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Educativo Jalisco A. C.***

***Principais estilos de aprendizagem presentes em estudantes de Nutrição:
estudo de caso do Centro Educativo Jalisco A. C.***

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Resumen

En este documento se presentan los resultados de una investigación educativa en la que se estudió una de las ofertas educativas del Centro Educativo Jalisco A. C. con el objetivo de identificar, mediante un test de estilos de aprendizaje (modelo PNL), los principales que se hallaban presentes en los alumnos de esta institución. Asimismo, se procuró determinar los canales y estilos cognitivos más apropiados para generar impactos positivos en su crecimiento profesional. Los resultados demuestran que el 44% de los alumnos tienen un estilo de aprendizaje cinestésico, de modo que lo más adecuado es promover trabajos por descubrimiento o activo. Esto significa, además, que la enseñanza debe basarse en una teoría pedagógica constructivista. De hecho, las técnicas, estrategias y herramientas utilizadas que favorecen este canal cognitivo están alineadas con esta corriente pedagógica. A partir de estas observaciones, se puede afirmar que el diagnóstico realizado contribuye teóricamente al desarrollo de propuestas de cursos y/o talleres relacionados con estilos de aprendizaje y estrategias para su identificación, así como al uso de nuevas estrategias, herramientas y técnicas en el aula, y a la organización de ambientes de aprendizaje ricos en múltiples estrategias y medios para aumentar la motivación y el interés por el conocimiento.

Palabras clave: estilos de aprendizaje, canales cognitivos, tipos de aprendizaje.

Abstract

This document presents the results of an educational investigation conducted to study one of the educational offerings at Centro Educativo Jalisco A.C. The objective was to identify, through a learning styles test (NLP Model), the predominant learning styles among the students and to determine the most appropriate cognitive channels and styles to enhance their professional growth. The study found that 44% of the students have a kinesthetic learning style, suggesting that discovery or active learning approaches are most suitable. This indicates that teaching should be supported by constructivist pedagogical theory. The techniques, strategies, and tools that favor this cognitive channel align with this pedagogical approach. Based on these observations, the diagnosis provides a substantial theoretical contribution to developing course and workshop proposals related to learning styles and strategies for their identification. It also supports the use of new strategies, tools, and techniques in the classroom to create learning environments rich in diverse strategies and media, thereby increasing motivation and interest in knowledge.

Keywords: Learning styles; Cognitive channels; types of learning.

Resumo

Este documento apresenta os resultados de uma pesquisa educacional na qual foi estudada uma das ofertas educativas do Centro Educativo Jalisco A. C. com o objetivo de identificar, através de um teste de estilos de aprendizagem (modelo PNL), os principais que estavam presentes nos alunos. desta instituição. Da mesma forma, procurou-se determinar os canais e estilos cognitivos mais adequados para gerar impactos positivos no seu crescimento profissional. Os resultados mostram que 44% dos alunos possuem um estilo de aprendizagem cinestésica, portanto o mais adequado é promover a descoberta ou o trabalho ativo. Isto também significa que o ensino deve basear-se numa teoria pedagógica construtivista. Na verdade, as técnicas, estratégias e ferramentas utilizadas que favorecem este canal cognitivo estão alinhadas com esta tendência pedagógica. A partir dessas observações, pode-se afirmar que o diagnóstico realizado teoricamente contribui para o desenvolvimento de propostas de cursos e/ou oficinas relacionadas aos estilos de aprendizagem e estratégias para sua identificação, bem como para a utilização de novas estratégias, ferramentas e técnicas na sala de aula e à organização de ambientes de aprendizagem ricos em múltiplas estratégias e meios para aumentar a motivação e o interesse pelo conhecimento.

Palavras-chave: estilos de aprendizagem, canais cognitivos, tipos de aprendizagem.

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Introduction

The "Copernican Revolution" in pedagogy shifted the focus from teaching to learning, sparking renewed interest in learning theories and paradigms. This shift has changed learning dynamics, where the teacher is no longer the central figure but rather a guide, mentor, and facilitator of learning, capable of creating opportunities and learning environments in the classroom.

Now, although the central role of the educational process is currently assumed by the student, this does not mean that the teacher has ceased to be important, since he is now conceived as a guide, mentor and facilitator of learning, capable of creating opportunities and learning environments in the classroom (Tünnermann Bernheim, 2011).

Understanding learning as the essence of pedagogical and didactic work in modern universities is crucial. According to theorist Ausubel, "there is a deep connection between



knowing how a student learns and knowing what to do to improve their learning" (Pereda & Raquel, 2018, p. 30). This connection is essential because we truly appropriate knowledge when we internalize it and integrate it into our cognitive structure (Pereda & Raquel, 2018).

Knowledge is a human construction, interpreted and given meaning through the central nervous system's activity, resulting in individually created realities not bound by natural laws. That is, each person interprets reality in a particular way, depending on their physical abilities, the emotional state they are in, as well as their social and cultural circumstances (Ortiz Granja, 2015).

Learning styles reflect students' progress and preferred methods of capturing, organizing, and processing information, necessitating that teachers adapt their practices to individual learning characteristics for more effective teaching (Galindo & Murrieta, 2014).

