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TEACHING AND LEARNING CROSSROADS RESEARCH



» Resumen

El propósito de esta investigación cualitativa y cuantitativa fue investigar los estilos de aprendizaje de 254 estudiantes y sus 9 profesores y determinar si había o no coincidencia entre el estilo de aprendizaje de los aprendices con el estilo de enseñanza de sus docentes. Los estudiantes fueron seleccionados de instituciones públicas y privadas en los departamentos de Córdoba, Sucre, Atlántico y Bolívar en Colombia. La información fue recolectada de diferentes fuentes. Se encontró que el estilo kinestésico sobresalió seguido por el táctil y el auditivo entre los estudiantes mientras que el táctil fue el predominante entre los profesores seguido por el kinestésico y el visual. Asimismo, se constató que existió poca coincidencia entre el estilo de aprendizaje de los estudiantes y el estilo de enseñanza de los docentes.

PALABRAS CLAVES: Estilos de Aprendizaje Mayor, Menor y Negativo, Estilo de Enseñanza

» Abstract

This paper is a qualitative and quantitative research study whose aim was to investigate the learning styles of students and teachers and whether the instructors' teaching style matches with pupils' learning styles. The focus group comprised 254 learners and their 9 teachers belonging to public and private institutions in Córdoba, Sucre, Atlántico and Bolívar in Colombia. Data were gathered from many different sources. From the information collected, it was found that the kinesthetic style was the most common, followed by the tactile and the auditory among students while tactile is favored by teachers followed by kinesthetic and visual. It was also observed that there was a little match between students' learning style and educators' teaching style.

KEY WORDS: major, minor and negligible learning styles, teaching style

» Introduction

The pedagogical methodology used in Colombian educational institutions nowadays is based on sociocultural and cognitive theories that require new relationships and actions in the learning-teaching process as well as new conceptions. It is necessary to overcome traditional learning processes whose aim is to transmit just contents to new models based on the construction of knowledge taking into account cultural and socio economic backgrounds.

This process of construction of knowledge demands new analysis on curricula, evaluation and learning integrated with the teaching work, students' metacognitive and cognitive strategies, learning styles, contents, motivation, and age among other factors.

It can be observed from in class observations, pedagogical experience and the factors aforementioned that every individual learn or constructs his/her knowledge in a different way. Every student interacts in a diverse form with the information that receives and creates strategies to learn that sometimes are not coherent with the ones used by teachers in class or the demands of the curricula.

The way in which the information is processed by a person refers to the strategies that every single person uses to acquire knowledge and they can vary according to the context and to what an individual wants to learn. In this sense, a person tends to develop some preferences or tendencies when learning and they define their own learning style.

Colombian system of education, in secondary and higher education favored the auditory and theory which is reflected in the academic results obtained by pupils. It can also be said that there exist few subjects and methodological strategies that allow students with pragmatic and active

manner of learning to do so. In the same way, individuals, whose learning style is reflective, are not allowed to develop that learning style due to the fact that the rhythm of the activities done in class, do not allow them to assimilate information as required.

The lack of strategies which favored learning styles can also be seen in evaluation where teachers generally apply them in general, without taking into account the learning styles and that can be reflected in students' results. Similarly, students who have a visual learning style are not favored in class with activities that promote this learning style or students, who are auditory, and learn by listening to speeches, forums or cd's, can not do that because teachers use graphic organizers. This is reflected in evaluation. Academic promotion is determined by instruments which do not promote students' learning styles, only the type of evaluation employed by professors.

Besides, Decree 1290 issued by the Ministry of education in 2009 in Colombia, also mentions that students' learning styles and rhythms of learning must be taken into account when preparing curricula and evaluation.

Research on learning styles has provided teachers and also students with a different view of learning and how to apply it to classrooms and lives. Among the authors that have views regarding this topic are:

Peacock (2001), Rao Zhenhui (2001), Keefe(1968), Joy Reid (1995), Rita and Kenneth Dunn (1993), Richard Felder (1995) Elizabeth Aguirre(2005), Tripp and Moore (2007). Funderstanding (2008) Gilbert(2000) among others. In Colombia little research has been conducted in this field, therefore, publications are limited.

According to the above information, the purpose of this research study is to identify:

- a. What are the students' learning styles in different educational institutions located in Cordoba, Sucre, Atlántico and Bolivar?

