Creativity: learning style or teaching strategy?

La creatividad: ¿estilo de aprendizaje o estrategia didáctica?

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Abstract

The present research on Creativity: Learning Style or Didactic Strategy? It aims to identify the impact of Learning Styles and Didactic Strategies on Creativity. Teachers should resort to practices that make them obtain good results, projecting a quality training, this leads to being an active person, with social activities that make the student have a good and increasingly better participation in the process of teaching-learning, where it is capable of transmitting a discipline to overcome difficulties. (Márquez, 2005). Some items of the learning styles of the ILP-R questionnaire (SCHMECK) were used, from which the most relevant ones were selected since they could enrich the present study. The instrument that was applied presented a cronbach alpha of .85, the results were analyzed with the STATISTIC statistical package. The type of research is quantitative, the instrument was carried out in four sections, where the general data is found, and 3 research axes: Learning Styles, Didactic Strategy and Creativity. As main results it was found that Learning Styles and Didactic Strategies are considered to have an impact for the student to generate Creativity.

Resumen

La presente investigación sobre *la Creatividad: ¿Estilo de Aprendizaje o Estrategia Didáctica?* tiene como objetivo identificar el impacto de los Estilos de Aprendizaje y Estrategias Didácticas en la Creatividad. Los docentes deben de recurrir a prácticas que le hagan obtener buenos resultados, proyectando una formación que sea de calidad, esto conlleva a que sea una persona activa, con actividades sociales que hagan que el alumno tenga una buena y cada vez mejor participación en el proceso de enseñanza-aprendizaje, donde sea capaz de transmitir una disciplina de superación ante las dificultades. (Márquez, 2005). Fueron utilizados algunos ítems de los estilos de aprendizaje del cuestionario de ILP-R (SCHMECK), de donde se seleccionaron los más pertinentes dado que pudieran enriquecían el presente estudio. El instrumento que se aplicó presento un alfa cronbach de .85, los resultados se analizaron con el paquete estadístico STATISTIC. El tipo de investigación es cuantitativa, el instrumento se realizó en cuatro apartados, donde se encuentran los datos generales, y 3 ejes de investigación: Estilos de Aprendizaje, Estrategia Didáctica y Creatividad. Como resultados principales se encontró se considera que los Estilos de Aprendizaje y las Estrategias Didácticas impactan para que el estudiante genere la Creatividad.

Creativity, Learning Style, Didactic Strategy

Creatividad, Estilo de Aprendizaje, Estrategia Didáctica

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Introduction

The development of the skills and potentialities that students develop as they are contextualized in their school development, intervenes and has a great impact on the processes in the classroom. It is important to emphasize that all students have a different way of learning, since each one works differently, learning with different Learning Styles, which leads to the potentialization of skills that will be necessary for: their daily learning, the resolution of school problems , and decide differently each of the situations in which the student is.

These potentials and abilities that students develop will be linked to the didactic strategies developed by teachers, so it is important that teachers are contextualized with each of the different Learning Styles that young people might have. In this way the teacher has to develop various strategies where it impacts each of the styles, to help students to develop the potential to better understand the contents of the subject taught by the teacher, it is necessary that the teacher Do not keep a single learning method for the development of your classes.

The implementation of various teaching strategies within a classroom greatly intervenes so that students can discover the best way of working, interacting with different ways of working within a class, students will find different ways of learning, leading to student's decision to be able to choose the best strategy to solve various complications academically and in his daily life. From all these skills and potentials that each person obtains during the process they carry out in school, it is how they can reach the development of creativity and the natural implementation of innovation to achieve what they intend to achieve. (Torres, 2005)

Theoretical framework

Creativity is a concept not yet fully defined by what could be said to present various facets given the above and from this perspective, creativity can be understood as a laborious process that involves multiple variables (personal, motivational, emotional, social, cultural and contextual) common to all people and interesting in education (Guerra and Villa, 2019)

Creativity is an ideal form of behavior and focuses on the ability of talented people who can contribute significantly, both in society and in life itself. (Goñi, 2005). (Trigo, 2005) affirm that creativity is a human capacity that, to a greater or lesser extent, everyone has. This is what Menchén (2001) agrees, who recently states that creativity is a natural and basic characteristic of the human mind and that it is potentially found in all people.