It is important to note that the concept of cognitive style has been studied since the 1950s, as researchers sought to integrate theories of perception with other cognitive aspects of Gestalt psychology. Although there is no single definition of cognitive style, Hermann Witkin, often referred to as the "father of cognitive style" for his work on the field-dependent/independent dimension, defines it as a consistent pattern of perceptual and individual activities exhibited by people. These patterns can be assessed through controlled laboratory procedures (García García, 2022).

Knowing cognitive styles is crucial to understanding how each person processes information and thus establishing personalized plans that improve abilities and motivate learning. Since the concept was introduced by GW Allport in 1930, many definitions and subdivisions of cognitive styles have been published (Montenegro, January 4, 2019). The most accepted ones are the following:

1. Dependence vs. independence from the environment: The individual who is dependent on the environment generally has a holistic perspective of the situation and can be influenced by it. In contrast, the subject who is independent of the environment tends to carry out a more detailed examination of the element that interests him, without giving the same importance to the context in which he finds himself.
2. Reflexivity vs. impulsivity: The impulsive individual tends to react quickly and vigorously, which increases the risk of making mistakes. On the other hand, the reflexive subject opts for a slower pace to examine and assess the situation, which allows for greater accuracy and effectiveness, although at the expense of being more deliberate and inactive.

3. Sensory vs. intuitive: Sensing users rely on data available through the senses and base their decisions on previous information. In contrast, intuitive users use their imagination, have a more impulsive attitude, and go beyond concrete facts.
4. Verbal vs. visual vs. tactile: This concept refers to the way people best absorb information, whether through sight, hearing, or touch. These cognitive styles are associated with different life stages. For example, the tactile style is often linked to young children and older adults, while verbal and visual styles are more common among young people and adults.
5. Convergent vs. Divergent: Partly related to creativity, the convergent style focuses on finding a specific solution through the convergence of available information. On the other hand, the divergent style seeks to present various alternatives, among which it can be difficult to choose.
6. Leveler vs. Sharp: These terms refer to people's ability to recognize similarities and differences between stimuli. Levelers tend to underestimate differences between elements and have a greater ability to simplify, allowing them to generalize more easily. Sharpers, on the other hand, tend to retain and highlight differences, more clearly distinguishing the different elements of the whole.
7. Tolerant vs. intolerant: This dimension refers to the ability to be flexible and open-minded toward differences. A tolerant person accepts the possibility of other options and is willing to change his or her way of thinking, while an intolerant person is less able to accept other alternatives.

The term “learning style” refers to the methods or strategies that each person uses to learn. Although strategies vary depending on what one wants to learn, each individual tends to develop certain preferences or global tendencies that define their learning styles. We speak of general tendencies because, for example, people who tend to be listeners may use visual strategies in certain situations (Galindo and Murrieta , 2014).

Educators prefer to refer to “learning styles” while psychologists lean towards “cognitive styles”. Other authors suggest using the term “ learning style preferences” instead of “learning styles”. Shaughnessy (2004) preference is a more precise classification and is defined as the preferred way of learning, i.e. using pictures rather than text, working alone or with others, in structured or unstructured situations. Other relevant conditions are also considered, such as the environment with or without music, the type of chair used, etc. (Shaughnessy , 2004).

The preference for a particular style does not always guarantee that its use will be effective, since in some cases students can benefit from the development of new ways of learning (Galindo and Murrieta , 2014).

The term "learning," given the preconditions, can be understood as the process of assimilating information and generating changes in behavior; specifically, a relatively long-lasting transformation in behavior resulting from experience or practice. Therefore, experience is fundamental to the concept of learning. Einstein stated that "learning is experience; everything else is just information." Following this perspective, we can assert that the concept of learning involves changes over a relatively short period, enabling students to respond more appropriately to situations.

Learning is therefore a process of individual and social construction that the student must regulate. Biggs (2005) argues that four conditions are necessary for learning:

- Well-structured knowledge base.
- Appropriate motivational context.
- Activity by the student.
- Interaction with others.

Learning style has become an important factor in promoting quality teaching. Some authors consider that knowing the strengths of students' learning styles is essential to adapt teaching methods to their characteristics, which contributes to improving their levels of educational performance. In addition, this favors the development of "learning to learn" and emotional aspects of the student (Gutiérrez Tapias, 2018).

According to the arguments presented, it is crucial to consider the ideas of Barbe, Swassing, and Milone, who investigate learning styles in relation to sensory perception and identify three types of patterns, also known as perception styles or representation systems: visual, auditory, and kinesthetic. Understanding each of these styles is essential. Visual learners learn and perceive better through observation, easily process written information, remember faces instead of names, and visualize details. Auditory learners primarily use the sense of hearing to learn, do not form complete images, remember sounds and names instead of faces, and do not visualize details. Finally, the kinesthetic-tactile style refers to the need to touch and experience in order to learn, act, and create products and projects (Castro and Guzmán de Castro, 2005).

