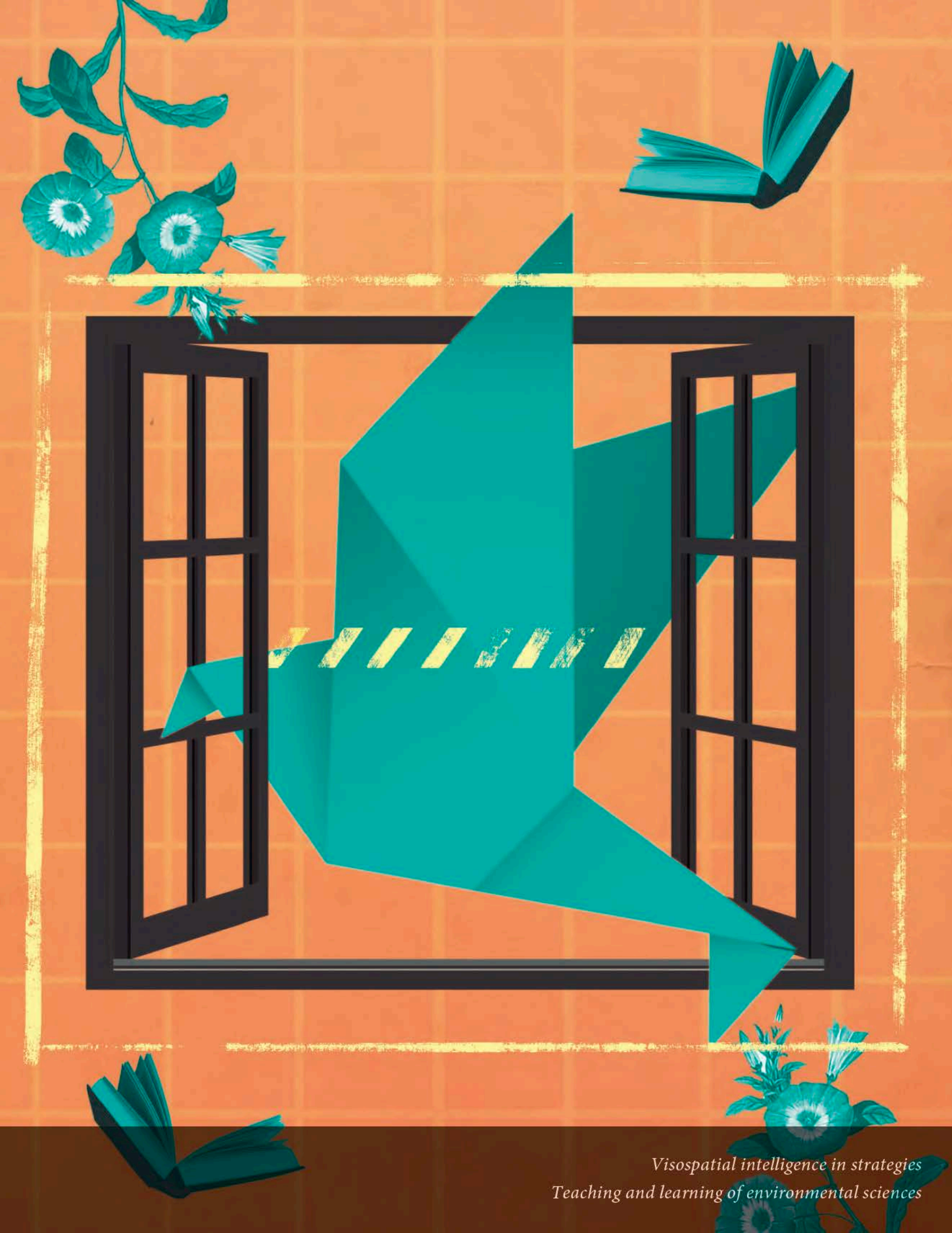

Visospatial intelligence in strategies
Teaching and learning of environmental sciences

VISOSPATIAL INTELLIGENCE IN STRATEGIES TEACHING AND LEARNING OF ENVIRONMENTAL SCIENCES

La inteligencia visoespacial en las estrategias de enseñanza-aprendizaje de las ciencias ambientales

Inteligência viso-espacial em estratégias ensino e aprendizagem das ciências ambientais

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ABSTRACT

This article is part of a research on Gardner's theory of multiple intelligences, this particular case tackles teaching-learning strategies applied to students with developed visuospatial intelligence.

