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INSTRUCTIONAL STRATEGIES AND ITS RELATIONSHIP IN THE COGNITIVE DOMAIN OF THE HIGHER EDUCATION PARTICIPANT

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Abstract. The purpose of this work was to determine the relationship between Instructional Strategies used by the teacher and the cognitive domain of the higher education participant. To this end, a correlational investigation was carried out, with a correlational non-experimental design, through which a sample of 37 Postgraduate participants from the Rafael Maria Baralt National Experimental University at Maracaibo Headquarters was investigated, to whom two were applied questionnaires: the first with 27 items, to describe the strategies used by the teacher, while the second, with 18 items, measured the cognitive domain that the participant possesses, each one, with a polycotomic scale. Such instruments were subjected to a validation procedure through expert judgment and their reliability was calculated using the alpha Cronbach formula resulting in a coefficient of 0.89, for the first instrument and 0.67 for the second. From the results obtained, it was concluded that there was a "Weak Positive" association between the variables, which shows a low incidence of relationship between the instructional strategies used by the teacher and the cognitive domain of the higher education participant, indicating that in order to The learning process is developed cognitive processes require certain conditions favorable to the conservation and valorization of the "I" as well as characteristics such as previous experience, reading ability, perseverance, spatial skills, Age and sex, all of which are involved in the promotion and facilitation of meaningful learning.

Keywords: Instructional strategies, cognitive domain, participating mediator

ESTRATEGIAS INSTRUCCIONALES Y SU RELACIÓN EN EL DOMINIO COGNITIVO DEL PARTICIPANTE DE EDUCACIÓN SUPERIOR

Resumen. El presente trabajo tuvo como propósito determinar la relación entre las Estrategias Instruccionales utilizadas por el docente y el dominio cognitivo del participante de educación superior. A tal fin, se efectuó una investigación correlacional, con un diseño no experimental transeccional correlacional, a través de la cual se indagó una muestra de 37 participantes Posgrado de la Universidad Nacional Experimental Rafael Maria Baralt en la Sede Maracaibo, a quienes se les aplicó dos cuestionarios: el primero con 27 ítems, para describir las estrategias empleadas por el docente, en tanto que el segundo, con 18 ítems midió el dominio cognitivo que posee el participante, cada uno, con una escala policotómica. Tales instrumentos fueron sometidos a un procedimiento de validación a través del juicio de expertos y se calculó su confiabilidad mediante la fórmula alfa cronbach resultando un coeficiente de 0,89, para el primer instrumento y 0,67 para el segundo. De los resultados obtenidos, se concluyó que existía una asociación "Positiva Débil" entre las variables, lo cual evidencia una baja incidencia de relación entre las estrategias instruccionales utilizadas por el docente y el dominio cognitivo del participante de educación superior, indicando que para que en el proceso de aprendizaje se desarrollen los procesos cognitivos se necesita de unas condiciones determinadas favorables a la conservación y a la valorización del "yo" así como de características como la experiencia previa, la habilidad en la lectura, la perseverancia, las habilidades de tipo espacial, la edad y el sexo, todas las cuales están involucradas en la promoción y facilitación de aprendizajes significativos.

Palabras Clave: Estrategias instruccionales, dominio cognitivo, mediador participante.

Introduction

Education has the goal of creating individuals who have the competences to perform in any context, but for achieving the development of these competences, instructional strategies must be incorporated. Here, the mediator plays a huge roll so apprehension and knowledge creation can be achieved; this person must implement strategies that make the learning process easier for the participants — all while taking into account their needs and interests and their perspective on how they learn. This is why the mediator must master these strategies so it's possible for them to achieve the aforementioned goals.

Current Education has the main objective of making the optimal growth and development of each individual easier, their interest focuses on physical, intellectual, socio-metal, emotional and spiritual behavior of the participant. Therefore, institutional strategies are essential in the cognitive development of each participant, what will allow them to move through all the levels of cognitive dominance, such as knowledge, understanding, application, analysis, synthesis, and evaluation. This development will depend on the paradigm that the teacher follows.

In this sense, the present research has the purpose of establishing the relationship between the Institutional Strategies that the teacher uses and the cognitive dominance of the higher-education participant. To achieve this, a descriptive correlative study will determine if the first variable is linked to the second, specifically in the context of the National Experimental University Rafael María Baralt (UNERMB).

Method

Type of Research

This type of research is framed under a positivist approach, which aims to produce objective, verifiable and valid knowledge through the use of scientific method; it maintains that reality is static, immutable, external and objective — trying to copy reality without deforming it.