Creativity involves anyone who has the potential, to be able to do new, innovative and better things, together with the achievement of improving their environment and reaching the limits of their creativity. (Torres, 2005)

The way in which creativity develops without infinite and unpredictable and has to do with a type of arrangement, which corresponds to the personal and individual and the relationship with their environment, you can have a form of expressive creativity, characteristic is spontaneity and freedom, there is also the technical creativity, where the skill dominates more than the spontaneity. (Monrreal, 2005). The way in which the individual develops different ways and tools to acquire knowledge is marked by learning styles, in this way the way of learning takes up the structures of the learning process that is applied in the educational context, in response to the stimuli and the information that is constantly received. (Sickle A. c., 2005)

Problem-based learning (ABP) influences the development of skills and the effectiveness of learning in physical education by facilitating the development of learning skills and increasing motivation, thus providing students with the opportunity to interact and help each other. each other (Luo, YJ 2019).

Another experience is the Sgambi, L., Kubiak, L., Basso, N., & Garavaglia, E. (2019) in which the introduction of an active didactic experience to improve courses that are generally passively structured resulted in that students were able to learn concepts related to the mechanics of structures. On the other hand, Learning Styles are then the tools that help us analyze, capture, process and respond to information received in the educational environment, mentions that learning styles are not common to all and is defined in various ways (Garcia, 2005).

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For Franquesa-Soler, M., Barraza, L., & Serio-Silva, JC (2019) in their study on the Learning Preferences of Children for the Development of Conservation Education Programs in Mexican Communities, they found that the Studying how children learn can provide valuable information for the development of effective conservation education programs, establish a dialogue about students' strengths and weaknesses, improve their participation and empower them to take action.

Learning strategies can be procedural, that is, they involve procedures, intentional, because of their deliberate nature, require effort, are voluntary, essential, that is, necessary in the behaviors of experts in an area, and would facilitate, since they improve performance academic. (Sickle Z. c., 2015)

It is believed that people employ a particular method of interaction, acceptance and processing of stimuli and information, where the characteristics of learning style are usually part of any psycho-pedagogical report that is prepared on a student, and should be the foundation of the didactic strategies and pedagogical reinforcements so that these are the most appropriate for the student. (Hernádez, 2005). People abstract knowledge through two phases: an analytical phase of search and understanding and a synthetic phase of experimentation and invention, which operate in what the theoretical and practical world considers. This category groups those models that suggest that learning takes place. achieved through practice, experimentation and discovery through the senses. (Beckman, 2013).

Teachers should resort to practices that make them obtain good results, projecting quality training, this leads to the teacher being an active person, with social activities that make the student have a good and increasingly better participation in the teaching-learning process, where it is capable of transmitting a discipline to overcome difficulties. (Marquez, 2005). Students meet and meet their needs in a different way, if learning is approached from different perspectives, it is possible that more learning is generated, that is, it is situated in an ideal plane where students are able to choose the appropriate strategy according to the situation and the one that most relates to the problem addressed. (Schmeck, 1996).

In this regard Alava, EE, & Martinez, MEM (2019) mentions that learning is not a task that the student can acquire with total individuality so for teachers it should be important to reflect if the form of their pedagogical practice is attractive to their students or if they are simply depositors of content. Schmeck's research mentions that on the one hand, the students who generally put their attention on superficial characteristics those who have a literal memorization, seem to be unable to attend stimuli at a level of greater depth of understanding, on the other hand the students who instead of memorizing, they try to understand the material with which they work, which places them on the scale of deep processing, which makes them capable of attending to specific details when activities require it, because their association network is more elaborate and hierarchical since it allows them to have better information (Schmeck, 1996).

