

The influence of learning styles on educational quality in Higher Education

La influencia de los estilos de aprendizaje en la calidad educativa en la Educación Superior

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DOI: 10.35429/JOTE.2023.19.7.5.11

Received July 10, 2023; Accepted December 30, 2023

Abstract

In this research, the issue of education is addressed as an essential component for the transmission of knowledge. Education is a complex process that involves diverse challenges for both educators and students, which motivates the central research question: How do learning styles affect the education of higher education students? The research design was carried out with a sample of 60 students and a research instrument was developed consisting of 4 variables and 33 variables related to the phenomenon under study. These variables were evaluated using a scale ranging from 0 to 10, where 0 represents the total absence of an attribute and 10 its maximum presence. Among the most outstanding findings of this research is the relevance of regular class attendance as a critical factor in ensuring quality education. Likewise, it was identified that the quality of education is influenced by the learning styles promoted in the educational environment, especially those that emphasize the presentation of novel information. Teachers play an essential role in providing clear and understandable teaching on the topics addressed. Regarding the conclusions, it was determined that ease of teaching is manifested when learning styles are actively supported and applied by teachers. Clarity in the presentation of the contents is considered an essential element, and the active participation of students, including the study and research of topics outside the classroom, contributes significantly to the quality of education. Effective communication between teachers and students is a key factor, although it can be hindered when students are distracted during lessons.

Stress, Resilience, Mental health

Resumen

En esta investigación, se aborda el tema de la educación como un componente esencial para la transmisión del conocimiento. La educación es un proceso complejo que involucra diversos desafíos tanto para los educadores como para los estudiantes, lo que motiva la pregunta central de investigación: ¿Cómo influyen los estilos de aprendizaje en la educación de los estudiantes de educación superior? El diseño de la investigación se llevó a cabo con una muestra de 60 estudiantes y se desarrolló un instrumento de investigación que consta de 4 variables señaladas y 33 variables relacionadas con el fenómeno en estudio. Estas variables se evaluaron utilizando una escala que abarca desde el 0 hasta el 10, donde 0 representa la ausencia total de un atributo y 10 su máxima presencia. Entre los hallazgos más destacados de esta investigación se enfatiza la relevancia de la asistencia regular a clases como un factor crítico para asegurar una educación de calidad. Asimismo, se identificó que la calidad de la educación está influenciada por los estilos de aprendizaje promovidos en el entorno educativo, especialmente aquellos que enfatizan la presentación de información novedosa. Los docentes desempeñan un papel esencial al proporcionar una enseñanza clara y comprensible sobre los temas abordados. En cuanto a las conclusiones, se determinó que la facilidad en la enseñanza se manifiesta cuando se respaldan y aplican los estilos de aprendizaje de manera activa por parte de los docentes. La claridad en la exposición de los contenidos se considera un elemento esencial, y la participación activa de los estudiantes, incluyendo el estudio e investigación de los temas fuera del aula, contribuye de manera significativa a la calidad de la educación. La comunicación efectiva entre docentes y estudiantes es un factor fundamental, si bien puede verse obstaculizada cuando los alumnos se distraen durante las clases.

Estrés, Resiliencia, Salud mental

Citation: RAMIREZ-CERECERO, José Ricardo, GARCÍA-CONTRERAS, Laura Patricia and DIAZ-MURILLO, Fernando. The influence of learning styles on educational quality in Higher Education. Journal of Technical Education. 2023, 7-19: 5-11

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Introduction

This research focuses on the study of learning styles in the context of Higher Education, a crucial area in the academic training of students. The results of this study have a significant scope that transcends the university community and benefits both students and teachers.

The importance of this research lies in its potential to improve the quality of education as a whole. The findings and recommendations derived from this study can be applied in various areas of knowledge, as learning styles are a universal variable in education. Identifying and adapting the teaching process according to individual learning styles can improve the effectiveness of teaching in any discipline.