According to its objective, the research is defined as descriptive-correlative. Sabino (2000) points out that descriptive research aims to know homogeneous groups of phenomena following systematic criteria in order to reveal their behavior. According to the aforementioned author, these studies do not deal with the verification of hypotheses, but with the description of facts based on criteria or a previously defined theory.

Chávez (2000; p. 137) says that the purpose of correlative studies is to determine the degree of relationship between variables, detecting up to what extent do the alterations depend on each other, which results in a coefficient. In this case, the relationship between the Instructional Strategies used by the teacher and the cognitive mastery of the higher education participant will be determined.

Also, Hernández, Fernández y Baptista (2003) explain that in correlative studies two or more considered variables are measured, so i0ts possible to determine after id the variation of one variable influences in the other's behavior.

Consequently, this research first described the Instructional Strategies used by the higher-education teacher in the activities developed in the classes. Subsequently, the cognitive domain possessed by the higher education participant was specified, and finally, its correlation was established.

Research Design

The research design used was non-experimental, transactional and correlative. According to Hernández et al. (2003, p.274) "these designs describe relationships between two or more categories, concepts or variables in a specific moment".

According to the aforementioned authors, even when these studies involve descriptions, it's no needed to analyze categories nor concepts, objects or individual variables but their relationships when they're purely correlative or causal relationships. Therefore, what's being measured or evaluated is the link between these categories, concepts, objects or variables in a specific time frame.

Therefore, in this study the aspects analyzed were observed and described just as they are in their real context, without being exposed to stimuli or being manipulated, so the link between them can be verified afterwards.

Population

According to Chávez (2000, p. 162), population is the "research's universe, in which we pretend to generalize the results and it's formed by characteristics or layers that allow us to differentiate every subject". Due to the purpose of this research, the population was formed by 125 participants of the different Masters Graduate program of the National Experimental University Rafael María Baralt in the headquarters of Maracaibo.

Table 1
Population

Program	Nº of participants
Human resources management	23
Higher Education teaching	25
Basic Education administration	64
Financial management	13
Total	125

Note: Source: Data provided by the Graduate Coordination. Headquarters in Maracaibo.

Samples

Sample is defined by Chávez (2000:164) as "a representative portion of the population, which allows to generalize on it the results of an investigation". Sabino C. (2000: 83) points out that "it's just a part of the universe that we call total, and it's used to represent it". It's important to highlight that what we're looking for when selecting a sample is that, observing a relatively reduced portion of units, similar conclusions are obtained to those that would be obtained if the total universe was studied.

In this investigation, Sierra's formula (quoted by Chávez N., 2003: 166) was used to calculate the sample size which establishes that the sample size depends on the size of the universe; level of confidence adopted; error estimation; and, standard deviation, as well as the sampling selected and proposing the following formula for finite universes.

$$n = \frac{4.\ N.\ p.\ q}{E^2\ \ (N-1)+4.\ p.\ q}$$

Where:
n = sample size that is being calculated
N = population size
4 = constant number
p y q = Success and failure probability (50 y 50%)
E^2 = mistake selected by the researcher (10%)
Isolating the equation:

$$n = \frac{4.\ 125.\ 50.\ 50}{10^2\ \ (125-1)+4.\ 50.\ 50}$$

$$n = \frac{1250000}{100\ .\ 124 + 4.50.\ 50}$$

$$n = \frac{1320000}{32000 + 10000}$$

$$n = \frac{1250000}{330000}$$

n = 37.14 ~ 37

In this sense, the investigation had the size of 37 participants of the Masters Graduate program of the National Experimental University Rafael María (UNERMB) in the headquarters of Maracaibo.

But since the population is formed by four (04) strata, the sample for each one f them was calculated according to the Schiffer's Equation in the following way:

Where: N_x is the sample for each headquarter in each stratum

$$Nx = \frac{nh}{N}.n$$

n = Appropriate size for the stratum sample

Nh= Population size per headquarters' stratum

N= Population size for the classroom teacher's stratum

1- Sample Calculation for Human Resources Management:

$$N1 = \frac{23}{125}.37 = 6.80 = 7$$

Sample Calculation for Higher Education Teaching

Sample Calculation for Basic Education Management

$$N1 = \frac{25}{125}.37 = 7.4 = 7$$

$$N1 = \frac{64}{125}.37 = 18.94 = 19$$

Sample Calculation for Financial Management

$$N1 = \frac{13}{125}.37 = 3.84 = 4$$

Table 2

General distribution of sample per stratum

Sample	Nº of participants
Human Resources Management	7
Higher Education Teaching.	7
Basic Education Management	19
Financial Management	4
Total	37

Techniques and Instruments for data collection

To collect data in this research, a survey was used. According to Sabino (2000, p. 78), this survey consists of "requiring information from a socially significant group of people about the study problems, and then, through a quantitative analysis, drawing the conclusions that correspond to the data collected".

