

# **Learning and Teaching Crossroads**

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## **Abstract**

This paper is a qualitative and quantitative research study which investigated the learning styles of students and teacher's and whether the teacher's style matched the student's learning styles. The focus group comprised 254 learners and 9 teachers in public and private institutions in Cordoba, Sucre, Atlantico and Bolivar, Colombia. From the information collected, it was found that the kinesthetic style was the most prevalent followed by the tactile and then the auditory style. It was also observed that there was no match between students' and teachers' learning styles.

## **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 Cordoba, 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 y que no había coincidencia entre el estilo de aprendizaje de los estudiantes y el estilo de enseñanza de los docentes.

## **Introduction**

The way individuals learn or understand new information and their preferred learning methods have been a popular subject in the past. It has also been the focus of a number of studies in recent years. Research on learning styles has provided teachers and also students with a different view of learning and how to apply it in classrooms and lives. Among the authors that have views regarding this topic are Aguirre, Cancino, & Neira (2005); Dunn & Dunn (1993); Felder (1995); Felder, Felder, & Dietz (2002); Gardner (1983); Gringerenko & Sternberg (1995); Honey & Mumford (1992); Kinsella (1996); Kolb (1984); Matthews (1991); Murray-Harvey (1994); Oxford & Ehrman (1993); Oxford & Others (1992); Peacock (2001); Rayner & Riding (1997); Reid (1995); Riding & Douglas (1993); Sims & Sims (1995); and, Zhenhui (2001). There has been little learning styles research conducted in Columbia; therefore, publications are limited.

Educators and researchers have developed several instruments to assess students' learning styles, but literature regarding this topic is full of unresolved issues; both theoretical and practical (Wilson, 1998). On the other hand, these instruments have been a great help in identifying visual, kinesthetic, auditory, tactile, group and individual styles as well as many other classifications of styles in students and also exploring them with the aim of improving the learning and teaching processes.

The purpose of this research study was to identify:

- What are the students' learning styles in different educational institutions located in Cordoba, Sucre, Atlántico and Bolivar?
- What are the major – minor and negligible learning styles of the students and the teachers selected from the different institutions?
- What are the teachers' teaching styles?
- 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 are numerous studies on learning styles in Europe, Asia and North America but in Colombia there are relatively few. 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 are used in 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. Authors that have done research on this topic are:

Matthew 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 indicated that it is necessary to alter the styles to create 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 elements that influence a teaching style and attitudes towards instructional programs.

Joy Reid (1995) indicated that learning styles are internally based. 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. People learn differently and these differences in learning are found in ESL/EFL settings. She also indicated that matching teaching styles with learning styles provides 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) indicated 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) revealed that individuals have different learning styles that are reflected in different academic strengths, weaknesses, skills and interests.

Funderstanding (2008) revealed 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) identified that 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 and Swanier (2008) confirmed that learning preferences facilitate the way individuals learn when the environment provides a variety of learning styles. Aguirre, Cancino, and Neira (2005) found that the auditory learning style was the most representative in a group from the National University in Bogota.

## **Design of the Study**

### *Participants*

This research was carried out at select private and public high schools and Universities in the North Coast of Colombia. They were located in different sections 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 comprised of 133 males and 121 female participants from high school grades 7<sup>th</sup>, 8<sup>th</sup>, and 9<sup>th</sup>, and a private university classified in an intermediate level, with student ages ranging from 12 to 19. Their socio-economic backgrounds varied from one to four. One and two correspond to low income socio-economic status and

three and four reflect an average income. From this focus group, a target group made up of fifty students and their teachers were selected in order to investigate the major, minor and negligible learning styles, as well as the teacher's teaching styles and the match between them.

Twenty-eight students and four teachers were from public high schools and twenty-seven students and five teachers were from private institutions. Fifty-three students liked English as a subject and two did not like it at all. All teachers were supportive of the English language (the aforementioned information was taken from a written questionnaire answered in class by all the students and teachers). The group of teachers was composed of five females and four males between the ages of 28 and 52 years. They all had undergraduate degrees in teaching English. It is also important to mention that there are more English teaching hours in private institutions than in the public ones.