This qualitative descriptive research applied the observation technique and was developed in an environmental sciences course with a group of seven university students with visuospatial intelligence, these students' results were selected due to their creativity and ease with dimensions, colors, spaces, photographs, images, drawings, etc., all of which were used for their own learning and to teach their classmates. Moreover, this article is intended to disseminate the experiences herein and to contribute with knowledge aimed at enhancing teachers' activity, with the purpose of executing teaching-learning strategies considering student individuality to help them develop and use their multiple intelligences to learn.

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RESUMEN

El presente artículo forma parte de una investigación que se llevó a cabo en relación con los 8 tipos de inteligencias múltiples de Gardner, pero en este caso solo se aborda lo referente a estrategias de enseñanza-aprendizaje con alumnos que poseen desarrollada la inteligencia múltiple, llamada visoespacial. Dicha investigación cualitativa de corte descriptiva que utilizó como técnica la observación, se desarrolló dentro de un curso sobre ciencias ambientales, en donde se trabajó con un grupo de siete alumnos universitarios con inteligencia visoespacial; en especial se seleccionaron los resultados de estos alumnos por llamar la atención su creatividad y facilidad con las dimensiones, colores, espacios, fotografías, imágenes, dibujos etc., que utilizaron para su propio aprendizaje y para la enseñanza de sus compañeros de grupo. Igualmente, este artículo se presenta con la intención de dar a conocer dichas experiencias y abonar conocimientos que permitan mejorar la actividad docente, con el fin de ejecutar estrategias de enseñanza-aprendizaje pensando en la individualidad de los estudiantes, lo que permita a estos desarrollar

por

RESUMO

Este artigo apresenta avanços do projeto de pesquisa titulado Estratégias Didáticas para a Incorporação do Desenho Universal para o Aprendizado (UDL), na escola rural, esenvolvido no marco do Mestrado em Educação SUE Caribe com o objetivo de melhorar o processo de ensino e aprendizado dos estudantes da oitava série da I.E. El Chiquí (San Bernardo del Viento, Córdoba) mediante a incorporação do UDL na disciplina acadêmica de Inglês. Inscrita na pesquisa qualitativa e com sustento no método de Pesquisa-Ação (I.A), o desenho foi desenvolvido nos dois ciclos e quatro fases de trabalho desta metodología participativa: Diagnóstico, Planificação, Ação, e Análise – reflexão final. Os resultados evidenciam alguns fatores associados à desmotivação dos estudantes frente aos conteúdos propostos e as metodologias utilizadas na disciplina de Inglês, e subutilização dos recursos tecnológicos e didáticos disponíveis. Com base em este diagnóstico apresentam-se os resultados provisionais do desenho educativo criado e incorporado participativamente, para dar solução às carências socioeducativas identificadas.

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y hacer uso de sus inteligencias múltiples para aprender.

Keywords: Multiple intelligences, Gardner's intelligences, teaching-learning strategies, visospatial intelligence.

Palabras clave: Inteligencias múltiples, inteligencias de Gardner, estrategias de enseñanza-aprendizaje, inteligencia visoespacial.

Palavras chave: Inteligências múltiplas, inteligências de Gardner, estratégias de ensino-aprendizagem, inteligência viso-espacial.

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INTRODUCTION

Although students may come from the same place, share a common culture and have the same age, they have significant differences between themselves ranging from the sphere of the personality, the way they learn, their character, how they solve problems and diverse skills or capacities, nonetheless, in the end they have the potential to learn because they have intelligence. According to Molero, Saiz and Esteban (1998), citing Marina (1993), "intelligence is the capacity to cause, orient and control the mind's operations, characterized by creating and handling unrealities from a functional point of view as a way to adapt to the medium, where intelligence invents problems and tries to solve them through the assimilation of data from reality to the mind's subjective schemes, afterwards, these schemes are adapted to reality, resulting in the creation of the person's world; intelligence's greatest task is to create the environment's own subjectivity".

Intelligence is utilized in different techniques that make up learning strategies, for which Muria (1994) cites Weinstein and Mayer (1986) who consider that "learning strategies are a series of behaviors that a student applies in the learning process, intended to intervene in the student's coding processes, seeking to influence his/her emotional and affective states or the way in which he/she organizes and integrates the new knowledge". Therefore, intelligence resorts to different strategies to attain learning.