Based on the aforementioned considerations and years of research by numerous scholars into the needs of each participant and the conditions affecting their learning, various

types and theories of learning have emerged. These theories are regarded as guidelines for the transmission and acquisition of knowledge. Consequently, the following indicators have been developed (campuseduccion.com, 2019):

1. Cooperative learning. It allows participants to access information cooperatively, drawing on both their own and others' knowledge.
2. Collaborative learning is an educational method that highlights the importance of students collaborating to solve problems, complete tasks, and learn from each other.
3. Observational learning. It is based on a model situation where a participant carries out an action and sets an example for another who observes and learns.
4. Emotional learning. It involves the emotions of the participants, considering that they provide great benefits by generating well-being in them and refining their treatment of others.
5. Experiential learning. Participants experience a situation in which they learn through practice and mistakes, while reflecting on their perception of what happened. This allows them to evaluate the attitude they took at that moment.
6. Discovery or active learning. Participants interact with the instructor/facilitator as they ask questions, search for information, make connections between new ideas and previously learned concepts, and organize each idea according to the context in which they find themselves.
7. Receptive learning: A type of learning in which knowledge is understood, assimilated and reproduced. Participants act as passive receivers and do not actively intervene in the process, so they are limited to receiving information.
8. learning . It is distinguished by the collection, selection, structuring and establishment of connections between certain new concepts and previous ones, which generates knowledge through association.

The Jalisco AC Educational Center, commercially known as the Escuela de Enfermería y Nutrición Jalisco, was incorporated into the University of Guadalajara on December 16, 2005. The first semester began in February 2006. Initially established as the Jalisco Nursing School, it was renamed the Jalisco Nursing and Nutrition School in January 2008. Since then, the institution has been dedicated to training graduates in nursing and nutrition with a strong scientific, technical, humanistic, cultural, ethical, and moral foundation. This education aims to address the health needs of the population by fostering

attitudes that support differentiated practice, broad criteria, critical thinking, and a social commitment to health care and disease management (Cerón, 2021).

It is essential to recognize that the Jalisco AC Educational Center, with its diverse educational programs, aims to enhance the future of professionals by transforming their perception and application of knowledge. The institution boasts 32 graduating classes from its Bachelor's degree in Nursing and 28 from its Bachelor's degree in Nutrition. It is committed to ensuring that its educational offerings meet current needs. The institution's primary philosophy is to elevate and dignify professions through methodologies and strategies that facilitate the proper acquisition of skills. This is achieved under moral guidelines and ethical regulations, as the institution instills a philosophy of service, humanistic spirit, critical thinking, and social responsibility—its fundamental pillars (Cerón, 2021).

It is important to note that some teachers have opted to promote active learning by employing strategies that facilitate the creation of educational scenarios. For instance, using project-based learning and case-based learning approaches can foster the development of communication skills, problem-solving, decision-making, reflection, teamwork, self-directed learning, and assertiveness. These skills and attitudes enable students to apply what they have learned to various situations (Montoya Ramírez and Burgos Aguilar, 2012).

Thus, and based on the above approach, the following research question arises:

- What learning styles do students of the Bachelor's degree in Nutrition at the Jalisco AC Educational Center present?

To answer this question, the following hypothesis was used:

The primary challenge faced by the teacher at Centro Educativo Jalisco AC is developing an appropriate methodology and selecting one or more learning styles that significantly impact students, considering the diverse characteristics they may exhibit in the classroom. Additionally, it is essential to understand the thinking styles and learning approaches students use to adapt to educational advancements in methods, styles, strategies, tools, and teaching techniques aimed at all students. The objective is to provide meaningful and equitable learning opportunities that encompass the various ways of acquiring knowledge and developing the skills necessary for a professional profile, ultimately facilitating successful job placement. The goal is to implement and execute these methodologies and learning styles effectively to influence the development of substantial knowledge in future professionals.

The objectives to be achieved with this work are:

- Identify the learning styles of students at the Jalisco AC Educational Center
- To understand the learning channels that Nutrition students at the Jalisco AC Educational Center have in their search for an appropriate choice of learning methods and styles.
- Generate contributions that help generate strategies to address the challenges of education, which benefit private universities.

Materials and method

A quantitative study with a descriptive cross-sectional design was conducted at the facilities of the Jalisco AC Educational Center in Guadalajara, Jalisco. The study universe consisted of 45 students of the Bachelor's degree in Nutrition from the same university.

During the selection process, the following inclusion criteria were considered: 1) being a student at the Centro Educativo Jalisco, and 2) having experience in modifying teaching strategies. The exclusion criteria were not finding the student and lack of participation or incompleteness in the survey.

A measurement instrument was used for data collection, based on a learning styles test utilizing the NLP model, specifically the Bandler and Grinder model known as VAK (Visual-Auditory-Kinesthetic). This model considers the information input routes—eye, ear, and body—or the representation systems—visual, auditory, and kinesthetic—as fundamental to the preferences of learners or teachers. The measurement instrument was a survey conducted in January 2024, consisting of 40 items administered through a virtual platform. The survey evaluated two aspects: learning styles and learning channels. It took approximately 15 minutes to complete and was noted for its ease and convenience when accessed via a computer or mobile device.