Through the survey technique, the necessary information was obtained from the group of subjects studied for the influence of the Instructional Strategies used by the teacher in the cognitive domain of the Higher Education participant.

Regarding research instruments, according to Chávez (2000), these are the means used by the researcher to measure the behavior or attributes of variables. For this research, as a collection instrument, two questionnaires were constructed: the first, with 27 items, was oriented to describe the strategies used by the Higher Education teacher. The second instrument, with 18 items, measured the cognitive domain possessed by the higher education participant, each one, with a measurement scale with five alternative answers:

5) Always
4) Almost Always
3) Sometimes
2) Almost Never
1) Never

Table 3
Ratio Scale

Variable: Instructional Strategies		
Upper limit	Lower limit	Category
4.24	3.72	Very High
3.71	3.19	High
3.18	2.66	Medium
2.65	2.13	Low
2.12	1.60	Very Low
Variable: Cognitive Domain		
Upper limit	Lower limit	Category
4.62	4.50	Very High
4.49	4.37	High
4.36	4.24	Medium
4.23	4.11	Low
4.10	3.98	Very Low

Legitimacy and Reliability

Any data collection instrument must meet two indispensable requirements: legitimacy and reliability. According to Chávez (2000), validity is the effectiveness with which an instrument measures what you desire. In this case, validity for the instrument will be determined through the judgment of experts in the field, that is, legitimacy of content as indicated by Chávez (2000). For Chávez, this procedure is the correspondence

of the instrument with its theoretical context; it is not expressed in terms of numerical index, but is based on discernment and independent judgment among experts — it's the careful and critical analysis of all reagents according to the specific area of theoretical content

The aim of this method is to make observations about the relevance or the congruence of the items using the content that is intended to measure. Also, about the writing, the tendentiousness of its formulation and their relevance to the variables and indicators, with the purpose of unifying criteria. To that end, four experts in the field were asked to give their opinion. They suggested to make some appropriate changes for the writing of the items that would be considered for it.

Having said that, Chávez (2000) describes the term 'reliability' as the extent to which similar results may be obtained from different applications. For the present case, some individuals with similar characteristics to the population of the study were pilot tested. The Cronbach's alpha formula was applied to the results in order to estimate the reliability of the tools presenting more than three alternative response:

$$r_{tt} = \frac{K}{K-1}\left[1 - \frac{\sum S_I^2}{S_t^2}\right]$$

Wherein:

K = Number of items.
S_I^2 = Variance of the points of every item.
S_T^2= Variance of the total points.

In substitution for the method, the final results had a coefficient of 0,89 for the first tool and 0,67 for the second one, proving that both questionnaires have a very high and a high reliability respectively (See Annex Nº C).

Strategies for processing and analyzing the information

According to the kind of research, the obtained data and the level of mediation of the variable, the analysis of the results was made using the Pearson coefficient. This helped to establish a statistic correlation between the variables under study. The Pearson correlation coefficient (r) is recommended for studies with two variables that are not considered dependent or independent, and that do not imply a causality relationship.

According to Hernández and others (2003), the Pearson correlation coefficient is calculated with the score obtained from a sampling of two variables. The score obtained from a variable is compared with the score obtained from another variable in the same individuals.

Research procedures

To carry out the research, a series of steps were made, considering the following aspects: human and material resources available and the estimated time for the execution of the project. The procedure is as follows:

- Selecting of the subject and description of the issue.
- Formulating the objectives of the research.
- Revising antecedents and establishing theoretical bases

- Operating with the variables to determine their dimensions and indicators.
- Determining the methodological approach
- Selecting the population under study
- Designing the tools for data collection, according to the variable's operationalization.
- Determining the effectiveness and calculating the reliability of the tools.
- Applying the tools to the individuals under study.
- Coding and tabulating the results in order to analyze the information
- Analyzing the information, applying descriptive statistics.
- Discussing the results for interpreting the findings of the study
- Correlating variables
- Formulating the conclusions and recommendations derived from the research.

Results

The analysis of the results was carried out following the specific objectives that guided the research and the dimensions and indicators of the variables under study. Thus, for Instructional Strategies (the first variable), the dimensions were: Constructivist, with V Gowin indicators, Portfolio, Conceptual Maps and Mind Maps; and Cognitive, whose indicators are Representation, Memorization, Interpretation and Evaluation.