THEORETICAL FRAMEWORK

Gardner's theory of multiple intelligences (2010) puts an end to the notion that human beings only have one type of intelligence. The author proposes that human beings are able to develop several types of intelligences and that a school assessment is not decisive to get to know a person's intelligence.

For instance, some students with excellent grades may not have the social skills required by certain job, this is because each person develops a different type of intelligence. Some students have insufficient performance in logical-mathematical reasoning activities, and yet their manual abilities help them create drawings or sculptures.

In that sense, oftentimes educational spaces have placed more importance to linguistic and logical-mathematical intelligences, which implies that other intelligences that may guide the student to fulfill his/her fullest potential are neglected.

Gardner (2001) explains people have 8 types of intelligences: linguistic, visuospatial, interpersonal, intrapersonal, logical-mathematical, naturalistic, musical, and kinesthetic, all of which are equally important, however, a person excels in one more than in the others (in a determined field). Therefore, educational institutions should benefit the development of all intelligences alike, since it depends on genetic factors and on lived experiences. The teaching-learning process is so complex, that it is not possible for educational institutions to train teachers to its full extent in order to service the diversity of students they deal with every day, therefore, it is crucial for the teacher to be at the forefront of new theories, techniques and methodologies with the purpose of performing properly in the educational field, as explained by Garcia and Vanella (2005).

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Learning well is not necessarily related to the way in which information is presented but with the way our brain processes said information, in other words, it depends on the types of intelligence that we have developed best; so, if the information is presented in a more advantageous way, the task will become easier, pleasant and more successful.

Gardner's (1983) theory of multiple intelligences, first published with the title "Frames of Mind", was the official inception of this theory, it generated a new concept of intelligence, defining it as the capacity to solve problems or elaborate products that seem valuable in one or more cultures, this concept is closely connected with:

1. A set of skills that allow a person to solve daily problems.
2. The capacity to create a product or offer a valuable service in a certain culture.
3. The capacity to generate new problems and find solutions, deriving in the opportunity of acquiring new knowledge.

The theory of multiple intelligences suggests that each individual has a set of intellectual potentials, by virtue of belonging to the human species, given our legacy and training at an early age, which is why some individuals develop some intelligences more than others, although a normal individual should develop each intelligence to certain extent (Gardner, 2004).

Thus, all human beings have multiple intelligences that can be developed and strengthened or ignored and weakened depending on lived experiences (Bilbao and Velazquez, 2014).

VISUOSPATIAL INTELLIGENCE

Individuals with visuospatial intelligence have the capacity to differentiate shapes and objects, even from different angles, are capable of distinguishing and managing the idea of space, can elaborate and navigate maps, blueprints and other forms of representation (Ander-Egg, 2008).

Likewise, these people are characterized by precise identification and placement in the visual world, they can make transformations of perceptions, imagine an internal movement or displacement between the parts of a configuration (Antunes, 2004).

They are also capable to recreate aspects of the visual experience, even without relevant physical stimuli. This intelligence provides orientation in different places in order to recognize particular places or signals of graphical representations, maps, diagrams and geometrical shapes (Armstrong, 2009).

These individuals have the ability to create real images that associate a theoretical description with its practical existence; some examples of people with this intelligence include Darwin, Dalton, Picasso and Asimov (Antunes, 2006).

Guzman and Castro (2006) cite Trejo and Avalos (2002), Aste (2001 to 2001B), Nicholson-Nelson (1998) and De Jesus (2002) which identify students with these intelligence due to their capacity to produce schemes, diagrams, tables and maps of conceptual and mental nature. People with this intelligence are usually painters, sculptors, sailors, aviators, designers, craftsmen and art teachers that day-dream, imagine easily and frequently, enjoy artistic activities, puzzles, labyrinths and 3D constructions, as well as easily oriented.

Professionals with this intelligence perform as sculptors, architects, painters, advertisers, interior designers and chess players. This intelligence is also connected with the linguistic, kinesthetic and musical intelligences (Coto, 2009).

Visuospatial intelligence is important because many daily activities require it, e.g., imagining how a house would look in a specific color, designing buildings, etc.

This intelligence is located in the brain's posterior region of the right hemisphere: one is located in the dorsal part that processes everything related to space, and the other in the ventral part is connected with objects, these circuits are born in the occipital lobe. The key components of this intelligence are: capacity to precisely perceive the visuospatial world and capacity to introduce changes in the initial perceptions.