Permission was requested from the authorities of the Jalisco AC Educational Center to collect data. The objectives and ethical considerations of the study were then explained, including issues related to ethics and confidentiality, to the teaching staff. Subsequently, a meeting was held with the teachers involved in the educational program, who agreed to participate. Finally, Google Forms were used to distribute the questionnaires, and Excel was employed to analyze the data.

Descriptive statistics were employed for data analysis. This study adheres to institutional ethical standards, the General Health Law on human experimentation, and the

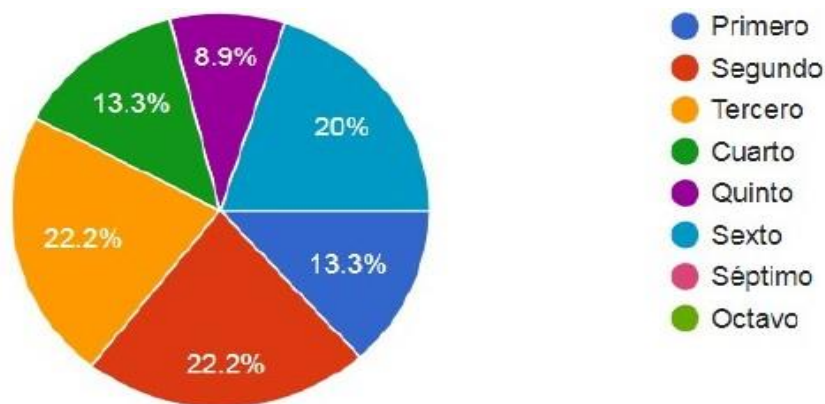


Declaration of Helsinki, as revised by the Tokyo Congress in 1983. Given that the research delves into sensitive aspects of individuals' personalities, it was conducted with utmost discretion. The students' consent was obtained for the survey application, aimed at identifying professional activities. In this context, informed consent was secured, ensuring both discretion and anonymity. The research was carried out with the highest respect for the participants involved.

Results

The study involved 45 Nutrition students from Centro Educativo Jalisco A.C., utilizing a learning styles test (NLP model) based on the VAK (visual-auditory-kinesthetic) model. The results indicated that 44% of the students prefer a kinesthetic learning style, followed by 27% who prefer visual and 20% auditory. This suggests that learning environments should emphasize projects, experiments, and case studies, supplemented by tools such as digital portfolios, diagrams, images, and drawings. The preference for a specific learning style can significantly impact future employment, depending on when and how it is applied. Therefore, students at Centro Educativo Jalisco A.C. could benefit more from kinesthetic learning channels.

Figure 1. Identification of semesters participating in the study



Fountain: Own elaboration

In the graph above, it can be observed that students from the Bachelor's Degree in Nutrition from several semesters participated in the present study, although those from the second semester (22.2%) stand out. Below are the results of the 40 items applied to the 45 students of the Bachelor's Degree in Nutrition:

Table 1. Results of items (1 to 5) of the learning styles test (NLP model)

| 1.-Which of the following activities do you enjoy most? | Percentage | Number | |
|--|------------|--------|-------------|
| a) Listen to music | 53.3 | 24 | AUDITORY |
| b) Watch movies | 26.7 | 12 | |
| c) Dance to good music | 20 | 9 | |
| | 100 | 45 | |
| 2.-What television program do you prefer? | Percentage | Number | |
| a) Reports of discoveries and places | 44.4 | 20 | KINESTHETIC |
| b) Comic and entertainment | 53.3 | 24 | |
| c) World news | 23 | 1 | |
| | 100 | 45 | |
| 3. When you talk to another person, you: | Percentage | Number | |
| a) You listen to her attentively | 75.6 | 34 | AUDITORY |
| b) You observe her | 24.4 | 11 | |
| c) You tend to touch her | 0 | 0 | |
| | 100 | 45 | |
| 4. If you could purchase one of the following items, which would you choose? | Percentage | Number | |
| a) A jacuzzi | 55.5 | 25 | KINESTHETIC |
| b) A stereo | 28.9 | 13 | |
| c) A television | 15.6 | 7 | |
| | 100 | 45 | |
| 5. What do you prefer to do on a Saturday afternoon? | Percentage | Number | |
| a) Stay at home | 57.8 | 26 | KINESTHETIC |
| b) Go to a concert | 20 | 9 | |
| c) Go to the cinema | 22.2 | 10 | |
| | 100 | 45 | |