For the Cognitive Domain variable, the dimensions were: *Observation*, with the indicators of Direction, Attention, Fixation, Concentration, Identification and Search of data, with the indicators of Little Concentration, Extreme Restlessness and Inattention; *Analysis*, with the indicators of Comparison, Underlining, Distinguishing and Highlight; *Ordering*, with the indicators of Gathering, Grouping, Listing and Arrangement in series; finally, The Classification dimension whose indicators were Hierarchize, Synthesize, Schematize and Categorize. Later, the statistical correlation between both variables was established using the Pearson correlation coefficient (r) and, finally, the discussion of the results is presented by comparing them with the theoretical approach that supported the study.

Variables: Instructional strategies

Table 4
Constructivist dimensions

Indicators	Items	Average	Category
Gowin V.	1 to 3	1.76	Very low
Portfolio	4 and 5	3.51	High
Conceptual maps	6 to 9	3.80	Very high
Mind maps	10 to 13	3.93	Very high
Overall Average		**3.33**	High

Note: Source: results of the application of the tool

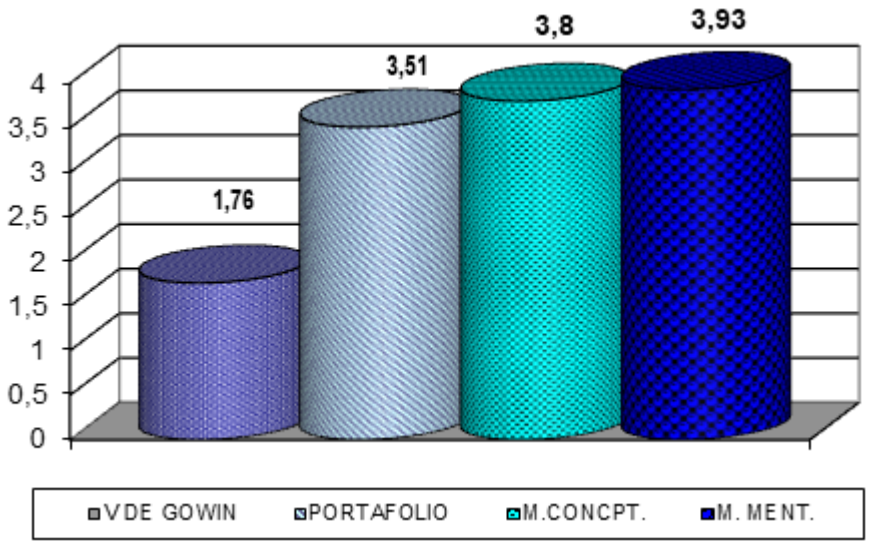


Figure 1. Constructivist dimensions
Note: Source: Table 4

In relation to the Instructional Strategies variable, Table 4 and Figure 1 show the results for the Constructivist dimension measured through the Gowin V indicators, the Portfolio, the Conceptual maps and the Mind maps. In this regard, Mind maps obtained the highest average with 3.93 which places it in the 'Very High' category. The lowest average was for Gowin V, with 1.76 and a 'Very Low' category. The overall dimension average was 3.33, placing it in the 'High' category. In other words, regarding the instructional strategies used by higher education teachers, the results show a high tendency for facilitators to use mind maps to learn content in a comprehensive way, to represent a set of conceptual meanings and to represent knowledge as a whole.

Table 5
Constructivist dimensions

Indicators	Items	Average	Category
Representation	14 to 17	2.98	Moderate
Memorization	18 to 23	3.74	Very high
Interpretation	24 to 27	3.40	High
Evaluation	28 to 30	3.88	Very high
Overall average		3.51	High