This study will not only benefit the students and teachers directly involved, but will also serve as a model and guide for the entire university community. Incorporating the identification of learning styles and their integration into the educational process can become a university-wide best practice, leading to a widespread improvement in the quality of teaching and learning.

In summary, this research has a significant potential impact on the entire university community by promoting more effective teaching tailored to the individual needs of students, which will ultimately contribute to their academic success and the strengthening of the institution as a whole.

Rationale

The present research will focus on students in Higher Education, so the scope of this study transcends and benefits students and teachers at university level.

The relevance of this research lies in its potential to improve the quality of education as a whole. The results and proposals that emerge from this study can be applicable to students and teachers in different areas of knowledge, since learning styles are a universal variable in education. This means that by identifying and adapting the process of knowledge transmission according to learning styles, the effectiveness of teaching in any field of study can be improved.

In this sense, the research will not only benefit students and teachers, but will also serve as an example and a guide for the whole university community. The identification of learning styles and their integration into the educational process can be adopted as a recommended practice throughout the university, which will lead to a widespread improvement in the quality of teaching and learning.

In summary, this research has a significant potential impact on the entire university community by promoting more effective teaching tailored to the individual needs of students, which will ultimately contribute to their academic success and the strengthening of the institution as a whole.

Research question

How do learning styles influence the education of students in Higher Education?

General Objective

To find out how learning styles influence the education of students in Higher Education.

Specific Objectives

1. To identify the way in which the student's learning is facilitated.
2. To define the concepts that we seek to teach students according to their learning style.
3. To base the previous preparation that leads to the preparation for this teaching method on the learning styles.

Research questions

1. How to identify the best way in which the student learns?
2. How to identify the best teaching strategy for the learner according to his or her learning styles?

Theoretical framework

Learning styles are the different ways in which each student approaches the process of learning a specific subject. In essence, each individual has their own approach to assimilating and understanding information (Gómez and Gil, 2018).

This may depend on their previous experience or prior knowledge (Algarra and Fernando, 2019; Izurieta and Villalva, 2019). Therefore, when a lesson is taught to a group of learners, some may understand it quickly, while others may find it difficult. In extreme cases, failure to adapt to individual learning styles can lead to academic failure, career change, dropping out or even dropping out of school. (Freiberg *et al.*, 2017; Yacub *et al.*, 2018).

From this perspective, it is crucial for educators to recognise and understand the learning styles of their students. This allows understanding that each individual is unique (Kolb and Kolb, 2005; Papadatou-Pastou *et al.*, 2020) and that not everyone adapts in the same way to a specific teaching approach. Consequently, it becomes essential to redesign teaching strategies (Bernard *et al.*, 2017; Camana and Torres, 2018; Cantú-Martínez and Rojas-Márquez, 2018; Felder, 1988), whether for individual or group instruction (Gordillo, 2020; Valdés and Sánchez, 2020), or even for tutoring (Franco *et al.*, 2020).

Felder (2010) defined learning styles as the way an individual perceives and processes information. When these styles match the way a teacher delivers information, students tend to understand it better (Budiyanto *et al.*, 2020; Felder, 1988; Papadatou-Pastou *et al.*, 2020; Soflano *et al.*, 2015). Furthermore, Pérez (2018) suggests that teaching strategies should favour students' cognitive development (Muñoz, 2020). To achieve this, it is important not to limit oneself to traditional methodologies, but also to take advantage of information technologies (Bravo and Arzube, 2017; A. Pérez *et al.*, 2020) in both face-to-face and virtual learning environments. In both cases, it is essential to identify students' learning styles (Gomedé *et al.*, 2020).

Several authors, such as Labib *et al.* (2017), Vokić and Aleksić (2020), Chen *et al.* (2020) and Felder (1988), have investigated learning styles in higher education. They all agree that each student perceives and processes information in a unique way. Felder stated that "students tend to learn best when the teacher's teaching style matches their learning preferences" (1988, p. 23). Labib *et al.* (2017) highlight that learning styles have been successfully used to help teachers design effective instruction.

