels of resilience, between TSU in Mechatronics (MA) and ING in Automation (ITA), TSU in Information and Communication Technologies (ICT) and ING in ICT. While in the TSU in Marketing (MKT) and ING in Business Innovation (LIN) programs, no alterations in resilience levels are shown. It concludes with the proposal to continue with research that allows detecting other factors inherent to the educational process and the passage through the university associated with resilience.

Students, Resilience, Technological universities

Resumen

El objetivo del presente estudio cuantitativo fue, detectar los niveles de resiliencia en estudiantes de Técnico Superior Universitario (TSU) e Ingeniería (ING) para elaborar estrategias de capacitación sobre el tema. Se empleó metodología de enfoque cuantitativo. La muestra escogida a través de un muestreo no aleatorio, quedó formada por 274 hombres y 142 mujeres, el 80% estudia TSU y el 20% ING, con edades entre 18 y 30 años. Se aplicó la escala de resiliencia de Wagnild y Young, 1988. Los datos se analizaron con el programa estadístico SPSS 23. Los resultados revelaron que los estudiantes universitarios alcanzaron puntajes altos de resiliencia, en algunas ingenierías, comparado con los TSU; además hubo variación en los niveles de resiliencia, entre TSU en Mecatrónica (MA) e ING en Automatización (ITA), TSU en Tecnologías de la Información y Comunicación (TIC) e ING en TIC. Mientras que en los programas de TSU en Mercadotecnia (MKT) e ING en Innovación Negocios (LIN), no se muestran alteraciones en los niveles de resiliencia. Se concluye con la propuesta de continuar con investigaciones que permitan detectar otros factores propios del proceso educativo y del paso por la universidad asociados a la resiliencia.

Estudiantes, Resiliencia, Universidades tecnológicas

Citation: ALONSO-ALDANA, Ruth, FLORES-REYES, Alfonso, GAYTÁN-MARTÍNEZ, Zulema and TOLANO-GUTIÉRREZ, Helga Karina. Difference in levels of resilience in engineering students and university higher technician. Journal of Contemporary Sociology. 2021. 8-25:21-26.

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Introduction

The term resilience is defined by González and Valdez (2006, cited in Espinosa, et al, 2017) as the result of the combination or interaction between the attributes of the individual (internal) and their family, social and cultural environment (external) that enable overcome risk and adversity constructively.

According to Arratia, Medina & Borja, 2008, cited in Caldera, et al (2016), resilience is a dynamic process, which takes place over time, and is based on the existing interaction between the person and the environment, which includes family and social environment. It is the result of a balance between risk factors, protective factors and personality of each individual, functionality and family structure, but it can vary over time and with changes in context. It implies more than surviving the traumatic event or adverse circumstances, since it includes the ability to be transformed by them and even build on them, giving them meaning. Resilience is not only to continue living, but to be successful in some vital aspect and enjoy life in general.

Resilience can be approached from two different approaches. On the one hand, there is the "risk" perspective, which focuses on the aspects that can trigger psychological, biological or social damage; their interest is in the risk factors around the individual. On the other hand, there is the so-called "challenge model", which focuses on the aspects or protective shields that can generate a defense against the possible damage or threat of risk factors and that unleash the subject's ability or ability. to overcome these adversities (Polo, 2009).

That is, the protective factors help the person to tolerate or generate a change of all those negative and dangerous aspects that threaten the balance and development of it. These factors can have an internal or external origin. When resilience has been conceived as a trait, it is suggested that it represents a set of characteristics that allow the individual to adapt satisfactorily to certain external risk factors (Connor and Davidson, 2003; Wagnild and Guinn, 2011; Wagnild and Young, 1993, cited in Ramos, et al. 2017).

For his part, Polo (2009), affirms that risk factors are actions, whether passive or active, that involve danger to the well-being of the person or that produce negative effects on their health or expose aspects of their development.