Methodology

Once the general question of the investigation is established, we proceed to inquire about the bibliography that supports the main proposal of this work, the research objectives, questions and hypotheses are developed. The research instrument is prepared and the pilot test is carried out that allows adjustments to the reagents, the final application of the questionnaire is executed in one session. The data obtained are organized in a data matrix and are given statistical treatment to explore the results where a cronbach's alpha of .85 is obtained. In addition, the information is processed in the statistics analysis: Descriptive from frequencies and percentages, Comparative with student T test and integrative with factor analysis; Therefore, it is a quantitative, synchronous and transversal research of exploratory and descriptive type.

The instrument consists of 4 sections (see annexes); in the first one there are general data where gender, age, semester, institution variables are observed. The second, third and fourth section correspond to the axes of each one measured with two complex variables that consist of data that will serve the researcher to know how Creativity impacts Learning Styles and Didactic Strategy measured with a decimal scale where 0 is absence of attribute and 10 its maximum presence.

Sampling is non-probabilistic of incidental or convenience type; This is a characteristic in the investigations carried out by students, where the permissions of the school authorities for the application of the measuring instrument are depended. The measuring instrument was applied to a sample of 120 active students who are in the classroom for better application control.

Results

Frequencies and Percentages

The students are from Mariano Narváez González TM high school, and Ateneo Fuente of the Autonomous University of Coahuila, within the results it can be seen that of the surveyed population of 120 students, 64 female students were applied as well, so both the rest of the students surveyed are male giving a total of 56 students, the ages of the students are between 15 and 17 years old, being 16 years old, those who represent the least students, being 11% of the population surveyed, the application consists of 50% in each bachelor's degree, and finally 62 of these students are in the second semester, while the rest are in the fourth semester.

Student's T

In order to compare samples through their arithmetic means and find significant differences depending on age, gender, institution and semester, comparative analyzes with the student's t-test for independent samples with a probable error value of less than 0.05 ($p < 0.05$), the statistical values that appear in this analysis are the sample values of each analysis group (Mean (X) of the groups), the test value t (t-value), the degrees of freedom (df) and the probability of the level of error (p). For the first comparison, the age grouping variable with didactic strategy is taken.

From the analysis it is observed that the variables, role play and computer use stand out in the comparison where it is observed that 15-year-old students work better through the didactic role-playing strategy, on the other hand, we can see that students from this age they become more familiar with the use of computers for their school activity.

Therefore, it is inferred that high school students better dominate the technological resources assigned to their institution, thus being a great help to have a better school activity. As a second comparison, gender grouping variable with learning style and teaching strategies is taken.

From the analysis it is observed that within the male students they have a greater use of virtual platforms more appropriate the use of the realization of timelines as a didactic strategy compared to the female students, but on the other hand it is observed that the Students look for different learning variants, since they think they are looking for other alternatives instead of following the same line of work as it is observed that students do follow it as a learning style.

Therefore, it is inferred that male students perform activities more easily through the use of virtual platforms, as well as female students perform activities by going along the same line of work, while male students They look for alternatives to reach their goals.

As a third comparison, the institution grouping variable with learning styles and didactic strategies is taken. From the analysis it is observed that within the two baccalaureate students of the Athenaeum Source think that the best teaching strategies that teachers can apply is through projects, consultations, timelines, notes, essays, as well as they believe that the use of computers, conducting discussions, applying tutorials and learning through simulations, while Mariano Narváez Morning Shift students doubt that this is of greater impact for its application in the classroom, on the other hand it can be appreciated that the students of the Ateneo Fuente look for the reasons behind each fact with which they work, as well as examine the information before being processed, unlike the students of Mariano Narváez, those of the Ateneo assume that life is an adventure. While Mariano students look for learning alternatives, thus showing that the students of the Athenaeum seek to follow the same line of work, but that they do the activities step by step. So, it is inferred that the students of the Athenaeum Source use more didactic strategies and, therefore, identify the activities they perform in the classroom, as well as conduct more tutoring meetings.