- b. What are the major – minor and negligible learning styles of the students and the teachers selected from the different institutions?
- c. What are the teachers’ teaching styles?
- d. If there is a match between students’ learning styles and the teachers’ teaching styles

It is important for teachers to know what students’ learning styles are in order to create an optimal environment for both learners and teachers in the classroom.

Literature Review

There exist a lot of studies on learning styles in Europe, Asia and North America but in Colombia there are not many. It is relevant to study this topic due to the fact that learning styles affect not only the way individuals acquire and process information but also the teaching processes.

Research on learning and teaching styles has provided teachers and students with a different view of learning and teaching within the classrooms. Among the authors that have done research on this topic are:

Keefe (1968) cited by Alonso et al., in 1994, pag.104 defines the learning styles as cognitive, affective and physiological features that serve as relatively stable indicators of how students perceive interactions and respond to their learning environments.

Mathew Peacock (2001) studied the correlation between learning and teaching styles based on Reid’s hypotheses. He found out that a mismatch between teaching and learning styles causes learning failure, frustration and demotivation. He also found that learners favored kinesthetic

and auditory styles and disfavored individual and group styles, while teachers favored kinesthetic, group and auditory styles.

Rao Zhenhui (2001) analyzed matching teaching styles with learning styles in East Asian contexts. He diagnosed learning styles and developed self-aware EFL learners. He mentioned that an effective matching between teaching and learning styles can only be achieved when teachers are aware of their learners’ needs, capacities, potentials, and learning style preferences. He also mentioned that it is necessary to alter the teaching styles to create a teacher-student style matching. Rita and Kenneth Dunn (1993) studied how people learn and they noticed that some students achieved knowledge only through selective methods. They mentioned many elements that influence learning styles: environmental, emotional, sociological and physical elements. They also mentioned nine elements that influence a teaching style: attitudes towards instructional programs among others.

Joy Reid (1995) said that “Learning styles are internally based on characteristics of individuals for intake of understanding of new information. All learners have individual attributes related to the learning processes. Some people may rely on visual presentations, others prefer spoken language; still others may respond better to hands-on activities. It is evident that people learn differently and these differences in learning abound ESL/EFL settings.” She also said that matching teaching styles with learning styles give all learners an equal chance in the classroom and builds student self-awareness. She also categorizes learning styles into six types: Visual, Auditory, Kinesthetic, tactile, group, and Individual.

Felder (1995, 28) said that “the way in which an individual characteristically acquires, retains, and retrieves information are collectively termed the individuals’ learning styles”. He also added that mismatches often occur between learning styles

in students in a language class and the teaching style of the instructor with unfortunate effects on the quality of the students' learning and on their attitudes towards the class and the subject.

Felder (2002) assured that "people have different learning styles that are reflected in different academic strengths, weaknesses, skills and interests". Funderstanding (2008) said that learning styles are often influenced by heredity, upbringing and current environmental demands. Learners have a tendency to both perceive and process information differently.

Tripp and Moore (2007), "students tend to focus on facts, data and algorithms. Some respond strongly to visual forms of information and many others preferred to learn actively". Gilbert (2000) confirmed that "learning preferences facilitate the way individuals learn when the environment concerns with the various learning styles. Aguirre (2005) found that the auditory learning style was the most representative in a group of the National University in Bogota (Colombia). This research study will be based on Joy's categorization of learning styles: visual, kinesthetic, tactile, auditory, group and individual learning styles and her definition of major, minor and negligible. It will also employ her PSLPQ Learning Style Questionnaire to identify the learning styles of the individuals involved in this research.

Methodology

A. Participants

This research was carried out at some private and public high schools and Universities in the North Coast of Colombia. They are located in different departments of the Caribbean region where English is compulsory.

In order to carry out this research, students and teachers from private and public schools and a university were chosen. The focus group

was made up of 133 males and 121 female participants from high school grades 7th, 8th, and 9th, and a private university classified in an intermediate level, ranging ages between 12 and 19 years old. Their Socio-economic background varied from 1-to 4- One and two corresponding to a low income and three and four to an average income. From this focus group, a target group made up of fifty students and their teachers was selected in order to investigate the major, minor and negligible learning styles, as well as the teaching styles and the match between them.

Twenty eight students and four teachers belonged to public high schools and twenty seven students and five teachers to private institutions. Fifty three students liked English; and two did not like it at all. All teachers were keen on English (the aforementioned information was taken from a written questionnaire answered in class by all the students and teachers in the groups).

The group of teachers was composed up by 5 females and 4 males between 28 and 52 years old. They all had an undergraduate degree in teaching English.

It is also important to mention that there are more English teaching hours in private institutions than in the public ones.