According to Gutierrez (2009) visuospatial intelligence may be stimulated with imaginary maps and becoming familiar with maps and drawings.

Gardner (1983) describes specific characteristics and some personalities that exemplify visuospatial intelligence, as well as pedagogical activities to favor it.

Table 1. Characteristics of Visuospatial Intelligence

Intelligence	*Likes*	*Excels at*	*Prefers*	*Famous personalities*
Visuospatial	Drawing, building, designing, looking at photographs, colors and videos, geometry in mathematics	Imagining, perceiving changes, puzzles, reading maps and charts, thinking in 3D	Visualizing imagining, working with photographs and colors	**Pablo Picasso, David A. Siqueiros, Diego Rivera, Jose Clemente Orozco, Frida Khalo**: 20th century painters
Capacity to perceive the world and to create mental images from visual experience.				

Source: adapted from Nicholson-Nelson (1998) and The New City School (2000).

The following table includes specific examples that may guide course planning.

Table 2. Ideas to Plan Courses Aimed at Stimulating Visuospatial Intelligence

Intelligence	*Teaching activities (Examples)*	*Didactic material (Examples)*	*Students learn through (Examples)*
Visuospatial	Visual presentations, mental maps, graphic organizers, visualization, imagination games, connecting patterns, drawing words, creating metaphors, guided visits	Movies, videos, art material, photographs, slides, charts, *collages*, posters, models, optical illusion, slides projections, charts software, CD-ROMs, cameras, telescopes, microscopes	Mental maps, coloring, looking, drawing, visualizing, making diagrams, looking for visual patterns, creating, designing, imagining

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Source: adapted from: Close, 1998, cited by Instituto Nacional de Tecnologias Educativas y de Formacion del Profesorado (s/f).

In that regard, Ortiz (2018) considers that the following activities may help develop visuospatial intelligence:

- Creating a pictorial representation of any kind of learning.
- Producing a *collage* to illustrate facts, concepts and questions.
- Using computer graphs to illustrate.
- Using colors, shapes and images in their work.
- Developing architectural drawings.
- Using slides and movies to learn.
- Designing scenography for literature or social studies.
- Making sciences experiments.
- Manipulating tools for 3D tools.

Garcia (20015) suggests that in order to develop this intelligence, it is adequate to conduct activities connected with colors and fine arts, which ease visualization; moreover, it is convenient to imagine scenes of a narration, make drawings based on compositions, color-code the most important parts of a text, invent models using different materials, tell stories, play with puzzles and paint.

It is also relevant to consider Wolfe and Brand's (1998) comments, cited by Suazo (2006), which "consider the brain to be physiologically changing at every moment according to its experiences, since the brain's formation is the result of the interaction between an individual's genetics and his/her time in the uterus. Moreover, an individual's experience of the environment, cultural interaction and actions determine and impact gene function; which is why it is so important to conduct activities that develop each student's multiple intelligences.

MATERIAL AND METHODS

The objective of this research was to identify the teaching strategies that students are able to build with the use of their visuospatial multiple intelligence.

Also, by taking into account each student's intelligences when conducting planning of the teaching-learning strategies, important accomplishments were likely to occur, as follows:

- Understanding students better and identifying their strong areas and areas of opportunities.
- Allowing the teacher to increase the number of learning methodologies and strategies based on different multiple intelligences evinced in their students.
- Analyzing and discussing alongside students about the dominant learning styles, valuing and granting the same importance to each one.
- Giving the opportunity to the students to teach one another by tapping in to their dominant styles.
- Classes should stop being a simulation of "what is learned and what is taught" and stop being mechanized spaces permeated by traditional and guided teaching practice.
- Students' interest for the class will be restored, this will be a pleasant dynamic in which students will have a participative attitude (since everything they are intended to learn will be meaningful), thus it will be an education of quality, which is largely needed in this moments of transition and change of education in Colombia.

This research was qualitative, in the words of Strauss and Corbin (1990) cited by Sandin (2003, p. 121):

> "Qualitative research is understood as any kind of research that produces results which have not been accomplished by statistic procedures or by any other type of research. It may refer to research about people's lives, history, behavior. And also to organizational functioning, social movements or interactions. Some of the data may be quantified, but the analysis in itself is qualitative."