As a comparative room, a semester grouping variable with didactic strategy and creativity is taken.

From the analysis it can be observed that the second semester students choose to take the didactic strategy of role play, as well as see the teachers as a guide, on the other hand, the fourth semester students carry out their activities supporting themselves better with the use of imagination.

Therefore, it is inferred that fourth semester students have imagination since they involve situations they have faced, thus being more agile when they are creative, on the other hand, second semester students require more teacher support as a guide.

Factorial analysis

This analysis was carried out with the procedure of main components that support the innovation proposal, with normalized varimax factor rotation, with a probable level of error p≤.05, a r = 0.17 and a confidence level of 99.95%.

21 factors are obtained, with a minimum eigenvalue of 1, this mark a total of 72.46% explanation of the study phenomenon, which is exhibited factor 2, being here where the proposal of educational innovation and factors 4.6 are prospected, 8,9 and 13 support it.

The invention in creativity, its learning style and its didactic strategy

The factor 2, called The integrated use of learning styles with teaching strategies, enhances creativity from the invention, diversity and this strengthens their imagination, on the other hand, it can be inferred that the students of these baccalaureate students assume that the didactic strategies of projects are important for the realization of classes, this can cause that in the classroom the recreational activities are implemented, these will make the coexistence of the students be strengthened, therefore, the exhibitions, activities by competences and diverse Aulic activities will be of greater impact.

On the other hand, they argue that the performance of tasks, consultations, essays, summaries benefit the reinforcement of extracurricular skills, as well as the realization of activities that show them various variants that can be implemented to be very useful often, as well as Be information that shows you the reasons why you are studying. And this is where the imagination that the students argue is presented, since, it is here that it is potentiated, as well as the ability of invention by the students.

Conclusions

The development of pedagogical strategies has an impact in the context of the development of students in the classroom, which is why it is necessary that teachers when developing a class are aware of the different processes that students must develop in the classroom. The technological resources and the strategies of the teachers must go afloat, since each student has a different way of learning, of gathering information and of solving different problems, although the training of the students is guided by the abilities of the teachers , who are responsible for carrying out activities with different methods, to carry out a better learning of the students. It should be noted that a student who is provided with various ways to carry out their activities and teaching strategies that enhance their Learning Styles, the student can develop one or more resources that will help him in his educational processes and in general to develop in any context in Whoever has to be. It is important that in the educational processes students not only develop and acquire new knowledge, but the ability to generate their own ideas, modernity and new technologies are a clear example of why students should be innovating, the generation of knowledge by new methods.

Proposals for change and transformation

To privilege the use of strategies in the students so that at the hand of the teacher and in conjunction with the different strategies and the potentialization of the Learning Styles the student can develop different skills that generate creativity, which in itself will develop different skills and it generates different characteristics to each of the students, developing different strategies that help reinforce their skills.

ANNEXES:

This instrument has the purpose of knowing aspects related to teaching strategies and creativity with learning styles.
Please answer the following:

Gender: F () M () Age: _____ Institution: _____ Semester: _____

With a scale from 0 to 10, where 0 represents the minimum value and 10 the maximum value.
To what extent do you consider the following attributes to form some teaching strategies?

	0-10		0-10		0-10		0-10		0-10
Projects		Cultural activities		Bibliographies		Roleplay		Simulations	
Playful activities		Oral tests		Virtual platforms		puzzle		Experiments	
Exhibitions		Written exams		Laboratories		essays		Practices	
Teamwork		Workshops		Timelines		Summary		Conferences	
Individual work		Chores		Brainstorm		Computer use		Case methods	
By competences		Interviews		Debates		Discussions			
Research		Conceptual maps		Oratory		Tutorials			
Queries		Summary tables		Notes		Collaborative work			

With a scale from 0 to 10, where 0 represents the minimum value and 10 the maximum value.
To what extent do you consider the following characteristics to be part of creativity?