These two approaches, when integrated, provide a clearer and more complementary vision of the phenomenon. In this sense, it is assumed, on the one hand, the identification of the variables that can negatively and considerably affect the subject, but, also, the existence of barriers that can contribute to cope with risky situations and, even, to get the most out of them profit from adversity, which will lead to development and a better quality of life for the person (Caldera et. al. 2016).

Resilience has become a research topic associated with mental health and the adaptation of the individual in his environment (Salgado, 2005 cited in Villegas, et al. 2017), and has been defined precisely as the potential of individuals to develop psychologically healthy and successful, despite being exposed to situations that threaten their integrity (Vanistendael and Lecomte, 2002, in Villegas, et al. 2017).

Resilience in education

In education, the concept of resilience implies working with strength, that is, perseverance, the ability to undertake and resist, in order to face the problems of family, personal, professional and social life that influence academic performance (Villasmil, 2010, cited in Villegas et al 2017).

Using the words of (Yan Lee, et al, 2012, cited in Tipismana, 2019), academic resilience is the development of potential resources that the university student uses to solve problems and make decisions in typical situations of university life. This teaching includes processes and results, which are shown efficiently both in their cognitive and non-cognitive aspects.

Resilience is an educational intervention technique, in essence it is a new look at old man's problems. Risk has always been present and, from a preventive pedagogy, it is necessary to study all the protective factors that allow people to face risk and get out of it. For resilience processes to occur, the interaction of both the protection and risk factors mentioned above is unavoidable (Lugo, et al, 2016).

Resilience improves the achievement of goals and achievements, poses demands to acquire new resources and allows the student to use them regularly in various situations and contexts where they participate. This interaction will be effective, to the extent that their achievement expectations are permanent, consistent and relevant (Becoña, 2006; Datu and Yuen, 2018, cited in Tipismana, 2019).

The same source comments that, by learning to perceive the possession of their resources, the student will promote their learning and facilitate the handling of uncertainties and the search for certainties to have control of the situation. The purpose is to be able to self-regulate continuously over time, as well as cognitively and emotionally sustainable.

In a study carried out by the Organization for Economic Cooperation and Development [OECD, (2011, cited in Dueñas, et al. 2019)] they find two factors strongly associated with resilience: the first one refers to a positive approach towards learning, shown through attitudes that indicate high levels of motivation, commitment and self-confidence, and the second, to the amount of time spent learning science during normal class hours.

Problem statement

Students develop a system of assumptions, opinions, imaginations of what the university system is like and the role they would play there. Cognitive social theory relies on the core of beliefs and expectations that is provided by its social context, to learn to interact in academic life. The style of how they learn it and develop their strategies will depend on the type of enriched environment or not to structure a personal profile that supports them in this process of academic performance at the university (Tadayon, 2012, cited in Tipismana, 2019). Young university students are in the process of training and they are supposed to be resilient, however, this is not always the case and they can fall into depressive states that even limit them to successfully complete their bachelor's degree. The university student is not exempt from living stressful situations and facing new challenges, so the university becomes an important space to determine resilience and, where appropriate, to favor activities that promote it (Campuzano & Jiménez, 2019).

Studies carried out in students show that there are significant differences with respect to resilience, so it is necessary to identify the resilience of their students in the various student populations in order to take preventive measures Montes & Sábado (2016). In addition, derived from the growth that higher education has had in our country, it has been necessary to consider the educational quality in an important way, which is why it has been necessary to reconfigure academic and management activities to an approach based on attention to needs. specific, including the education and comprehensive training of students, considering the processes associated with the teaching-learning system (Salas, 2013). A resilient student can better cope with stress and therefore be in a position to have significant learning (Campuzano & Jiménez, 2019).

Having expressed the above and considering the relevance that the study of resilience in education currently has, the following problem arises:

Is there a difference in the resilience levels of the Higher University Technician and Engineering students to establish possible training strategies on the subject?