### *Methods*

In this study, a quantitative and qualitative descriptive methodology was used. In addition, a heuristic orientation was used 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:

- Reid's perceptual learning style preference questionnaire (Reid, 1995)
- Field notes from in-class observations
- A written survey
- Tape-recorded interviews related to learning styles

### **Data Analysis**

Before collecting the data, students were invited to participate in this research and were included in the study if they granted permission. 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 how they prefer to learn. The questionnaire was composed of thirty statements that covered Reid's six learning style preferences, with a rating scale from one to five for each one of them. Students answered them, as applied to their study of English, using a five point scale (5 - Strongly agree; 4 - Agree; 3 - Undecided; 2 - Disagree; and 1 - Strongly Disagree).

Reid (1995) classified learning styles as Major, Minor or Negligible. Major is a preferred learning style, Minor is one in which learners can still function well, and negligible is the one that makes 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.

All the results were then analyzed by categorizing them into according to the aforementioned learning style preferences and presented in tables and figures shown in the findings. The researchers' proposed to find out learning styles information. They also wanted to determine if there was a match or mismatch between teaching and learning styles.

Qualitative data as field notes were used 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**

### *Focus Group 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. It demonstrates that one of the least popular styles was the individual style, though it was not negative. Some of the learners enjoyed working with individuals whereas others preferred groups. The remaining learners had a negligible learning style. They had difficulty when learning alone. It was also confirmed, using in-class observations, when students were asked by their teachers to work individually the students 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 preferred learning by rehearsing role plays and presenting activities related to movement like mimics, guessing games, touching and expressing their feelings physically in which they performed well. That was corroborated through in-class observations, in the written survey, and in the recorded interview. This finding confirms what other studies have found (Peacock, 2001; Reid, 1995). However, in a study conducted in the Andina area of Colombia, the auditory style was the most prevalent (Aguirre, Cancino, & Neira, 2005).

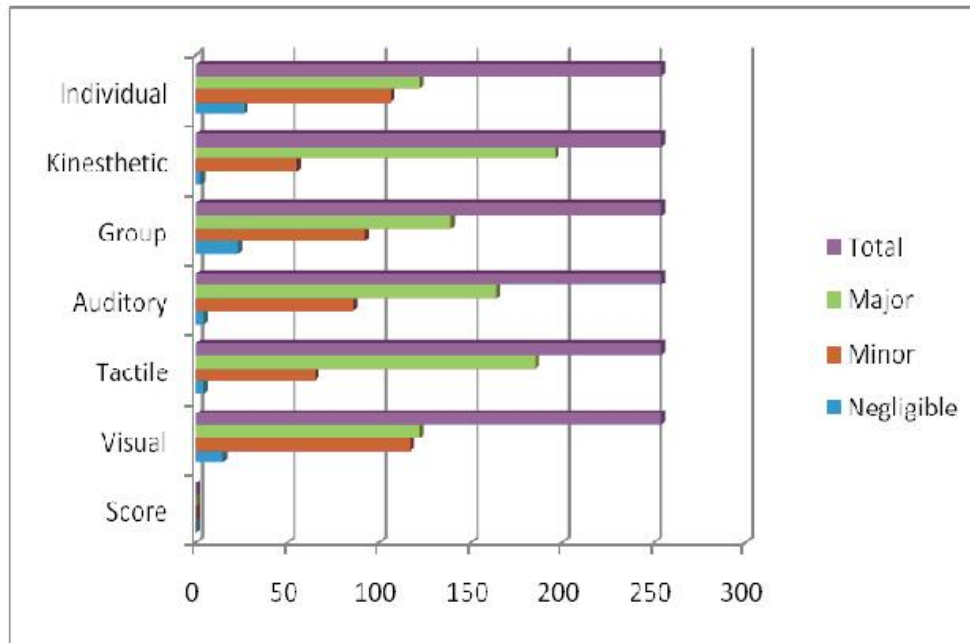


Figure 1  
Focus Group: Students' Learning Styles

It was also observed that the majority of learners preferred the group learning style. Some others did not have difficulties when using this style and a few did not prefer it. It was noticed during in-class observations that most teachers asked their students to work individually and forgot to use Group styles in class.