Note: Source: Results of the application of the instrument

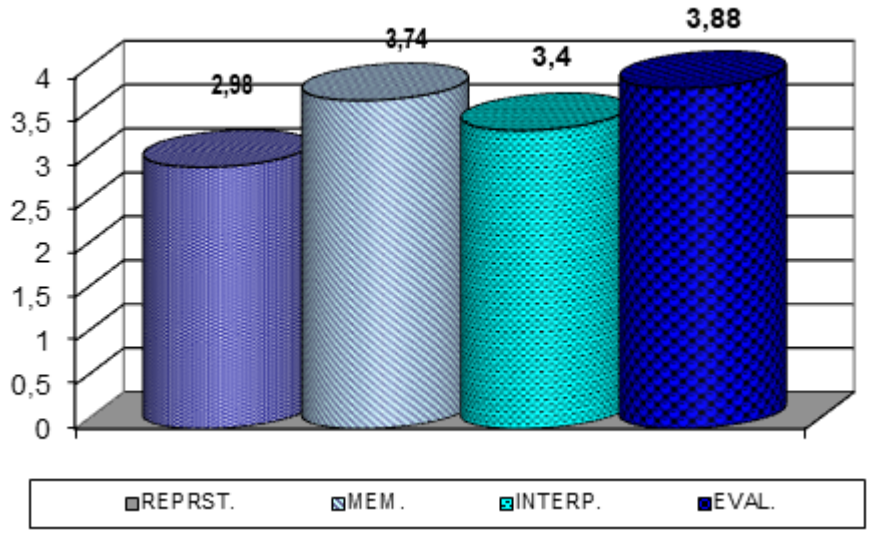


Figure: 2. Cognitive Dimension
Note: Source: Table 5

For the Cognitive dimension, measured through the indicators Representation, Memorization, Interpretation and Evaluation, Table 5 and Figure 2 show that the overall average was 3.51 in the high category; the highest average per indicator was reached in the evaluation with 3.88 and a very high category, while the lowest was for representation with 2.98 moderate category. However, even when the dimension obtained a High level, it is below the previous dimension, that is to say, in relation to the instructional strategies used by higher education teachers, there is a predominance of constructivist strategies over cognitive ones.

Variable: Cognitive Domain

Table 6
Observation Dimension

Indicators	Items	Average	Category
Direction	1	4.08	Very low
Attention	2	4.24	Moderate
Fixation	3	4.32	Moderate
Concentration	4	4.24	Moderate
Identification	5	4.00	Very low
Data search	6	4.35	Moderate
Overall average		4.21	Moderate

Note: Source: Results of the application of the instrument

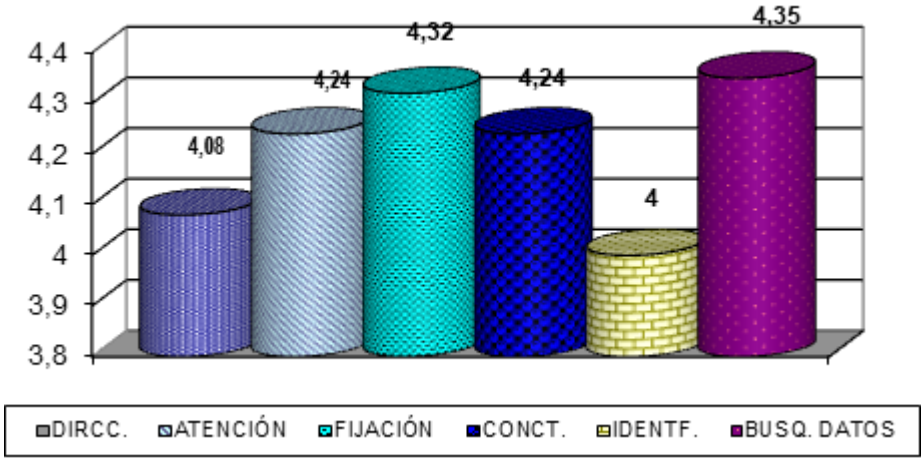


Figure 3. Observation dimension
Note: Source: Table 6

In respect of Cognitive Domain variable, the table and graph Nº 3 present the results for the Observation dimension, measured through the indicators Direction, Attention, Fixation, Concentration, Identification and Data Search. In that sense, the highest average was obtained by the Skill Search of data with 4.35 located in the moderate category, while the lowest was for Identification with 4.00 and the category very low. In the overall average , dimension was 4.21 which also belong to moderate category that is to say participants of higher education exhibit a cognitive domain that allows them to inquire about the information of greatest interest, focus on the search for important ideas, pay attention to the ideas read and be interested in the content of what is read.

Table 7
Analysis Dimension

Indicators	Items	Average	Category
Compare	7	4.08	Very low
Underline	8	4.57	Very high
Distinguish	9	4.11	Low
Highlight	10	4.19	Low
Overall average		4.24	Moderate

