

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

SÁNCHEZ-RIVERA, Lilia†*, ESPERICUETA-MEDINA, Marta Nieves, RAMOS-JAUBERT, Rocío Isabel and MEDELLIN-TRUJILLO, Marcela Lizet

Universidad Autónoma de Coahuila, Faculty of Science, Education and Humanities, Mexico.

ID 1st Author: *Lilia, Sánchez-Rivera* / ORC ID: 0000-0001-9468-2599, Researcher ID Tomson: T-1404-2018, CVU CONACYT ID: 613195

ID 1st Co-author: *Marta Nieves, Espericueta-Medina* / ORC ID: 0000-0002-4924-4332, Researcher ID Tomson: T-1500-2018, arXiv Author ID: Espericueta2018, CVU CONACYT ID: 372705

ID 2nd Co-author: *Rocío Isabel, Ramos-Jaubert* / ORC ID: 0000-0003-3289-5390, Researcher ID Thomson: T-1652-2018, CVU CONACYT ID: 201861

ID 3rd Co-author: *Marcela Lizet, Medellin-Trujillo* / ORC ID: 0000-0003-4747-6092, CVU CONACYT ID: 1136210

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.

* Author Correspondence (E-mail: lsr14712@uadec.edu.mx).

† Researcher contributing as first author.

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.

References

Anaya a & Anaya C (2010) ¿Motivar para aprobar o para aprender? Estrategias de motivación del aprendizaje para los estudiantes Tecnología, Ciencia, Educación, vol. 25, núm. 1, 2010, pp. 5-14.

ALCÁZAR, J. A. (2009). *LOS ESTILOS DE APRENDIZAJE EN LA ENSEÑANZA*. <https://www.feandalucia.ccoo.es/docu/p5sd6252.pdf>

Cabrera Albert, J., & Fariñas León, G. (s.f.). *Revista Iberoamerica*. El estudio de los estilos de aprendizaje desde una perspectiva vigotskiana: una aproximación conceptual.

Maldonado, G. G. (2014). *Estilos de Aprendizaje*. Revista electrónica de divulgación investigación : http://portales.sabes.edu.mx/redi/6/pdf/SABES_3_aprendizaje.pdf

Marinoni, Giorgio, Van't Land, Hilligje, & Jensen, Trine. (2020). *The Impact of COVID-19 on Higher Education Around the World IAU Global Survey Report*. Retrieved from https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf

Martí, E. (2003). *Representar el mundo externamente. La construcción* Antonio Machado.

Navarro, R. E. (2003). *El rendimiento académico: concepto, investigación y desarrollo*. Revista Iberoamericana sobre: <https://www.redalyc.org/pdf/551/55110208.pdf>

Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura. (2020). *El secretario general de las Naciones Unidas advierte de que se avecina una catástrofe en la educación y cita la previsión de la UNESCO de que 24 millones de alumnos podrían abandonar los estudios*. <https://es.unesco.org/news/secretario-general-naciones-unidas-advierte-que-se-avecina-catastrofe-educacion-y-cita>

Rodríguez, D. R. (2019). *Rendimiento académico y factores sociofamiliares de riesgo. Variables personales que moderan su influencia*. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982019000200118

Reyes, O. B., Ávila, F. M., Andrade, M. V., & Alcívar, M (2020). Influencia del género en los estilos de aprendizaje. (UNEXPO, Ed.) *Revista Universidad, Ciencia y Tecnología*, 24(107).

Schmeck, R. (1988). *Individual Differences and Learning Strategies in Learning & Study Strategies Issues in Assessment, Instruction & Evaluation*.
<file:///C:/Users/Usuario/Downloads/Dialnet-LosEstilosDeAprendizajeAplicadosALaEnsenanzaDelEsp-4904031.pdf>

Schmeck, R. R., Ribich, F., & Ramanaiah, N. V. (1977). *University of Minnesota Digital Conservancy*. Obtenido de Development of a self-report inventory for assessing individual differences in learning processes.: <https://hdl.handle.net/11299/98563>

Torrano, F., & Soria, M. (2017). Diferencias de género y aprendizaje autorregulado: el efecto del rendimiento académico previo. *Revista Complutense de Educación*, 28(4), 1027-1042.

UNESCO IESALC. (2020). *Covid-19 y educación superior: de los efectos inmediatos al día después. Análisis de impactos, respuesta y recomendaciones*. París, Francia: UNESCO. <http://www.iesalc.unesco.org/wp-content/uploads/2020/04/COVID-19-060420-ES-2.pdf>