Also it can be seen that the auditory style was the third style preferred by the focus group. There were some who did not have problems with this style and just a few indicated some difficulty when working with this style. Figure 1 also reveals that the tactile was the second learning style that most preferred (major). They had no trouble when using it (minor). This 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. Almost half of the group performed well in the Visual style 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). The learning styles and the percentages according to major, minor and negligible categorization are presented in Figures 2, 3, 4, 5, 6 and 7.

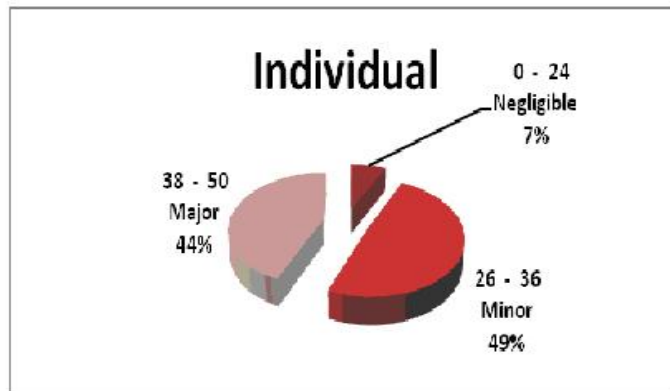


Figure 2  
Individual Learning Style: Major, Minor, Negligible