Therefore, even teachers can self-assess themselves after their classes (Castillo-Cabeza and Camacho-Marín, 2020) to improve their teaching strategies, drawing on their understanding of students' learning styles.

Education is a concept that encompasses much more than memorising facts from books. It goes beyond passing exams and obtaining academic degrees; it involves learning to perceive various aspects and being in direct contact with the environment.

Methodology

The research design involved working with 60 university students, 45 of whom were female, 14 were male, and one participant was identified who did not fall into any of these categories. An instrument was applied consisting of 05 signal variables corresponding to gender, age, degree being studied, personal hygiene and the comfort felt in the school in which they are studying, and 33 variables of the study phenomenon, using a scale of 0-10 where zero is the absence of the attribute and 10 its maximum presence.

The research participants are young people between the ages of 16 and 27. They all have different socio-economic backgrounds, most of them dress fashionably nowadays, most of them depend on their parents for their studies.

The pilot test was developed using Google Forms. The test was applied by means of a QR code that was scanned by the participants. In order to explain the behaviour of the variables, the statistical levels of univariate, characterisation and correlation were used to carry out an objective investigation.

Results

Frequency and percentage:

It can be observed that the majority of the students are distributed in two main groups, both with 12 students, which is equivalent to 40% each. These two groups comprise 19 year olds and 18 year olds. Another group of students with a majority is composed of 20 year olds, representing 18.3% of the total. This is followed by 17 year olds, with a total of 9, which is equivalent to 15% of the total.

Then we have the 21 year olds, with a total of 8 students, representing 13.3%. In the next group, 22 year olds, there are 4 students, equivalent to 6.6%. Finally, there is only 1 student in each of the following age groups: 28 years, 27 years, 16 years and 23 years. These individual groups each represent 1.6% of the total. It can be inferred, then, that students aged 19 and 18 are the most numerous in the sample.

Characterisation

In the analysis of the Z variable, it is noted that most of the variables are predictors ($Z >= 1.96$), given that they have a margin of error of less than 5%. This suggests that these variables, having a high level of confidence, can be extrapolated to other populations sharing similar characteristics.

It is observed that the variables that obtain high values on the scale (7, 8, 9, 10) are the following: new information ($X=7.83$), socialising ($X=7.38$), empathy ($X=7.15$), improving ($X=7.17$), talking intimately ($X=7.38$), teacher as a profession ($X=7.27$), homework ($X=7.63$), attending classes ($X=8.70$), group as a means of gathering ($X=7.25$) and body as a means of communication ($X=7.47$). This leads to the conclusion that attending classes is fundamental to ensure quality education.

As for the coefficient of variation (CV), it is noticeable that most of the variables behave as a group of opinion ($CV \leq 51\%$). This suggests that the variables present an acceptable level of confidence and homogeneity from a scientific point of view. Finally, it is observed that the variable "formal communication" ($X=3.80$) is below the lower limit ($Li=3.99$, $Xx=6.38$, $Ls=8.77$). This leads to the inference that students who fail to achieve quality education might face difficulties due to problems in their level of communication with their peers.

Correlation

The correlation analysis involving 33 variables and a population of 60 subjects is presented below. It is relevant to mention that the correlation was determined using Pearson's correlation coefficient, with a significance level of ($P=0.01$) and a correlation level of ($r=0.33$).

The main correlation observed for the variable "New information" shows that university teachers generally teach students information that goes beyond their prior knowledge, which often helps students to resolve their doubts ($r=0.45$). This leads to the educational content being clear to them ($r=0.57$). In addition, it is noted that students show a great willingness to communicate with others ($r=0.46$) and to carry out an in-depth analysis of what they learn in class ($r=0.46$). It also stands out that learning is reinforced because teachers show great empathy towards the situations faced by students ($r=0.52$).