Note: Source: Results of the application of the instrument

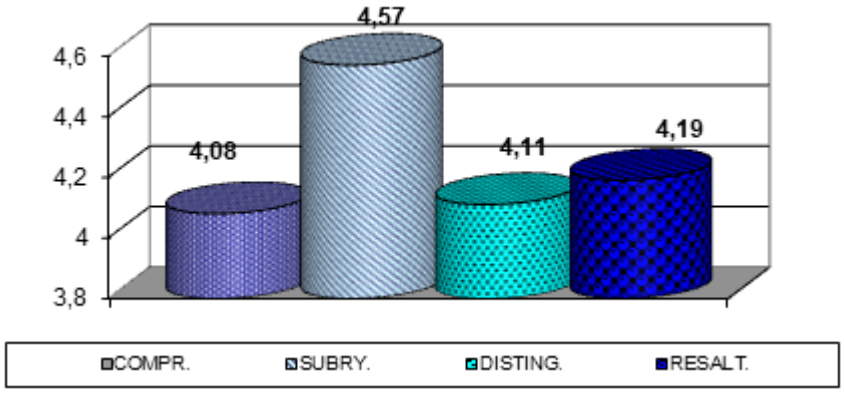


Figure 4. Analysis dimension
Note: Source Table 7

For the Analysis Dimension, the results presented in table and graph Nº. 4 reveal that the overall average for the dimension was 4.24 in the Moderate category; The highest average was obtained by the domain Highlight with 4.57 in the category Very High, while the lowest was for Compare with 4.08 and the category Very Low, indicating that the participants of higher education present a median tendency to contrast different and similar aspects in the same text, to point out the most outstanding aspects, to differentiate the main and secondary ideas and to highlight the most significant aspects of a text read.

Table 8
Regulation Dimension

Indicators	Items	Average	Category
Meet	11	4.11	Low
Group	12	4.30	Moderate
List	13	4.05	Very low
Serialize	14	4.08	Very low
Overall average		4.14	Low

Note: Source: Results of the application of the instrument

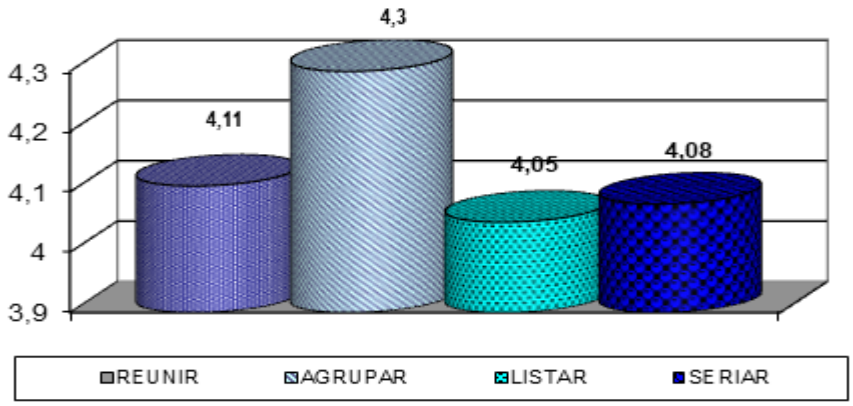


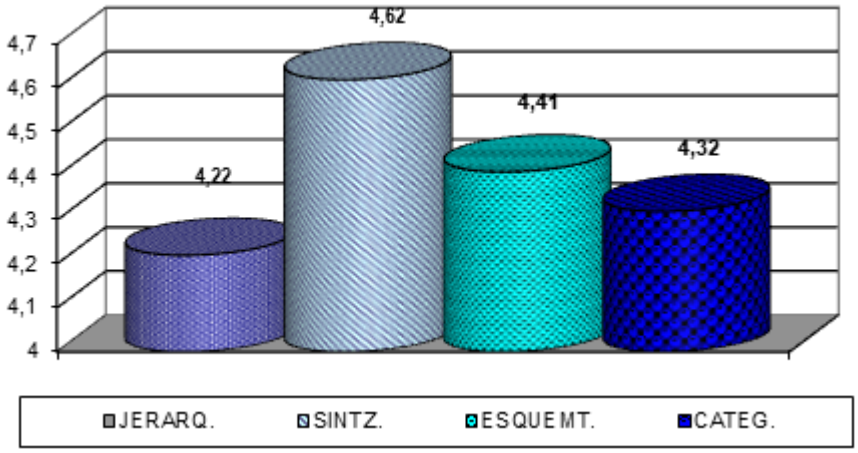
Figure 4. Regulation dimension
Note: Source: Table 8

With respect to the Regulation Dimension, according to the results presented in Table 8 and Figure 4, it is observed that the overall average for this was 4.14 in the Low category; The highest average was obtained by the domain Group with 4.30 located in the Moderate category, while the lowest was for Listing with 4.05 and the category Very low, indicating that the participants of higher education present a low tendency to concentrate the most important ideas in a text about an event under investigation, to list the common aspects in two or more texts or to place in successive form the similar aspects between ideas of interest to carry out a written work.

Table 9
Classification Dimension

Indicators	Items	Average	Category
Prioritize	15	4.22	Low
Synthesize	16	4.62	Very high
Map	17	4.41	High
Categorize	18	4.32	Moderate
Overall average		4.39	High

Note: Source: Results of the application of the instrument



Note: Source: Table 9

With respect to the Classification Dimension, the results shown in Table 9 and Figure 5 refer that the overall average for this was 4.39 in the High category; the highest average was obtained by the synthesizing domain with 4.62 and the High category, while the lowest was for Prioritize with 4.22 and the Low category. However, the overall average indicates a high tendency among higher education participants to read information and summarize its most important aspects, represent in a chart the most important ideas of a reading, and synthesize the most important ideas in a text on a topic they are researching.