B. Methods.

In this evaluation research a quantitative and qualitative descriptive methodology was applied in this evaluation research. As well as, a heuristic orientation was given to this task because it was important to know the structure and essence of the students' experiences, feelings, thoughts and how they interpret them. Data about learning styles, students' motivation, and experiences with English as a foreign language and matching learning styles with teaching styles were gathered from the following instruments:

1. Reid's perceptual learning style preference questionnaire (plspq, 1987)
2. Field notes were written during the investigation from in class observation
3. A written survey.
4. Tape – recorded structured interviews related to learning styles.

C. Data Analysis

Before collecting the data students were asked permission to participate in this research and they agreed to do it. First, quantitative scores were calculated for all questionnaire data (the written survey and the tape recorded interviews) in order to find out the students' and teachers' learning styles. With these instruments learners identified the way they learn best and they prefer to learn. The questionnaire was composed of thirty statements that covered Reid's six learning style preferences, with a rating scale from 1 to 5 for each one of them. Students answered them as they applied to their study of English on a 5-point scale.

Rating Scale

Strongly agree	Agree	Undecided	Disagree	Strongly disagree
5	4	3	2	1

Reid (1995) classified learning styles as Major, Minor or Negligible. Major is a preferred leaning style, Minor is one in which learners can still function well, and negligible is the one that can do learning the learning process more difficult. When the numerical value was assigned to the corresponding learning style, the numbers were added to obtain a total score and then it was multiplied by 2 determining the major, minor or negligible learning style. After that, all the results were analyzed by categorizing them into according to the aforementioned learning style

preferences and presented in tables and figures shown in the findings. The researchers' purpose was to find out information related to learning styles. They also wanted to determine if there was a match or mismatch between teaching and learning styles.

Qualitative data as field notes were utilized to find out information related to learning styles and if there was a match or mismatch between teaching and learning styles. After collecting the data, patterns or coincidences were categorized according to the findings.

Results

1. Focus Group
 - 1.1. Students' learning styles.

In **Figure 1**, it can be observed the overall findings of all participants included in this study, as well as their preferences and performance in each learning style.

Focus Group (Learning Styles)

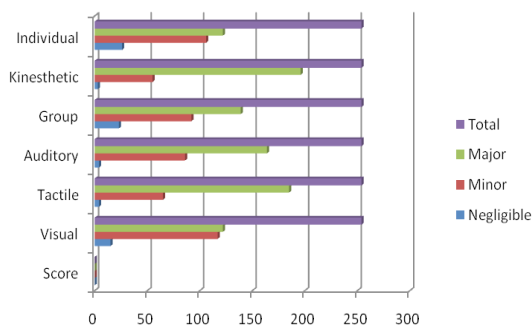


Figure 1

Figure 1 demonstrates that one of the least popular styles was the individual style, though it was not negative. Some of the learners enjoyed working individually whereas other group can still behave well in this style and the rest of learners had a negligible learning style. They had difficulty when learning alone. It was also confirmed in class observation when

students were asked by their teachers to work individually and they said that they preferred to work in groups rather than individually.

Figure 1 also indicates that the most representative and popular style was the kinesthetic, this means that individuals learnt by rehearsing role plays and presenting activities related to movement like mime, guessing games, touching and expressing their feelings physically in which they performed well. That was corroborated in class observation, in the written survey and in the recorded interview. This is something our research has in common with other studies done abroad. (Peacock, 2001, Reid, 1995). However, it is remarkable that this style was not representative enough (13%) in a study developed in the Andina area of Colombia where the auditory style was the most outstanding. (Aguirre 2005).

It can be also observed that the majority of learners loved the group learning style. Some others did not have difficulties when using this style and a few did not handle it. A feature that was noticeable during in class observation was the fact that most teachers asked their students to work individually and they forgot to use this kind of style in class.

Also it can be seen that the auditory style was the third style preferred by the focus group. There were a percentage of them who did not have problems with this style and just a few presented some difficulty when working with this style.

Figure 1 also reveals that the tactile was the second learning style that most learners' preferred (major). They had no trouble when using it (minor). That means that individuals learn by doing projects and by using their hands. This is a different finding from other studies done in this field, in which students disfavored the tactile style.

It could be noticed in Figure 1 that almost the half of the group performed very well in this style (visual), and almost the same quantity of individuals can still function well in that style (minor) and the rest may have difficulty when learning with this style (negligible).