Source: Own elaboration

Table 2. Results of items (6 to 10) of the learning styles test (NLP model)

| | | | |
|---|------------|--------|-------------|
| 6. What types of exams are easiest for you? | Percentage | Number | |
| a) Oral exam | 6.7 | 3 | KINESTHETIC |
| b) Written exam | 11.1 | 5 | |
| c) Multiple choice exam | 82.2 | 37 | |
| | 100 | 45 | |
| 7. How do you orient yourself more easily? | Percentage | Number | |
| a) By using a map | 35.6 | 16 | AUDITORY |
| b) Asking for directions | 51.1 | 23 | |
| c) Through intuition | 13.3 | 6 | |
| | 100 | 45 | |
| 8. How do you prefer to spend your time in a place of rest? | Percentage | Number | |
| a) Think | 11.1 | 5 | KINESTHETIC |
| b) Walk around | 37.8 | 17 | |
| c) Rest | 51.1 | 23 | |
| | 100 | 45 | |
| 9. What flatters you the most? | Percentage | Number | |
| a) Being told that you look good | 20 | 9 | KINESTHETIC |
| b) They tell you that you have a very pleasant manner | 53.3 | 24 | |
| c) Being told that you have an interesting conversation | 26.7 | 12 | |
| | 100 | 45 | |
| 10. Which of these environments attracts you the most? | Percentage | Number | |
| a) One where you feel a pleasant climate | 37.8 | 17 | KINESTHETIC |
| b) One in which you can hear the waves of the sea | 31.1 | 14 | |
| c) One with a beautiful ocean view | 31.1 | 14 | |
| | 100 | 45 | |

Source: Own elaboration

Table 3. Results of items (11 to 15) of the learning styles test (NLP model)

| | | | |
|---|------------|--------|-------------|
| 11. How do you find it easier to learn something? | Percentage | Number | |
| a) Repeating out loud | 17.8 | 8 | KINESTHETIC |
| b) Writing it several times | 24.4 | 11 | |
| c) Relating it to something fun | 57.8 | 26 | |
| | 100 | 45 | |
| 12. Which event would you rather attend? | Percentage | Number | |
| a) To a social gathering | 42.2 | 19 | KINESTHETIC |
| b) To an art exhibition | 37.8 | 17 | |
| c) To a conference | 20 | 9 | |
| | 100 | 45 | |
| 13. How do you form an opinion of other people? | Percentage | Number | |
| a) For the sincerity in his voice | 71.1 | 32 | AUDITORY |
| b) By the way he shakes your hand | 8.9 | 4 | |
| c) By its appearance | 20 | 9 | |
| | 100 | 45 | |
| 14. How do you consider yourself? | Percentage | Number | |
| a) Athletic | 26.7 | 12 | KINESTHETIC |
| b) Intellectual | 17.8 | 8 | |
| c) Sociable | 55.6 | 25 | |
| | 100.1 | 45 | |
| 15. What kind of movies do you like the most? | Percentage | Number | |
| a) Classical | 11.1 | 5 | VISUAL |
| b) Action | 60 | 27 | |
| c) Of love | 28.9 | 13 | |
| | 100 | 45 | |

Source: Own elaboration

Table 4. Results of items (16 to 20) of the learning styles test (NLP model)

| | | | |
|--|------------|--------|--------------------|
| 16. How do you prefer to keep in touch with other people? | Percentage | Number | |
| a) By email | 2.2 | 1 | KINESTHETIC |
| b) Having coffee together | 60 | 27 | |
| c) By phone | 37.8 | 17 | |
| | 100 | 45 | |
| 17. Which of the following phrases identifies you the most? | Percentage | Number | |
| a) I like my car to feel good when driving it | 35.6 | 16 | KINESTHETIC/VISUAL |
| b) I can hear even the slightest noise my car makes | 8.9 | 4 | |
| c) It is important that my car is clean inside and out | 35.5 | 16 | |
| 18. How do you prefer to spend time with your girlfriend or boyfriend? | Percentage | Number | |
| a) Chatting | 53.3 | 24 | AUDITORY |
| b) Caressing each other | 17.8 | 8 | |
| c) Watching something together | 28.9 | 13 | |
| | 100 | 45 | |
| 19. If you can't find your keys in a bag, you: | Percentage | Number | |
| a) You look for it by looking | 13.3 | 6 | KINESTHETIC |
| b) You shake the bag to hear the noise | 26.7 | 12 | |
| c) You search by touch | 60 | 27 | |
| | 100 | 45 | |
| 20. When you try to remember something, how do you do it? | Percentage | Number | |
| a) Through images | 77.8 | 35 | VISUAL |
| b) Through emotions | 4.4 | 2 | |
| c) Through sounds | 17.8 | 8 | |
| | 100 | 45 | |

Source: Own elaboration

Table 5. Results of items (21 to 25) of the learning styles test (NLP model)

| | | | |
|--|------------|--------|-------------|
| 21. If you had money, what would you do? | Percentage | Number | |
| a) Buy a house | 37.8 | 17 | VISUAL |
| b) Travel and see the world | 62.2 | 28 | |
| c) Acquire a recording studio | 0 | 0 | |
| | 100 | 45 | |
| 22. Which phrase do you identify with the most? | Percentage | Number | |
| a) I recognize people by their voice | 26.7 | 12 | VISUAL |
| b) I don't remember what people looked like | 6.6 | 3 | |
| c) I remember someone's appearance, but not their name | 66.7 | 30 | |
| | 100 | 45 | |
| 23. If you had to stay on a desert island, what would you prefer to take with you? | Percentage | Number | |
| a) Some good books | 22.3 | 10 | AUDITORY |
| b) A portable high frequency radio | 44.4 | 20 | |
| c) Sweets and canned food | 33.3 | 15 | |
| | 100 | 45 | |
| 24. Which of the following entertainments do you prefer? | Percentage | Number | |
| a) Play a musical instrument | 37.8 | 17 | KINESTHETIC |
| b) Take pictures | 20 | 9 | |
| c) Manual activities | 42.2 | 19 | |
| | 100 | 45 | |
| 25. What is your style of dress? | Percentage | Number | |
| a) Impeccable | 44.4 | 20 | AUDITORY |
| b) Informal | 55.6 | 25 | |
| c) Very informal | 0 | 0 | |
| | 100 | 45 | |