Correlation of variables

The correlation coefficient (r) among variables was calculated using Pearson's direct scoring method (see Annex D):

$$Rxy = \frac{\sum \frac{x.y}{N} - \overline{x}.\overline{y}}{Sx.Sy}$$

Whereas:

N = Objects number ∑X= sum of X

$\sum X^2$ = Sum of X^2 ∑Y = Sum of Y

$\sum Y^2$ = Sum of Y^2 ∑YX = Sum of X and Y

r = 0.02710683

Table 10
Pearson's Coefficient

-1	Perfect refusal	+1	Perfect positive
-.90	Very strong negative	+.90	Very strong positive
-.75	Considerable negative	+.75	Considerable positive
-.50	Negative average	+.50	Positive average
-.10	Weak negative	+.10	Weak positive
0 No correlation between Variables			

Note: Source: Hernández, Fernández & Baptista, (2003, p. 384)

According to the result obtained through the answers issued, the resulting correlation coefficient was 0.02710683, indicating a "Weak Positive" association between the variables. According to Hernández et al, the results indicate that there is a low incidence of relationship between the instructional strategies used by the teacher and the cognitive mastery of the higher education participant. This was noted in the descriptive analysis of each of the variables and indicates that as the first variable increases, so does the other, but in a very weak proportion.

Discussion and Results

According to the general objective of this research, which was oriented to determine the relationship between the instructional strategies used by the teacher and the cognitive mastery of the higher education participant, the following can be pointed out:

In relation to the instructional strategies used by the higher education teacher in the activities developed in the classes, a predominance of the constructivist over the cognitive was evidenced, with a high tendency in the facilitators towards the use of mental maps as a strategy to learn contents in a comprehensive manner, to represent a set of conceptual meanings and to represent knowledge as a whole.

Such results are relevant in that the effectiveness of constructivist strategies for building and understanding new knowledge and developing higher order thinking skills is recognized by teachers around the world. The development of visual diagrams, such as mind maps, helps students process, organize, and prioritize new information so that it can

be meaningfully integrated into their previous knowledge base. In addition, it allows them to identify erroneous ideas and to visualize patterns and interrelations in the information, factors necessary for the comprehension and deep interiorization of the concepts.

In this regard, Mata (1993) refers that the constructivist perspective of learning is basically the result of a construction process and not a passive reception process; for the student to be able to establish relationships between previous and new contents, logical significance is required, that is, a content constructed in a logical/coherent and ordered manner; functional significance and psychological significance, that is, a level of prior information sufficient to understand the new content and a favorable attitude for learning.

In that sense, Palencia (2005) points out the use of mental maps brings with it a series of advantages allowing the brain to establish new connections at the level of the inter hemisphere and develops creativity through the creation of ideas. By means of them, the visual-spatial intelligence is approached that evidences an individual with capacity to integrate, to perceive, to order elements or objects in the space, in order to establish relations between them, developing in the individual the ability to think and to perceive the world of images, transforming the visual experience through the imagination.

Consequently, it can be affirmed that the higher education teacher is not merely a transmitter of knowledge, as the only source of information; rather, he or she is capable of creating the appropriate conditions for the participant to carry out the construction of his or her own knowledge, in consonance with what was stated by González (1997).

Regarding the cognitive domain of the participant in higher education, the results obtained refer to the fact that the dimension with the highest score was Classification, placing it in the High category. The dimension with the lowest score was Ordination. The other two dimensions, Observation and Analysis, were placed in the moderate category.

However, the fact that the greatest cognitive domain has been classification, expressed in the ability to read information and summarize its most outstanding aspects, to represent in a chart the most important ideas of a reading and to synthesize the most important ideas in a text, is directly related to the use of mental maps by the mediator as an instructional strategy through which he helps students to process, organize and prioritize information.

According to Somuncuoglu and Yildirim (1999), classifying means having a set of data by classes or categories. This also means hierarchizing, synthesizing, schematizing and categorizing what, in De Sánchez's (1999) opinion, is done within the framework of the development of thinking skills, which means increasing habits to naturally and spontaneously apply thinking processes in any physical or mental activity in which they are required. In other words, the product of teaching a thought process is the corresponding thinking skill; that is, people's capacity to apply thought processes. From that perspective, developing cognitive skills empowers students to construct knowledge, as well as reproduce and transmit what they have learned to other fields or areas of knowledge.