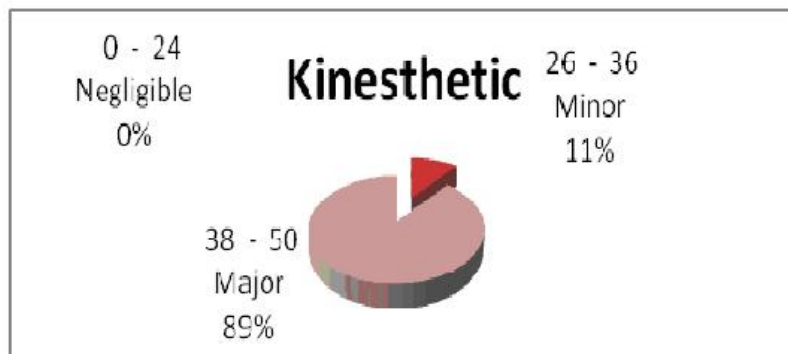


Figure 3  
Kinesthetic Learning Style: Major, Minor, Negligible

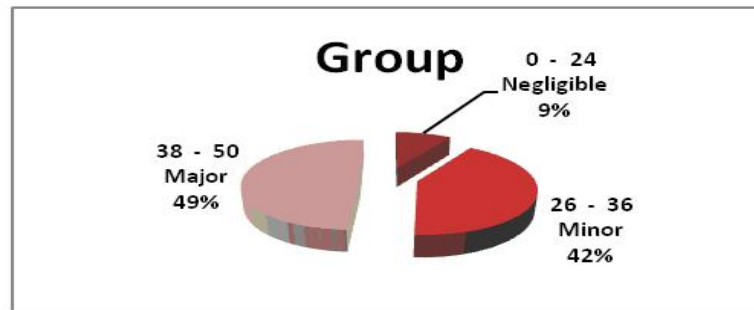


Figure 4  
Group Learning Style: Major, Minor, Negligible

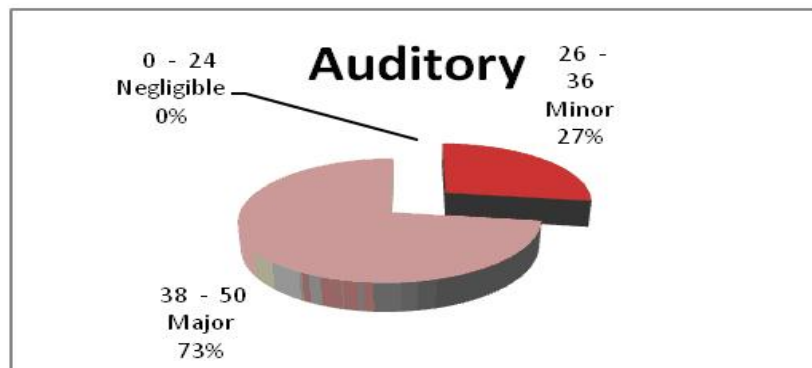


Figure 5  
Auditory Learning Style: Major, Minor, Negligible



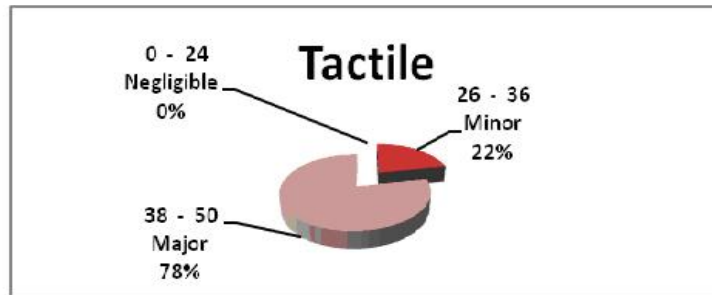


Figure 6  
Tactile Learning Style: Major, Minor, Negligible

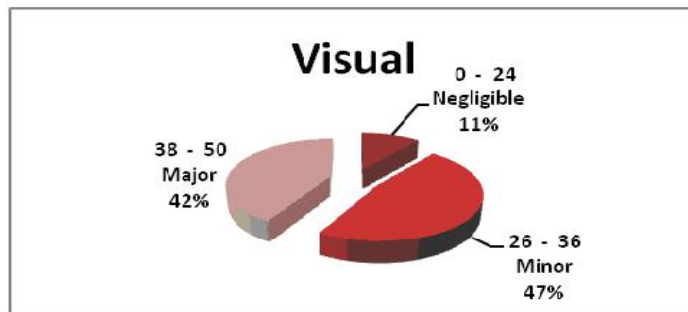


Figure 7  
Visual Learning Style: Major, Minor, Negligible

*Learning Styles: Negligible, Minor and Major*

*Negligible.* In Figure 8, it is noted that the individual style is the one that students had more difficulty when using it, followed by the group and the visual styles.