Source: Own elaboration

Table 6. Results of items (26 to 30) of the learning styles test (NLP model)

| | | | |
|--|------------|--------|-------------|
| 26. How do you find it easier to understand something? | Percentage | Number | |
| a) When they explain it to you verbally | 20 | 9 | VISUAL |
| b) When they use visual media | 26.7 | 12 | |
| c) When it is done through some activity | 53.3 | 24 | |
| | 100 | 45 | |
| 27. What do you like most about a night campfire? | Percentage | Number | |
| a) The heat of the fire and the roasted chocolates | 13.3 | 6 | KINESTHETIC |
| b) The sound of the fire burning the wood | 8.9 | 4 | |
| c) Look at the fire and the stars | 77.8 | 35 | |
| | 100 | 45 | |
| 28. What makes you stand out? | Percentage | Number | |
| a) For having great intuition | 35.6 | 16 | VISUAL |
| b) For being a good conversationalist | 22.2 | 10 | |
| c) For being a good observer | 42.2 | 19 | |
| | 100 | 45 | |
| 29. What do you enjoy most about a sunrise? | Percentage | Number | |
| a) The excitement of living a new day | 28.8 | 13 | VISUAL |
| b) The shades of the sky | 55.6 | 25 | |
| c) The song of the birds | 15.6 | 7 | |
| | 100 | 45 | |
| 30. If you could choose, what would you rather be? | Percentage | Number | |
| a) A great doctor | 73.3 | 33 | KINESTHETIC |
| b) A great musician | 15.6 | 7 | |
| c) A great painter | 11.1 | 5 | |
| | 100 | 45 | |

Source: Own elaboration

Table 7. Results of items (31 to 35) of the learning styles test (NLP model)

| | | | |
|--|------------|--------|-------------|
| 31. When you choose your clothes, what is most important to you? | Percentage | Number | |
| a) That it is adequate | 20 | 9 | VISUAL |
| b) That it looks good | 42.2 | 19 | |
| c) That it is comfortable | 37.8 | 17 | |
| | 100 | 45 | |
| 32. What do you enjoy most about a room? | Percentage | Number | |
| a) That it be silent | 28.9 | 13 | VISUAL |
| b) That it is comfortable | 17.8 | 8 | |
| c) That it is clean and tidy | 53.3 | 24 | |
| | 100 | 45 | |
| 33. What is sexier for you? | Percentage | Number | |
| a) Dim lighting | 22.2 | 10 | KINESTHETIC |
| a) The perfume | 71.1 | 32 | |
| b) Certain type of music | 6.7 | 3 | |
| | 100 | 45 | |
| 34. What kind of show would you rather attend? | Percentage | Number | |
| a) To a music concert | 80 | 36 | AUDITORY |
| b) To a magic show | 6.7 | 3 | |
| c) To a gastronomic sample | 13.3 | 6 | |
| | 100 | 45 | |
| 35. What attracts you most to a person? | Percentage | Number | |
| a) His treatment and way of being | 84.4 | 38 | KINESTHETIC |
| b) Your physical appearance | 4.5 | 2 | |
| c) Their conversation | 11.1 | 5 | |
| | 100 | 45 | |

Source: Own elaboration

Table 8. Results of items (36 to 40) of the learning styles test (NLP model)

| | Percentage | Number | |
|--|------------|--------|-------------|
| 36. When you go shopping, where do you spend a lot of time? | | | |
| a) In a bookstore | 33.4 | 15 | KINESTHETIC |
| b) In a perfumery | 53.3 | 24 | |
| c) In a record store | 13.3 | 6 | |
| | 100 | 45 | |
| 37. What is your idea of a romantic evening? | | | |
| a) By candlelight | 51.1 | 23 | VISUAL |
| b) With romantic music | 26.7 | 12 | |
| c) Dancing quietly | 22.2 | 10 | |
| | 100 | 45 | |
| 38. What do you enjoy most about traveling? | | | |
| a) Meet people and make new friends | 13.3 | 6 | VISUAL |
| b) Get to know new places | 75.6 | 34 | |
| c) Learn about other customs | 11.1 | 5 | |
| | 100 | 45 | |
| 39. When you are in the city, what do you miss most about the countryside? | | | |
| a) Clean and refreshing air | 20 | 9 | AUDITORY |
| b) The landscapes | 37.8 | 17 | |
| c) Tranquility | 42.2 | 19 | |
| | 100 | 45 | |
| 40. If you were offered one of the following jobs, which would you choose? | | | |
| a) Director of a radio station | 8.9 | 4 | KINESTHETIC |
| b) Director of a sports club | 71.1 | 32 | |
| c) Director of a magazine | 20 | 9 | |
| | 100 | 45 | |