The correlation of the variable "Teacher Facilitates Teaching" reveals key aspects about the interaction between university students and their teachers. In general, teachers provide support during classes in order to facilitate their students' learning. This is reflected in the fact that students tend to study the topics and concepts taught in class ($r = 0.44$). Furthermore, students perceive clear teaching by teachers ($r = 0.59$). This supportive environment also motivates students to carry out self-initiated research on topics that interest them ($r = 0.37$). However, students who do not experience smooth teaching tend to lose interest in the class ($r = -0.36$) and may get stuck on a single topic ($r = -0.45$).

These findings suggest that teachers who succeed in facilitating teaching do so primarily through their ability to explain clearly and effectively. This, in turn, contributes to students' perceived ease in their learning process and in their overall educational experience.

Finally, it was observed that university students experience a high quality education and a conducive environment when the teacher shows empathy towards their personal challenges and situations, whether school-related or not. This empathy is reflected in several aspects, such as the effective accomplishment of tasks, like writing informative texts ($r = 0.49$) or presenting information through presentations made by the students themselves to the class ($r = 0.41$). In addition, it is facilitated when students provide each other with help when needed ($r = 0.39$) and when formal and respectful communication is established in the classroom ($r = 0.33$).

However, there is a challenge with students who tend to despair during lessons ($r = -0.37$). These findings suggest that teacher empathy towards the group is strengthened when students are able to accomplish educational tasks, such as writing texts that can be presented to the class, and when they create an atmosphere of mutual support and respect. This, in turn, contributes to an optimal learning environment for both teacher and students. From these results, it is inferred that educational quality is established when learning styles that focus on the presentation of novel information are promoted in the classroom, and when teachers encourage clarity in the content being addressed.

Acknowledgements

Universidad Autónoma de Coahuila (without funding).

Conclusions

Of course, the conclusions are presented below, organised thematically:

In relation to the frequencies and percentages in the variable "Gender," it is observed that the majority of students in the sample are of female gender. This gender distribution may influence the interpretation of the results, and it is suggested to consider the reliability of the variables in populations with similar characteristics.

In relation to characterisation

- All variables examined in the characterisation of the sample show a high level of confidence, suggesting that the results are applicable to other populations with comparable characteristics. This supports the extrapolation of data to similar contexts.

Regarding the statistical treatment of correlation

- Educational quality is established by promoting learning styles that focus on the presentation of novel information in the classroom. In addition, the importance of teachers providing clarity in the presentation of content is emphasised, which creates an environment conducive to learning.

- Ease of teaching is related to the teacher's active support in the delivery of lessons, clarity in the presentation of content, students' commitment to study and research outside the classroom, and effective communication between teachers and students.

These findings highlight the relevance of promoting innovative learning styles and the importance of clear and effective communication in the educational process. They also underline the need for active student participation and the fundamental role of teachers in educational success.

Discussion

In research by Carriazo *et al.* (2020), the importance of pedagogical leadership in the strategic planning of educational institutions is raised. It is argued that having highly trained pedagogical leaders is essential for designing and implementing effective strategies that lead to the achievement of short- and long-term goals, which ultimately translates into quality education. However, it is relevant to contrast this perspective with the findings of this research.

The results of this research indicate that educational quality depends not only on pedagogical leadership and strategic planning, but is also closely related to the promotion of learning styles that focus on the presentation of novel information and clarity in the transmission of content by teachers. In this sense, it is suggested that, although pedagogical leadership and strategic planning are essential components of educational quality, they are not sufficient on their own. Innovation in teaching methods and effective communication between teachers and students play an equally crucial role in shaping quality education.

In conclusion, educational quality is a multidimensional outcome that involves both pedagogical leadership and strategic planning as well as the promotion of innovative learning approaches and clarity in teaching. These factors work together to deliver high quality education and must be considered holistically to achieve significant improvements in education systems.

Intervention Proposals

- Carry out an intervention project that identifies students' learning styles.
- Establish an educational model focused on learning styles as a key element of educational quality.
- Prioritise learning styles in the curriculum to improve academic performance.

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