The research was also descriptive, since this type of study describes an explanation of reality (Hernandez, Hernandez and Batista, 2014), Best (1982), which in this case seeks to describe the teaching-learning strategies developed by students with the use of their visuospatial multiple intelligence. Additionally, it is a short-term longitudinal study, according to Cohen and Manion (2002) because this task was conducted in 4 months.

Moreover, the selected data collection technique was observation, the kind Alvarez-Gayou (2006)calls: "participant observation", in which the researcher gets closer to the situation being observed, even acquiring responsibilities in activities involving the group under observation, however, the researcher does not completely become a member of the group, nor does he/she share the group's values or goals. In this research, the teacher is the leader of the group and accompanies the students in the process of building teaching-learning strategies, first the group learns and then he/she teacher the rest of the group using visuospatial intelligence. Likewise, the development of this technique took into account Best's (1982) recommendations on the observations' simultaneous record, while the details are still fresh in the observer's mind, reducing the possibility of mistakes to a minimum; some authors recommend reviewing said records after the observation, in order to appropriate the observations more objectively.

A descriptive record instrument was produced to collect the information observed on the teaching-learning strategies built by the students using their visuospatial intelligence, according to Garcia and Vanella (1992) and Rojas (1996) this instrument records every event taking place in the classroom as detailed as possible, as well as behaviors and expressions of the subjects involved.

This research began with an explanation of the project and the objectives to the students. They were instructed on Gardner's theory of multiple intelligences; then they took a test taken from the book by Contreras and del Bosque (2004) in order to identify the multiple intelligences of each one; afterwards, the students with visuospatial intelligence were identified, 7 in total, and they made up a team.

Then, the project-based learning (PBL) strategy was selected, students used their own multiple intelligences and passed the stages of PBL based on Tippet and Lindemann (2001) and Galeana's proposal (s/f), which was developed in the following stages:

1. *INFORM.*

In this stage the PBL methodology was explained to the students; their objectives were to produce a strategy in which they could learn while teaching their classmates a specific topic of the course with the use of their visuospatial intelligence. Also in this stage, each team member was given functions

and was made aware of the importance of respect, responsibility and collaborative work. Finally, the topics were assigned and they were given time to recollect their previous knowledge on the topic, this led to an identification of what they knew, what they didn't and what they needed to research.

2. *PLAN.*

In this stage the teacher instructed the students to gather information from different sources on their topic; this information had to be shared, discussed, analyzed and commented among the team in order to come up with a learning strategy (using a summary, grid view, concept map, reading report, etc.) to present to the teacher for him to check if the information was enough and of pertinence.

3. *DECIDE.*

In this stage the team members and the teachers got together with the intention to brainstorm on the teaching strategy they were going to build for their classmates without leaving their multiple intelligence behind. The teacher provided some input with recommendations and corrections to the strategies.

4. *UNDERTAKING THE PROJECT.*

In this stage the students built the didactic material that would be required to apply the learning strategy, and to practice the dynamic to de developed; in this process, they were continuously supervised by the teacher with observations, recommendations or clarifications.

5. *CONTROL.*

Once the students had the didactic material and had practiced the learning strategy, it was presented to the teacher for final observations and recommendations. Afterwards, this learning strategy was presented in the classroom to the rest of the group, with the presence of the teacher (who recorded the development of the strategy), it is worth mentioning that this process was repeated for each presentation of the learning strategy.

6. *VALUE, REFLECT.*

Upon the presentation of each and every topic, a group session was conducted to value and reflect on the results of the teaching-learning strategies, the difficulties, team work and improvement possibilities for each one.

RESULTS

The meeting with the visuospatial intelligence team to value and reflect the results of the strategies had the following comments: it was positive that all members of the team participated, usually some work more than others; team work leads to acquiring more information; if some don't understand then others may explain; they feel more trust working among each other than in the teacher-student dynamic; their multiple intelligences facilitated the creation of the didactic resources, their skills were al similar, producing innovative, attractive and effective resources to fulfill the teaching strategy objectives.

The following are the 14 strategies that students with visuospatial intelligence developed to teach some environmental topics to their classmates.

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1. *TOPIC: HISTORY OF ECOLOGY*

Development of the teaching strategy

Students with visuospatial intelligence drew each stage of the historical development of ecology on letter-sized paper; they presented each and every event with the aid of the aforementioned drawings, which in the end structured a time line; when the presentation was over, they invited their classmates to voluntarily review the events they had just exposed, thus reaffirming topic knowledge, they also gave them time to take notes.