1.2. Negligible, Minor and Major Learning Styles

Negligible

In **Figure 8**, it can be noticed that the individual style is the one; pupils had more difficulty when using it, followed by the group and the visual styles.

Focus Group (Negligible Learning Styles)

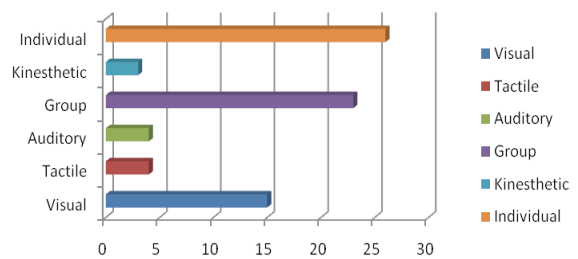


Figure 8

Minor

Figure 9, illustrates that students performed well in the visual style as they did in the individual followed by the group style.

Focus Group (Minor Learning Styles)

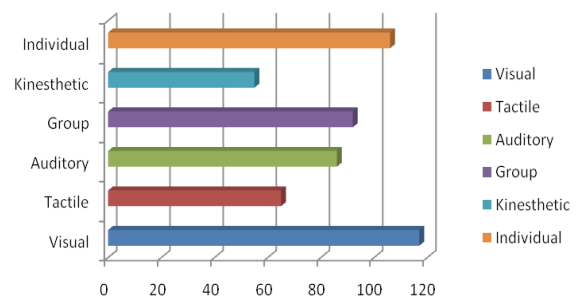


Figure 9

Major

It is shown in Figure 10 that the most outstanding learning style in which the students worked without any difficulty was the kinesthetic followed by the tactile and the auditory. These results show that teachers must be aware of these learning styles when designing class strategies, evaluation and curricula without disfavoring the others.

Focus Group (Major Learning Styles)

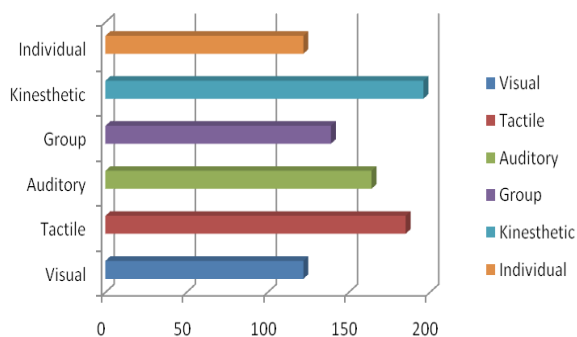


Figure 10

2. Target Group and Teachers

2.1 Learning Styles of the Target Group and Teachers

As it was mentioned at the beginning of this task, 55 learners and 9 teachers were chosen as a target group to study their learning styles. In Figures 11 and 12, the learning styles found within the target group and teachers can be observed.

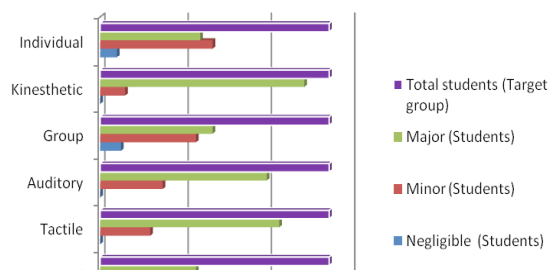


Figure 11

Figure 11 shows that the participants' most representative and popular style was the kinesthetic. This means that they learnt by active participation and activities that imply movement and the other percent can still manage well in this style. It can also be assured when students rehearsed mimics, guessing games, touching and expressing their feelings physically in which they performed very well. None of the students had difficulties when using this style. It was also noticed that the class relished the tactile style (major) and that none of the students had difficulties when using this style. It can also be ascertained that in-class tasks when learners had to cut, color and stick drawings, photos and pictures motivated them since they could use different materials. The auditory style was the third in importance in both the target and the focus group. The auditory style means that students enjoy listening activities as well as listening to the teacher and their classmates. Most learners could perform very well in this style. This could be corroborated by class observation when students listened to CDs and activities they video-taped. The others can still function well with this style (minor). No one had difficulty with it.

Almost the half of the pupils cared about working in groups, sharing ideas, opinions and knowledge (major). While 42% of them can still work well in this learning style (minor) and the other 9% had difficulty when learning in groups. Group work was a feature that was not often used by teachers in class observation.

This Figure also illustrates that most participants in this research project enjoyed working individually. It was noticed during in class observation that most class activities were developed individually. Although most learners did not have difficulties when learning with this style, there was a minimum percentage that did not learn this way.