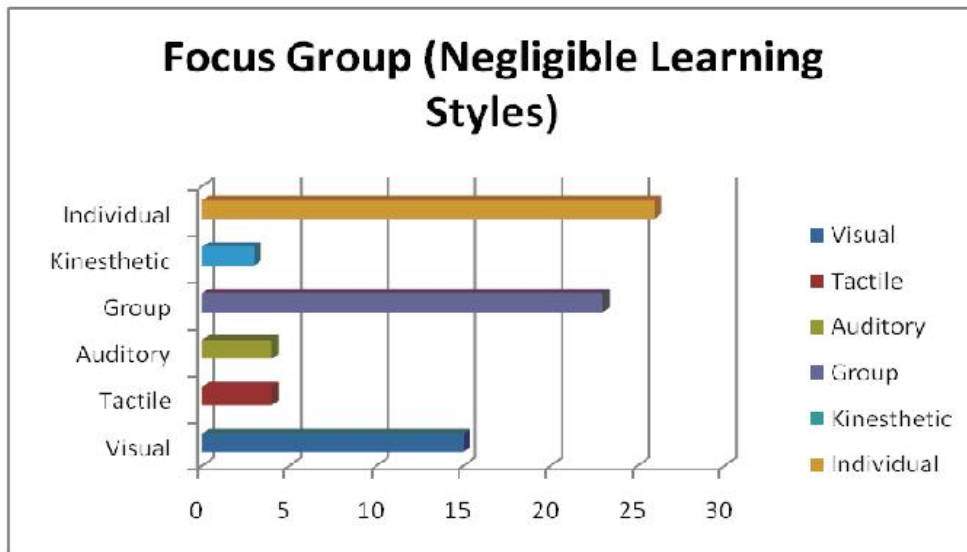


Figure 8  
Learning Styles: Negligible

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

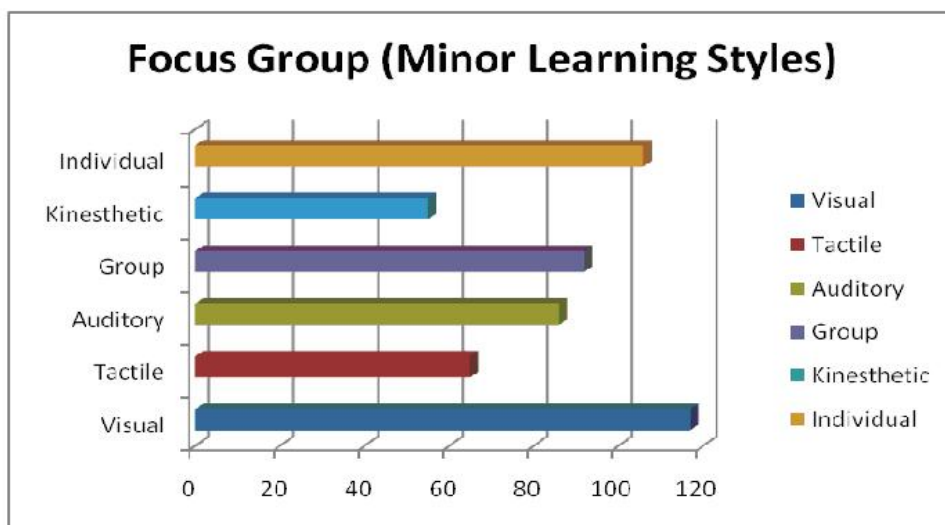


Figure 9  
Learning Styles: Minor

*Major.* It is shown in Figure 10 that the most prevalent learning style in which the students worked without any difficulty was the kinesthetic followed by the tactile and the auditory.

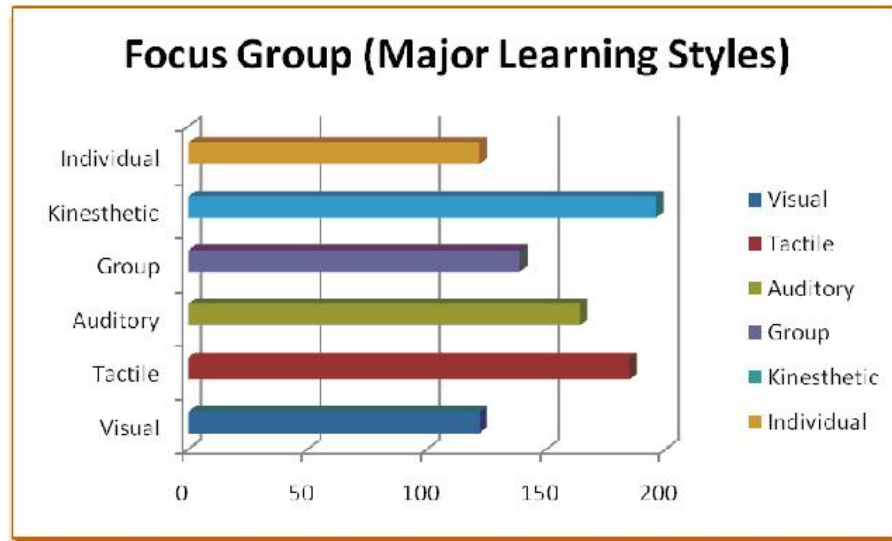


Figure 10  
Learning Styles: Major

### *Students' and Teachers' Learning Styles*

As it was mentioned at the beginning of this task, 55 students and 9 teachers were chosen as a target group to study their learning styles. The learning styles of these participants are identified in Figures 11 and 12. Figure 11 presents that the students most representative and popular style was the kinesthetic. Using this style, students can learn by active participation and activities that imply movement. The remaining participants can still manage well in this style. None of the students had difficulties using this style.