2. *TOPIC: ORGANIZATION LEVELS OF MATTER*

Development of the teaching strategy

Students with visuospatial intelligence drew each one of the different organization levels of matter in letter-sized paper, they added color paper arrows. The strategy began with a recovery of the topic's prior knowledge and the team gave out the drawings on organization levels of matter (around 17). Then they exhibited the first level (the atom) on the board and asked the class what they thought the second level was, their intention was to get their classmates to participate with proposals, if they got it right then the team put up an arrow to continue on to the next level; they structured all of the levels. In the end, they explained which organization levels of matter where involved with ecology and gave them time to take notes.

3. *TOPIC: CONSTRUCTION OF FOOD CHAINS*

Development of the teaching strategy

Students with visuospatial intelligence previously drew at least 50 images on cardboard of plants and animals that are part of food chains, these were cut, colored and had tape in the back in order to stick them to the wall; they also made color arrows to join the drawings together. After the initial knowledge recovery, the students presented the composition of food chains, their importance in the ecosystem and the trophic levels in which they participated. Then, each classmate was given a plant or animal and an arrow to walk along and integrate all the possible food chains. The result was a large network in the classroom wall. They closed the presentation with a review.

4. *TOPIC: TUNDRA*

Development of the teaching strategy

Students planned ahead and drafted a PowerPoint presentation with 60 slides. The presentation took place in the audiovisuals room, they projected images of tundra's flora, fauna, climate and geographical location and explained, at the same time they clarified possible doubts of their classmates. They ended with time for comments and for classmates to take notes.

5. *TOPIC: LIVE COMPONENTS OF THE ECOSYSTEM*

Development of the teaching strategy

Students began their presentation recovering prior knowledge on the ecosystems' biotic component with random questions. They made a drawing in a

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large piece of fabric to cover the classroom's board that included superimposed images of producers, consumers and decomposers to didactically explain the living elements of the ecosystem.

6. *TOPIC: INERT ELEMENTS OF THE ECOSYSTEM*

Development of the teaching strategy

Students with visuospatial intelligence built a model to explain topography by showing a field with different landscapes, they also used a drawing that projected the field's topography. They introduced the topic using a horizon that was made with a large clear plastic container that showed different topographies, it included rocks, sand, soil and plants, they had a drawing to specify each layer. The topic was reviewed in the end to reaffirm knowledge and clarify doubts; then students proceeded to take notes.

7. *TOPIC: FOOD CYCLES*

Development of the teaching strategy

Students with visuospatial intelligence previously printed figures of animals and plants, the number of pictures equaled the number of students; they made paper arrows and all of the figures had tape on the back. The first activity was to recover prior knowledge on the topic, then the students received a figure and an arrow along with the explanation that they needed to stick all of the food cycles and networks they could to the wall; the students did as instructed and the team was supervising the correct connection between living elements. Finally, when the cycles were done, they held a discussion on the importance of food cycles and on the role of human beings on their conservation. In the end, there was a space for comments, clarifications and for students to take notes.

8. *TOPIC: WATER CYCLE*

Development of the teaching strategy

Students with visuospatial intelligence made a drawing in a large piece of fabric to cover the classroom's board picturing all of the elements of the water cycle, the drawing had superimposed figures to add to the appeal. They also did paper arrows to work as connectors.

To apply the strategy, the students refreshed prior knowledge on the water cycle and proceeded to build the route of water using the arrows, the team supervised the students correctly connected the arrows. Once the cycle was complete, the topic was reviewed and there was a discussion on the vital importance of the element and on human beings affect it through their actions. Finally, students were given time to take notes.

9. *TOPIC: OXYGEN CYCLE*

Development of the teaching strategy

Students with visuospatial intelligence previously drew the oxygen cycle in a large piece of paper to cover the classroom's board, it included images of different elements involved in this cycle as well as dots to join and number depending on the right path of the cycle.

First, they recovered prior knowledge and then students were invited to go to the board and mark a stretch of the path they thought to be correct, this part was supervised by the visuospatial students, once they completed the oxygen cycle in the large paper they received one in a sheet of paper to mark the path and complement it with their notes. They ended with comments on how human being affect this vital life cycle.