Source: Own elaboration

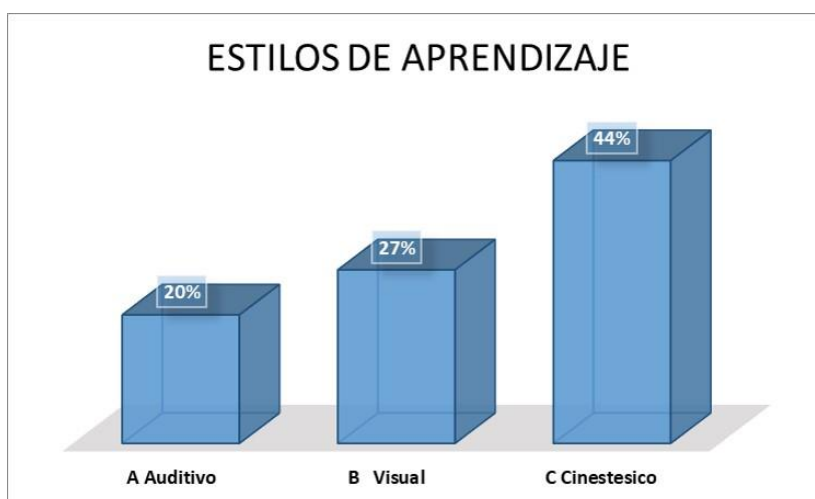
Figure 2. How to learn with each learning style



Fountain: <https://www.lucaedu.com/estilos-de-aprendizaje-distintas-maneras-de-aprender/>

Figure 2 illustrates various tools that can enhance learning based on different perception channels. As an institution that considers itself at the forefront of education, Centro Educativo Jalisco AC must ensure its teachers are thoroughly trained to utilize these tools effectively. This training should focus on applying the appropriate tools according to the dominant learning channels present in their student groups.

Figure 3. Learning styles present in students of the Jalisco AC Educational Center



Fountain: Own elaboration

Figure 3 illustrates that, in the study conducted at the Jalisco A.C. Educational Center, 44% of students prefer a kinesthetic cognitive channel, followed by 27% who prefer a visual channel, with a minority favoring an auditory channel. Consequently, it is ideal to design learning scenarios based on projects, experiments, and case studies, complemented by tools such as digital portfolios, diagrams, images, and drawings. The results suggest that the preference for a particular type of learning scenario can significantly impact future employment, depending on the timing and circumstances of its use. However, it is clear that students at the Jalisco A.C. Educational Center could acquire knowledge more effectively if the content is delivered through a kinesthetic channel.

Discussions

The education system aims for excellence, aligning with first-world countries in political, social, and educational changes. Teachers must continually improve their educational practices. The study found that 44% of students prefer the kinesthetic system, aligning with findings in other studies, such as those in Physical Education. The kinesthetic channel, followed by the visual channel, yields better results, suggesting the use of tools like projects and experiments to develop communication and problem-solving skills. These findings highlight the need for planned teaching updates and the application of elements that contribute to meaningful learning.

According to Cazau (2007), in the neurolinguistic programming model, 40% of people are visual, 30% are auditory and 30% are kinesthetic. However, in the group investigated, 44% of students prefer the kinesthetic system, 27% the visual and 20% the auditory to generate learning. These data agree more with the study carried out in the Physical Education degree at the BIN (Galindo and Murrieta , 2014), where the use of the kinesthetic representation system also predominated.

Given the type of learning style that best suits these students and through which the expected results can be obtained to develop the appropriate professional skills, it is concluded that the kinesthetic channel, followed by the visual channel , provides better results. Therefore, it is proposed to use tools such as projects, experiments and case-based learning, which develop communication, problem solving and skills. This, in addition, opens the door to planned teaching updates in areas such as the planning of teaching strategies and the application of elements that contribute to achieving meaningful learning.

In this regard, it should be noted that the kinesthetic representation system helps to process information by associating it with the sensations and movements of the body. Learning through the kinesthetic system is deeper because, once knowledge is associated with muscle memory, it is very difficult to forget.

Visual learners learn best when they read or see something. By recalling images, they often recall a lot of information at once, making it easier to quickly absorb a large amount of data. So when students struggle with concepts, it's often because they process information auditorily or kinesthetically.

However, everyday life shows that higher education is biased in its use of visual materials (books, graphics, photographs, videos, PowerPoint presentations or on the Internet) and auditory materials (lectures, master classes, debates, round tables), which leaves few options for the kinesthetic population. Nevertheless, various authors point out that knowing the learning styles of the students we work with is essential to adapt teaching methods to their characteristics, which facilitates their educational achievement and contributes to the development of “learning”.

On the other hand, regarding the limitations of the study, it should be mentioned that the questionnaire was applied at a single point in time. Therefore, it would be convenient to apply it throughout the students' training in order to observe and record possible changes during the course of their educational process.