It was also noticed that the participants also preferred the tactile style (major) and that none of the students had difficulties when using this style. Learners with this style preference would cut, color, make stick drawings, use photos and pictures, which motivated them since they could use different materials.

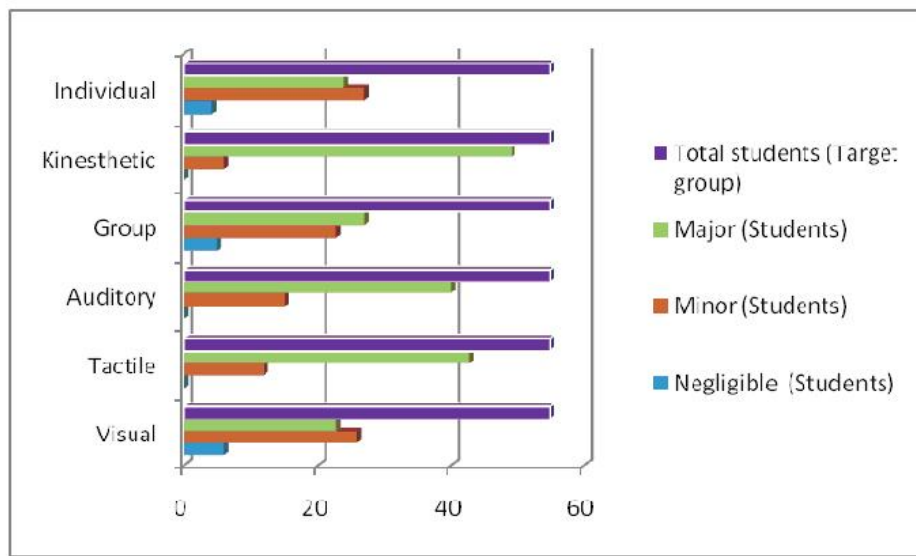


Figure 11  
Students' Learning Styles

The auditory style was the third most frequently reported style in both groups (students and teachers). 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 observations 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 this style.

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

Figure 11 also indicates that the least popular learning style was the visual. Some students 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. Some learners had problems when learning this way (negligible). This style was in use and noted during in-class observations when teachers used posters, books, boards, copies and video-taped activities developed by students.