Figure 11 indicates that the least popular learning style was the visual. Some pupils can

still work well in this style (major). Participants are able to learn by seeing things, taking notes, doing projects, translating, writing exercises, oral presentations with posters and reading activities. There exist some learners who had problems when learning this way (negligible). This was also a feature that could be noticed during in class observation when educators used posters, books, boards, copies and video-taped activities developed by students.

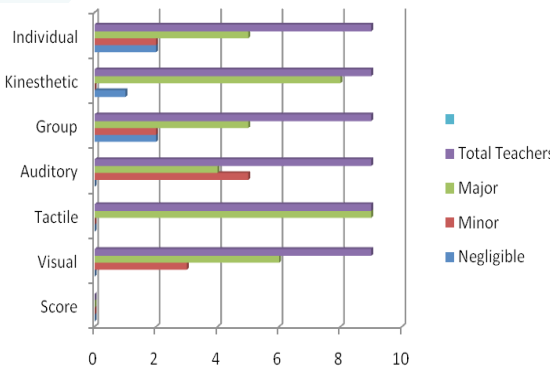


Figure 12

In it is shown that teachers' most outstanding learning styles were the tactile, followed by the kinesthetic and the visual styles and the least representative were the group and the individual ones.

Although the kinesthetic and tactile styles were the most predominant learning styles among teachers and students, their order is different:

- Students : kinesthetic and tactile.
- Teachers: tactile and kinesthetic

There is a difference in the third most predominant style: while teachers said they perform very well in the visual style, students said they did in the auditory style.

2.2. Negligible- Minor- Major Learning Styles of the Target Group and Teachers Negligible

Figure 13 indicates that the most negligible learning styles in these students were: the individual, the group and the visual. These results imply that pupils may have difficulty when learning with these styles.

According to this figure, teachers' most negligible styles were: visual, group and individual.

None of educators had trouble when working with the kinesthetic, the tactile and the auditory styles.

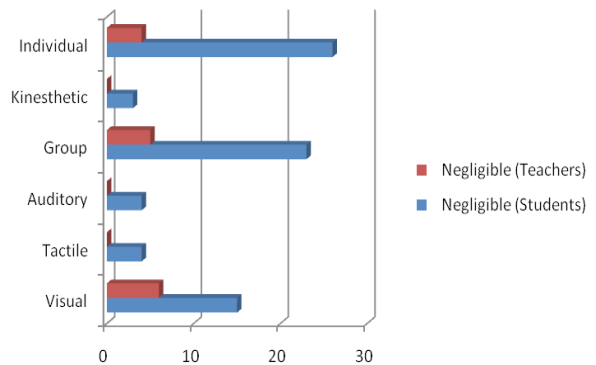


Figure 13

Thus, it can be concluded that students' and teachers' most negligible learning styles were the same.

Minor

In Figure 14 it can be seen that the most outstanding learners' minor learning styles were: individual, visual and group while the teachers' were: auditory, visual and group.

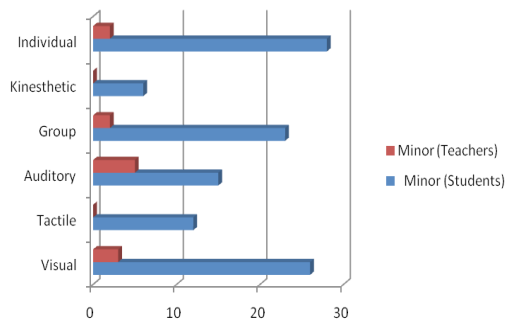


Figure 14

Major

Figure 15 demonstrates that the major learning styles, the ones students preferred the most, were: the kinesthetic style, the tactile and the auditory styles whereas the teachers preferred the tactile, the kinesthetic and the visual styles.

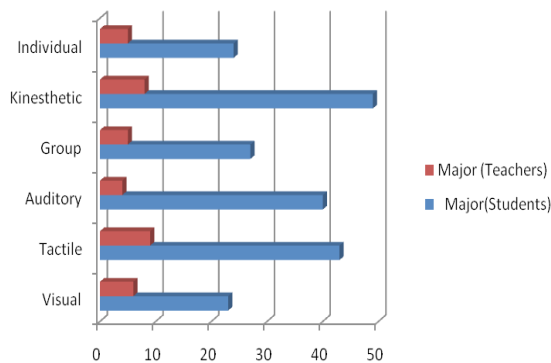


Figure 15

Although the tactile and the kinesthetic styles had the highest rates, most teachers did not use them enough as it was noticed in class observation, and it was also corroborated by students in the interviews.