Therefore, this work has the following objective:

Identify the levels of resilience in students of Higher University Technician and Engineering to develop training strategies on the subject.

Method

Shows

The present study was carried out at a University in the South of Sonora, Mexico, during the period from January to March 2020. We worked with a quantitative approach method, the sample was chosen for convenience through a non-random instrument, it was formed out of 416 participants, 80% (n = 331) study the second and fifth semester of Higher University Technician and 20% (n = 85) the eighth semester of Engineering. Of the TSU level, 36% belong to MKT, 32% to MA, and 12% TIC. In Engineering, 12% corresponds to the LIN career, 5% to ITA and 3% to ICT. Age ranges from 18 to 30 years.

Instrument

The Wagnild and Young, 1988 resilience scale was used, revised by the same authors in 1993. It is composed of 25 items, which score on a 7-point Likert-type scale, where 1 is in disagreement and a maximum of agreement is 7, all worded in a positive sense.

The total score of the scale was obtained by adding the individual results of each of the items and classifying them into three ranges of resilience: low level (25 to 75), medium (76 to 125) and high (126 to 175).

Process

The tests were applied in the classroom, with the prior authorization of the students. Each study lasted about 20 minutes. The reason for the work and its relevance were explained to the participants, in terms of the importance of knowing their level of resilience. Likewise, they were asked to carefully read each of the items and indicate the number of the answer that most closely matched their way of thinking and acting.

Data analysis

The data obtained were captured and analyzed using the statistical program SPSS version 23.

Results and discussion

The statistical results reveal that there are differences in the levels of resilience between university students of TSU and engineering, in table 1 it is shown that most of the participants who study TSU show a high level of resilience (89%), average resilience the 10% and 1% report a low level. In relation to Engineering there is an increase in the levels of resilience, 91% and 9% show the high and medium level respectively. In the opinion of Lavado (2019), resilience in university life contributes as a factor of self-protection against adverse situations and is the capacity that an individual has developed in an unfavorable environment. Likewise, adaptation to university life includes: adapting to the bachelor's degree, the educational program and the demands that the study implies, in addition, the adaptation is used as a reference to a person who is involved with his environment.

Resilience levels	TSU		engineering	
	Frequency	%	Frequency	%
Baja	4	1	-	-
Media	32	10	7	9
Alta	395	89	78	91
Total	331	100	85	100

Table 1 Resilience Levels at TSU and Engineering level

On the other hand, it was also found that the levels of resilience are different among students from different educational programs, these levels were compared and it was found that there are changes between TSU in MA 89% and 95% in ITA, a slight variation of 76 % in TSU in ICT and 75% in ING in ICT. While in the TSU programs in MKT and LIN, no differences are shown in the levels of resilience (Table 2).

Caldera, et al (2016), highlight that when university students obtain high resilience scores, at the higher level, this scenario may be due to the very demand of higher education studies, considering that the mandatory path for these disciples to access At the higher level, it implies 12 years of previous study, in which they faced many complex and sometimes problematic contexts such as stress, evaluations, group conflicts and the demands of teachers and parents, among others, that demand the acquisition, sometimes forced, of behaviors and cognitions with a certain degree of resilience. Regarding not finding statistically significant differences in MKT and LIN, Hernández, et al (2020), refer that more empirical research is required to demonstrate that students in these educational programs lack adverse situations before which they have to show resilient behaviors.

Resilience levels	MKT (TSU) %	LIN (ING) %	MA (TSU) %	ITA (ING) %	TIC (TSU) %	TIC (ING) %
Short	-	-	2	-	2	-
Half	6	6	9	5	22	25
high	94	94	89	95	76	75
Total	100	100	100	100	100	100

Table 2 Resilience levels in educational programs

In addition, the ANOVA comparison test was carried out between the resilience scale and the career studied by the participants. Table 3 shows the results, which showed that the students who are studying the Bachelor's Degree in Business Innovation and Engineering in Automation Technology present higher scores in all the variables with respect to the average. In relation to the analysis between the six educational programs evaluated (Marketing (TSU), Business Innovation, Mechatronics (TSU), Automation (ING), Information Technologies (TSU) and Information Technologies (ING), they show a significant difference with the scale resilience (Table 3).