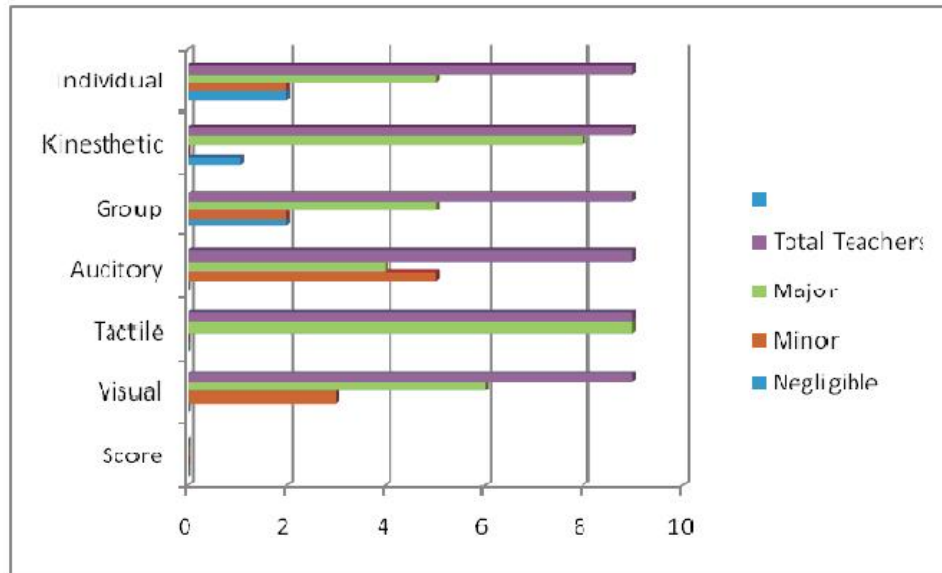


Figure 12  
Teachers' Learning Styles

In Figure 12 it is shown that teachers' most preferred learning styles were the tactile, followed by the kinesthetic and the visual styles. The least representative were the group and the individual learning styles. Although the kinesthetic and tactile styles were the most predominant learning styles among teachers and students, their order is different - Students: kinesthetic and tactile; and, Teachers: tactile and kinesthetic. There was a difference in the third most predominant style. While teachers said they perform well in the visual style, students said the teachers used the auditory style.

#### *Learning Styles: Negligible, Minor and Major*

*Negligible.* Figure 13 indicates that the most negligible learning styles for the students were the individual, group, and visual. These results imply that students may have difficulty when learning using these styles. According to this figure, teachers' most negligible styles were: visual, group, and individual. None of teachers had difficulty when working with the kinesthetic, tactile, and the auditory styles. Thus, it can be concluded that students' and teachers' most negligible learning styles were the same.

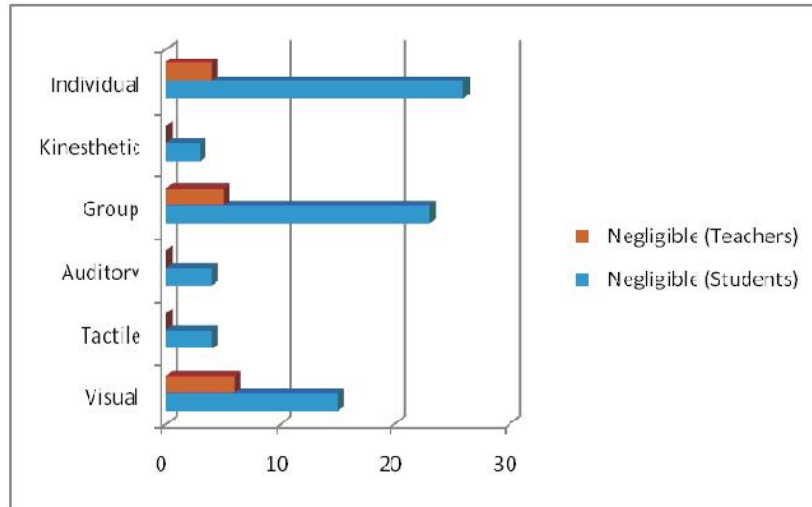


Figure 13  
Learning Styles: Negligible

*Minor.* In Figure 14, the most prevalent learners' minor learning styles were: individual, visual and group while the teachers' were: auditory, visual and group.

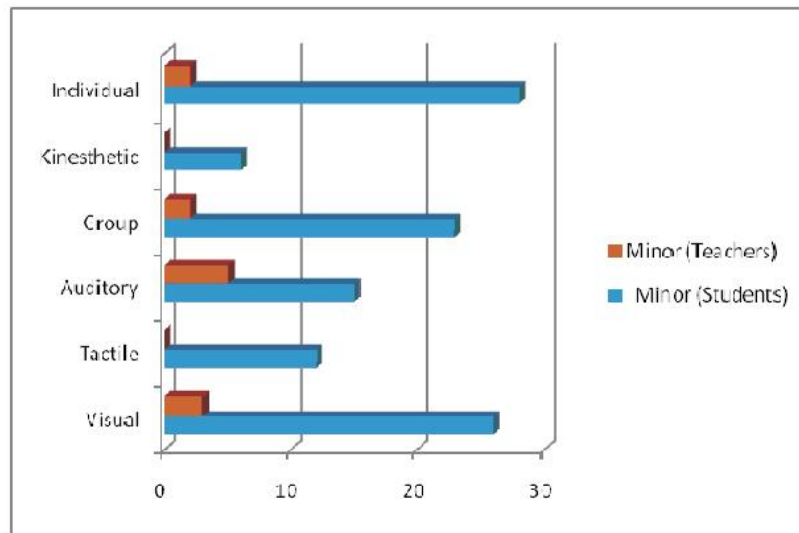


Figure 14  
Learning Styles: Major

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 (see Figure 15).