Instead, the main strength of this survey lies in its contribution to the professional literature on the topic, as it has shown that learning styles do not necessarily follow universal constants. In this regard, various variables must be considered, such as country, lifestyle and the specific characteristics of each discipline. In short, human education cannot be based on established prescriptions, as human nature is complex.

Finally, many teachers, based on their experience, indicate that the greatest difficulty that students encounter in the educational process is the association or integration of content. This problem may be due both to the strategies used for the delivery of content and to the lack of understanding, on the part of teachers and students, of the systems of representation of teaching and learning that they employ.

Conclusions

The study identified the learning styles of students at Centro Educativo Jalisco A.C., showing a tendency towards kinesthetic learning. This necessitates practical knowledge and experiments to facilitate skill acquisition for professional development. The study emphasizes the importance of using tools that favor convergent cognitive styles, focusing on finding concrete solutions through available information. Teachers are encouraged to receive training in pedagogy and didactics to create engaging educational activities and to use clear, understandable language to facilitate reasoning and logical thinking. To achieve meaningful learning, techniques related to constructivist pedagogical theory should be considered, focusing on student-centered learning to develop professional skills for successful job integration.

These revisions aim to enhance the clarity and coherence of the document while maintaining the original intent and findings.

It can also be stated that 44% of the students surveyed have a tendency towards the kinesthetic channel, which must be taken into account for the execution and appropriate decision-making regarding the use of learning methods and styles. This suggests the need to use practical knowledge, experiments and other similar strategies to facilitate the acquisition of skills necessary for the professional development of students.

Regarding the data obtained in the present study on the most effective types of learning for students at the Jalisco AC Educational Center, the use of tools that favor convergent cognitive styles stands out. These styles focus on finding a concrete solution based on the convergence of available information, which favors the use of projects, experiments and case-based learning. These tools promote the development of communication and problem-solving skills, which contributes to the proper achievement of results. In addition, this opens the door to planning teacher updating in topics of planning teaching strategies and applying elements that facilitate obtaining good results in meaningful learning for students at the Jalisco AC Educational Center.

Teachers are therefore recommended to receive training in pedagogy and didactics that encourage the creation and evaluation of novel and attractive educational activities. It is also suggested to include group techniques and practical sessions to teach theoretical topics through situated learning that address various situations in professional life. In addition, clear and understandable information should be used with accessible language that allows students to reason, be logical and act in sequence. In this sense, reflection should be encouraged based

on group and individual conclusions, which should be listened to to determine if the topic was understood and if possible weaknesses were identified.

Finally, the study determined that in order to achieve meaningful learning in the student, the use of techniques, activities, strategies and methods related to the constructivist pedagogical theory must be considered. Following Einstein's statement that "learning is experience, everything else is information", learning can be defined as a process that involves changes during a relatively short period that allows students to respond more appropriately to situations. Consequently, by focusing learning on the student, it will be possible to develop professional skills suitable for proper job insertion in society.

Future lines of research

1. Comparative studies in education of the different educational offerings provided by the institution.
2. Studies of the social and cultural elements present in the students.
3. Educational policy, social subjects, management and institutional development.

Finally, it should be noted that teachers must adapt their teaching strategies taking into account the different learning styles and the factors that can modify them, such as the country, the way of life and the specific characteristics of each discipline or learning unit.

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Annexes

Annex 1. Test evaluation basis (NLP model)

| QUESTION NO. | VISUAL | AUDITORY | KINESTHETIC |
|--------------|--------|----------|-------------|
| 1. | B | TO | C |
| 2. | TO | C | B |
| 3. | B | TO | C |
| 4. | C | B | TO |
| 5. | C | B | TO |
| 6. | B | TO | C |
| 7. | TO | B | C |
| 8. | B | TO | C |
| 9. | TO | C | B |
| 10. | C | B | TO |
| 11. | B | TO | C |
| 12. | B | C | TO |
| 13. | C | TO | B |
| 14. | TO | B | C |
| 15. | B | TO | C |
| 16. | TO | C | B |
| 17. | C | B | TO |
| 18. | C | TO | B |
| 19. | TO | B | C |
| 20. | TO | C | B |
| 21. | B | C | TO |
| 22. | C | TO | B |
| 23. | TO | B | C |
| 24. | B | TO | C |
| 25. | TO | B | C |
| 26. | C | B | TO |
| 27. | B | TO | C |
| 28. | C | B | TO |
| 29. | B | C | TO |
| 30. | C | B | TO |
| 31. | B | TO | C |
| 32. | C | TO | B |

| | | | |
|-------|----|----|----|
| 33. | TO | C | B |
| 34. | B | TO | C |
| 35. | B | C | TO |
| 36. | TO | C | B |
| 37. | TO | B | C |
| 38. | B | C | TO |
| 39. | B | C | TO |
| 40. | C | TO | B |
| TOTAL | | | |

Annex 1. Test evaluation base (NLP model)

Fountain: chrome-
extension://efaidnbmnnnibpcajpcgclefindmkaj/https://www.orientacionandujar.es/wp-
content/uploads/2014/09/TEST-ESTILO-DEAPRENDIZAJES.pdf