10. TOPIC: NITROGEN CYCLE

Development of the teaching strategy

Students with visuospatial intelligence made a black and white drawing on tabloid-size paper including some elements of the nitrogen cycle (some were missing). Each student got a copy of this drawing and they proceeded to recover prior knowledge. Then, students were asked to fill the cycle with the missing elements arranging the cycle with arrows; then the correct cycle was revealed and they presented how human activities are affecting the cycle's fragmentation. To finish the activity, the students colored their drawing and took notes.

11. TOPIC: CARBON CYCLE

Development of the teaching strategy

For the carbon cycle, visuospatial students drew a countryside, city and volcanic landscape in a large piece of fabric to cover the classroom's board; on the side, they drew elements such as a factory, fish, rocks, cars and arrow connectors.

The strategy began with recovering prior knowledge on carbon cycle, then the students were asked to place the elements correctly in the cycle, for this they were given the drawings and the arrows, the team supervised the correct placement of the elements and the connectors. When they finished, they reviewed the cycle and commented on its importance and on how human beings affect it with their activities. There was time to take notes and clarify doubts.

12. TOPIC: SULPHUR CYCLE

Development of the teaching strategy

Students with visuospatial intelligence drew the sulphur cycle in a large piece of fabric to cover the classroom's board, then they cut it into puzzle-like pieces, one piece for every student in the class.

They began the strategy with a recollection of the students' prior knowledge, then each received a piece of the puzzle and were asked to assemble the puzzle, the team supervised the activity. When the puzzle was done the team explained the cycle and gave time to take notes and clarify doubts.

13. TOPIC: THE SAVANNAH

Development of the teaching strategy

Students with visuospatial intelligence previously made 2 large 2 mts. x 2 mts. *collages* in poster board: the first one included numerous images of the savannah's fauna and the second one with images of its flora. They also made a planisphere in with a geographical location of this biome. They wrote many names of plants and animals in small poster board strips. They began with a recovery of prior knowledge and presented both *collages* and the

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planisphere, asking the students to engage by naming the correct plant, animal and region of the savannah; when all the names were allocated, the group reviewed the biome's characteristics and gave time to take notes and clarify doubts.

14. TOPIC: PARTICULARITIES OF AN ECOSYSTEM

Development of the teaching strategy

The group previously did 20 letter-sized drawings alluding to the ecosystem's characteristics and were left without name; they wrote 20 definitions with the ecosystem's characteristics and also wrote the correct name in smaller pieces of paper.

They began as the others did, recollecting prior knowledge on the topic; then they taped the 20 drawings in the classroom walls and left room at the bottom to add the definition; students received a box including all the definitions, which were folded. Each one randomly took a piece and unfolded it, read it and tried to match it with a drawing, the group monitored the activity. Once the names correctly matched the ecosystem characteristics the topic was reviewed together and they had time to take notes and clarify doubts.

DISCUSSIONS

The following points were analyzed after completing the research process and obtaining the results:

The members of the teams set up according to their multiple intelligences found it easy to agree in the teaching-learning strategies since their intelligence in common implies similar skills and tastes, they also generated a large amount of proposals and initiatives originating from the satisfaction of doing something they find easy and enjoyable.

By learning with their multiple intelligences, students felt proud to present didactic resources that were produced with their finest skills, especially when these innovative strategies helped their classmates to easily learn. Moreover, students were interested on teaching strategies with innovative and attractive resources.

In the same respect, learning with strategies based on multiple intelligences allowed students to actively participate in their development, they felt motivated and believed they had freedom to act since they learnt and proceeded to teach the others in their class, the teacher was present throughout the process.

Learning with their multiple intelligences enabled students to develop their creativity, it is uncommon for them to feel encouragement in educational centers.

In this context, it is important for teachers to think of educational planning that not only follows one strategy but to mix the largest amount of them in order to deliver results in the students' learning process.

On the other hand, it is necessary to become familiar with students' individuality, discover their weaknesses and strengths to have tools to plan teaching-learning strategies that truly add to the student's learning.

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It is important to be on the lookout for new research on education, and to be updated using ICT, learning how to use these tools better in the educational sphere.

Yet, as Lucas (2004) indicates, working with students' multiple intelligences entails major changes such as modifying the educational curriculum to include students' individuality, update teachers, have more teachers and establish different student assessment methods.

It can be said that the effort is worth it when there is a commitment to train students that are better human beings, more fulfilled and able to become productive in a society.

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