Variables	MKT (TSU) M	LIN (ING) M	MA (TSU) M	IFA (ING) M	TIC (TSU) M	TIC (ING) M	ANOVA F(410)	p
Total Resilience	4.81	4.97	4.71	4.85	4.46	4.17	5.22	.00

Table 3 Simple variance analysis. Variable career

Conclusion

The objective of this work was fulfilled: Identify the levels of resilience in university students of Higher University Technician and Engineering to develop training strategies on the subject.

The results obtained set the tone to continue in the investigation of this very relevant issue, Barcelata (2015) affirms that resilience is not permanent, in longitudinal studies, they show that non-resilient adolescents became resilient in adulthood and showed success in important domains such as employment, housing and social activity; For this reason, it is suggested to carry out a longitudinal study that allows observing the behavior of emerging adults classified as low and high resilience, during their time at university and after graduation, in the work context (León et al. 2019).

Resilience, specifies the achievement of goals and achievements, designs demands for the construction of new resources, allows the student to use them regularly in various situations and contexts where he interacts. The interaction will be effective, as long as your expectations of achievement are consistent, congruent and relevant. That is, perceiving the possession of their resources will promote learning and facilitate the handling of uncertainties and the search for certainties to have control of the situation.

The goal is to achieve permanent self-regulation over time, cognitively and emotionally (Becoña, 2006; Datu and Yuen, 2018).

Villegas et al (2017) state that it is necessary to implement strategies that allow students to invigorate their resilience, considering that every day there are more media in which adolescents are immersed and paradoxically “feel alone”.

A limitation of this study is that it was necessary to extend this research to all the educational programs of the University at the TSU and ING levels.

It is also recommended to continue with studies that allow detecting other factors inherent to the educational process and the passage through the university associated with resilience, so that the resilience-higher education relationship can be characterized more precisely since having a higher university level, it can be a protective factor against adversity; Therefore, it is desirable that both at a personal, family and institutional level, greater efforts be made to increase the educational level of people (Hernández, et al, 2020).

Finally, it is proposed to create intervention programs, workshops or courses with the aim of promoting and developing resilience in university students, in such a way that they can help them establish resilient protective factors and thus manage to cope with various adversities that arise in their lives. (Villegas et al, 2017).

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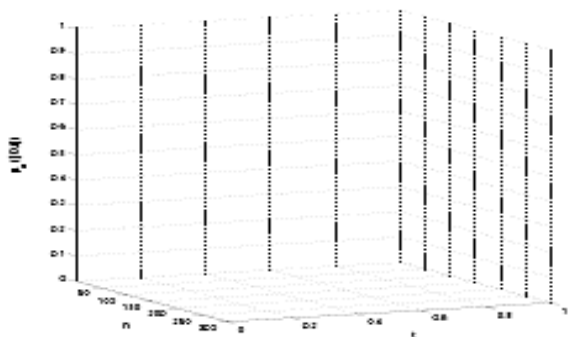
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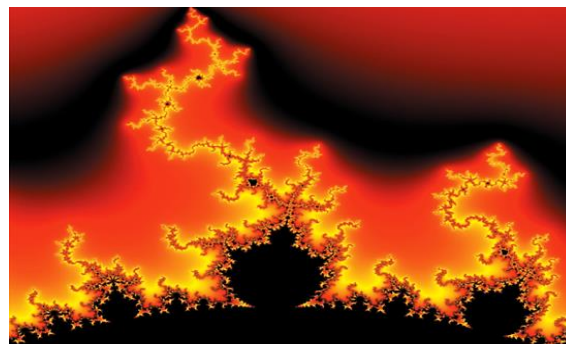


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