	0-10		0-10		0-10		0-10		0-10
Originality		Elaboration		Sense of humor		Spontaneity		Social capacity	
Invention		Productivity		Ambition		Freedom		Self esteem	
Fluency		Imagination		Sensitive		Excitability		Looseness	
Flexibility		Novelty		Divergent		Viability		Audacity	
Communication		Curiosity		Motivation		Leadership		Depth	
Problem resolution		Initiative		Commitment		Intuitive ability		Tenacity	
Innovation		Independence		Memory		Critical capacity		Decision making ability	
Diversity		Conventional thinking		Logic		Emergent		Experience	

To what extent do you consider the following characteristics to be part of your learning styles?

Deep processing: abstract / semantic	0-10	Deep processing: critical thinking	0-10		0-10	Elaborative processing: self-realization	0-10
I try to resolve the conflicts between the information obtained from various sources.		I often criticize the things I read.				I am mainly interested in self development, in what I will become	
I consider different points of view in my mind when I study a new subject.		I take note of the data in my own words.				I remember new words and ideas by associating them with words and ideas that I already know.	
When I read a problem I try to think about the different alternative ways of finding the solution.		I rarely look for reasons behind the facts.				When I study something I invent a system to remember later.	
When I read an investigation I try to find different ways of interpreting the conclusions.		I often find myself questioning things I hear at conferences or read in books.				In trying to understand new ideas, I often relate them to real-life situations to which they can be applied.	

Scientific explanations fascinate me.		When I am reading an article or a report, I generally examine the content carefully to decide if the conclusion is justified.		.				Deep down I think the experience is as important as school education.	
I like to compare different theories.		When I am studying, I occasionally stop to think about what I am reading.						Life is a great adventure.	
I dream awake about the things I have studied.		As I study I try to find answers to the questions that come to mind						My feelings are a very important part of my decision or judgment capacity.	
I try to relate the ideas of one subject with those of the other subjects, whenever I can.								A person's point of view is as important as scientific theories.	
								I am very interested in family values	

To what extent do you consider the following characteristics to be part of your learning styles?

Elaborative processing: concrete / episodic	0-10	"Agentic" processing : serial / sequential	0-10	Analytical "agentic" processing	0-10	Literal repetition	0-10
I have a good imagination.		When I do my homework I usually finish a task completely before starting a new one.		The best approach to the key to a problem is logical and systematic thinking.		I usually memorize everything I have to learn word for word.	
I believe in intuition.		I usually work on one thing after another.		I generally prefer to work a problem in parts, solving it part by part.		Teachers seem to enjoy making a simple truth an unnecessary complication.	
Book ideas often make my mind deviate from other topics that do not necessarily relate to what I am reading.		I like to jump from one task to another.		I find it difficult to change my mind when working on a problem; I prefer to follow the same line of thought until the end.		I often memorize material that I don't understand.	
When trying to understand a disconcerting idea, I first let my imagination fly freely even if I am not close to the solution.		I feel orderly and organized.		I think it is important to look at the problems rationally and logically, without drawing intuitive conclusions.		For the exams I memorize the subject more or less as I have been given in class notes.	
I like to wander with my own ideas even if this doesn't take me anywhere.		I always make a special effort to get all the details.		I need to do things step by step, in an orderly way.		When I have to learn something, I usually repeat it again and again.	
I am able to think without words, better with impressions than with thoughts.		When I start something, I continue with it until I finish it.		When I study I find it difficult to concentrate on one thing at the same time.		I see teachers as a guide.	
In trying to understand a new topic, I often explain it in such a way that others don't seem to understand me.		When I study a subject I don't like to deviate to secondary aspects.				I usually don't have time to think about the implications of what I read.	

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Sometimes it seems to me that I think with images.					I learn more when teachers limit themselves to the facts and do not give their own ideas	

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