Finally, regarding the statistical correlation between the Instructional Strategies used by teachers and the cognitive domain of the higher education participants, the findings indicated a "Weak Positive" association between the variables, which is to provide evidence of a low incidence of relationship between the instructional strategies used by teachers and the cognitive domain of the higher education participants, that is to say, by increasing the former, the other increases equally but in a very weak proportion.

In this regard, it is necessary to emphasize that, during the learning process, it is necessary to develop activities through which individuals face situations that cope with cognitive processes, which encompass processes of attention, perception, memory, reasoning, imagination and decision making. These are the active components of the

human mind that facilitate information processing. In this sense, it can be pointed out that all the products of the mind are generated by the interaction of the thought processes with previously developed concepts and processes. Through this process, human beings construct knowledge. (Chadwick and Rivera, 1991; Rigney, 1978).

However, this process does not always become evident automatically, but certain conditions must be met in order for it to surface. The human mind requires a context of positive human relations favorable to the conservation and valuation of the "I," that is to say, it requires relations devoid of threats or challenges to the conception that subjects have about themselves.

Having said that, according to De Sánchez (1997), this mastery is gained by repeating certain thought processes and operations considered useful so as to achieve intellectual development, which can be improved in a systematic and deliberate way. It begins when individuals direct their attention towards a specific topic or thought process; This activity must be deliberate; Besides, it must be worked on together with procedures aimed at exercising the mind in a disciplined and systematic way. It continues with practice and finalizes acquiring the habit of thinking.

Consequently, the fact that higher education participants have shown a moderate-to-low cognitive domain demonstrates that the characteristics of individuals also play a significant role in academic success or failure, despite a very high tendency among facilitators towards the use of constructivist strategies. Some of these factors are previous experience, reading skills, persistence, spatial abilities, age and gender.

Lastly, it can be asserted that even when instructional strategies are involved in promoting and facilitating meaningful learning, strategies do not always ensure this since it is also necessary to have metacognitive processes involved.

Conclusions

On the basis of the results obtained and depending on the specific objectives that guided the study, the following is concluded:

According to the cognitive approach, the learning process is related to how information is received, organized, stored and located. The principles related to the learning process are the hierarchical cluster analysis for identifying and illustrating prerequisite relationships (analysis procedures, cognitive task procedures), structuring, organizing and sequencing information to facilitate its optimal processing (the use of cognitive strategies), as well as creating a stimulating learning environment.

The Cognitive Domain is the cognitive capacity; It refers to the intellectual dimension and rationality that comprises six levels: knowledge, comprehension, application, analysis, synthesis and evaluation.

Cognitive Skills are a set of mental operations, whose purpose is that individuals incorporate the information acquired through the senses into a knowledge structure that is comprehensible to them. Such skills are understood as operations and procedures for acquiring, retaining and retrieving different types of knowledge and execution; They are capacities for self-direction and representation.

Cognitive Skills are the facilitators of knowledge, as they operate directly on information: compiling, analyzing, understanding, processing, and storing information in the memory, so that, subsequently, it can be retrieved and used where, when and how appropriate.

Certain strategies that allow for the development and strengthening of these skills, especially in the field of education and research, empowering students to construct knowledge, as well as reproduce and transmit what they have learned to other fields or areas of knowledge.

With respect to the instructional strategies used by higher education teachers, constructivist strategies predominated, showing a very high tendency among facilitators towards the use of mental maps as a strategy to comprehensively learn contents, represent a set of conceptual meanings and represent knowledge as a whole.

As for the cognitive domain of the higher education participants, the findings indicated a greater tendency towards classification, that is to say, the participants showed high mastery when reading a piece of information and when making a summary on its most outstanding aspects. They were requested to represent the most important ideas of a reading in a chart, synthesizing the most important ideas of the text, thus relating to the use of mental maps by the facilitators.

Concerning the statistical correlation between the Instructional Strategies used by the teacher and the cognitive domain of the higher education participant, the result obtained indicated a "Weak Positive" association between the variables, which is to provide evidence of a low incidence of relationship between the instructional strategies used by the teacher and the cognitive domain of the higher education participant, that is to say, that by increasing the former, the other increases equally but in a very weak proportion.

In this regard, it is necessary to emphasize that, during the learning process, it is necessary to develop activities through which individuals face situations that cope with cognitive processes. However, this process does not always become evident automatically, but certain conditions must be met in order for it to surface, requiring a set of relations favorable to the conservation and valuation of the "I," as well as previous experience, reading skills, persistence, spatial abilities, age and gender, all of them being involved in promoting and facilitating meaningful learning.

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