One of the activities found in class and that favored the kinesthetic style was when the students were asked to go to the board to give an answer to an exercise developed as homework or in class exercise. (22%) according to figure 16.

Although the activity mentioned before was the only one observed in class, the students mentioned in their interviews that teachers do role plays and dialogues in class that allow them to perform. This can be seen in figure 17. The tactile style can be recognized when pupils took notes or when one of the teachers asked his students to do power point presentations using images. This can be observed in graphic 17 in which 4% s of their homes or doing projects as it is shown in figure 16. This graphic shows that 1% of students said that they do projects in class.

It can also be concluded that the visual style was also used in class for some of the teachers, when they wrote on the board, used visual aids to introduce a specific topic, when students utilized books to do matching or filling in the blanks exercises or when they were given copies to read a song or they look up some words in the dictionary to accomplish a class task.

One of the teachers also favored the auditory style when students did oral presentations that were presented in class. This can be ascertained by figure 16 that shows 4% of activities were oral presentations. When talking about in class observation, it can be seen in figure 16 that, 4% of the activities developed in class were listening. Students mentioned in their interviews that they also do lab exercises, dictations and listening exercises. 10% was the percentage shown in figure 17.

Although teachers' predominant style was tactile, activities developed in class did not reflect this style as much as it was expected. The same happened with the kinesthetic style.

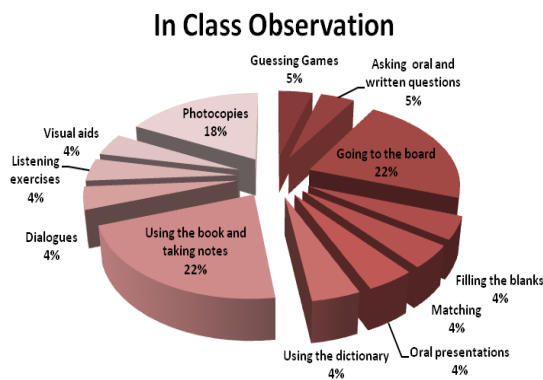


Figure 16

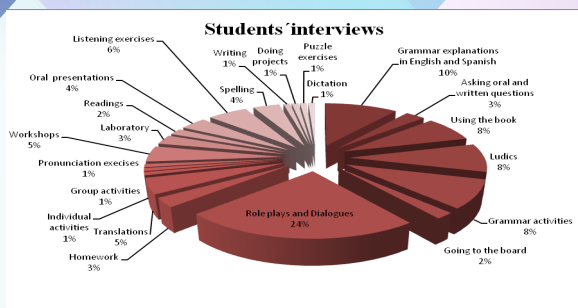


Figure 17

3- Match or Mismatch?

According to the activities developed in class only three out of fifteen were kinesthetic and tactile. Kinesthetic and tactile styles were the most outstanding ones in the group and they were not exploited by teachers, however learners felt satisfied with the activities carried out inside the classroom as it is stated in the interviews and this could happen because they have not been taught in a different way. Besides, it was observed that teachers used in most of their classes the auditory style what favors the third type of common style found among the students.

Also, the visual style was used by teachers what favors the third type of predominant learning style found among teachers.

It was also noticeable that most of the instructors did not apply group work in class and this is contrary to the interview in which students corroborated that teachers do it. It is remarkable that most teachers chosen for this research did not pay attention to the type of activities they developed in class. Even more, they did not take into account students' learning styles and they selected any activity just to accomplish with the class time.

For this reason, it can be concluded that there was little match between learners' learning styles and educators' teaching styles. It can be also said that teachers did not use all types of learning styles inside their classrooms. Teachers

must balance their learning styles with those that are common among students in order to obtain better results in the teaching-learning process.

Pedagogical Implications

Recent studies have shown that a match between teaching and learning styles helps to motivate students' process of learning. That is why teachers should:

- Identify their own teaching styles as well as their learning styles in order to reflect about classroom practices to obtain better results in the classroom.
- Balance the teaching styles and adapt activities to meet students' style.
- Induce students to adapt a deep approach to learning.
- Assign a variety of learning tasks to address learning goals.
- Encourage tasks variation and creativity to enable learners to challenge the beliefs in the way they learn and acquire knowledge.
- Get involved in this type of research to assure the results found in this research study.
- Use several ways of evaluation in which every student can perform according to their preferred strategy of learning.

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