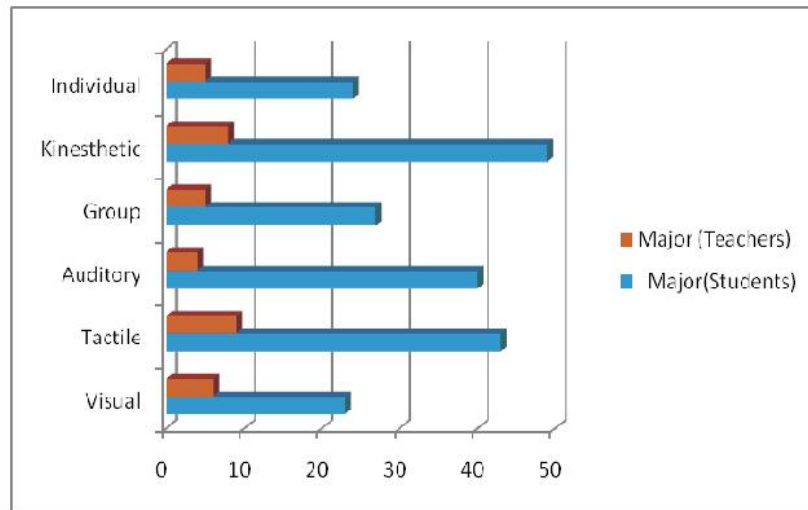


Figure 15  
Learning Styles: Major

Although the tactile and the kinesthetic styles had the highest rates, most teachers did not use them enough as was noticed in class observations. This finding was also corroborated by students in the interviews. Figures 16 and 17 reinforce that most teachers barely used activities relating to movement, constructing things, taking notes or doing projects.

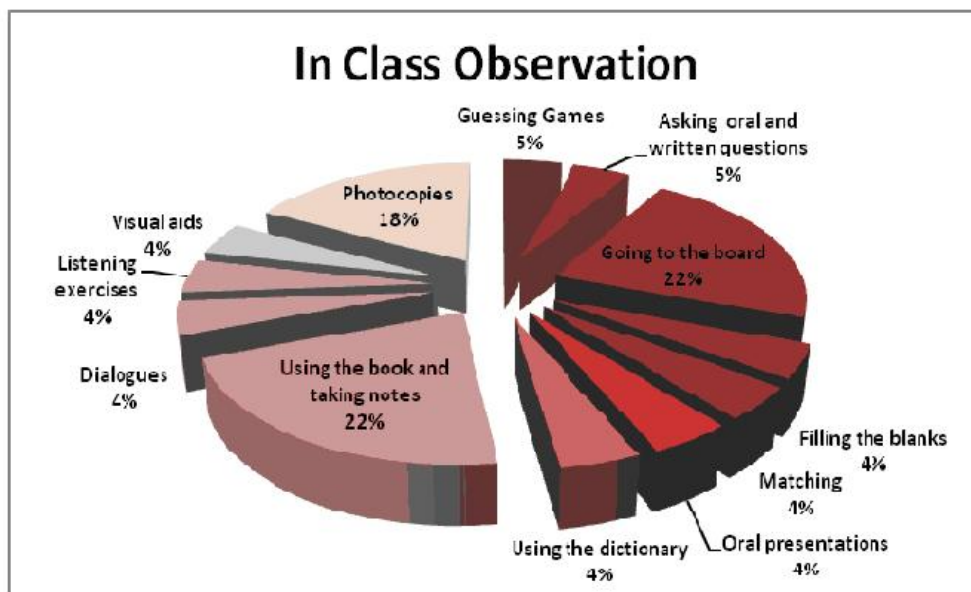


Figure 16  
Observations: Tactile and Kinesthetic

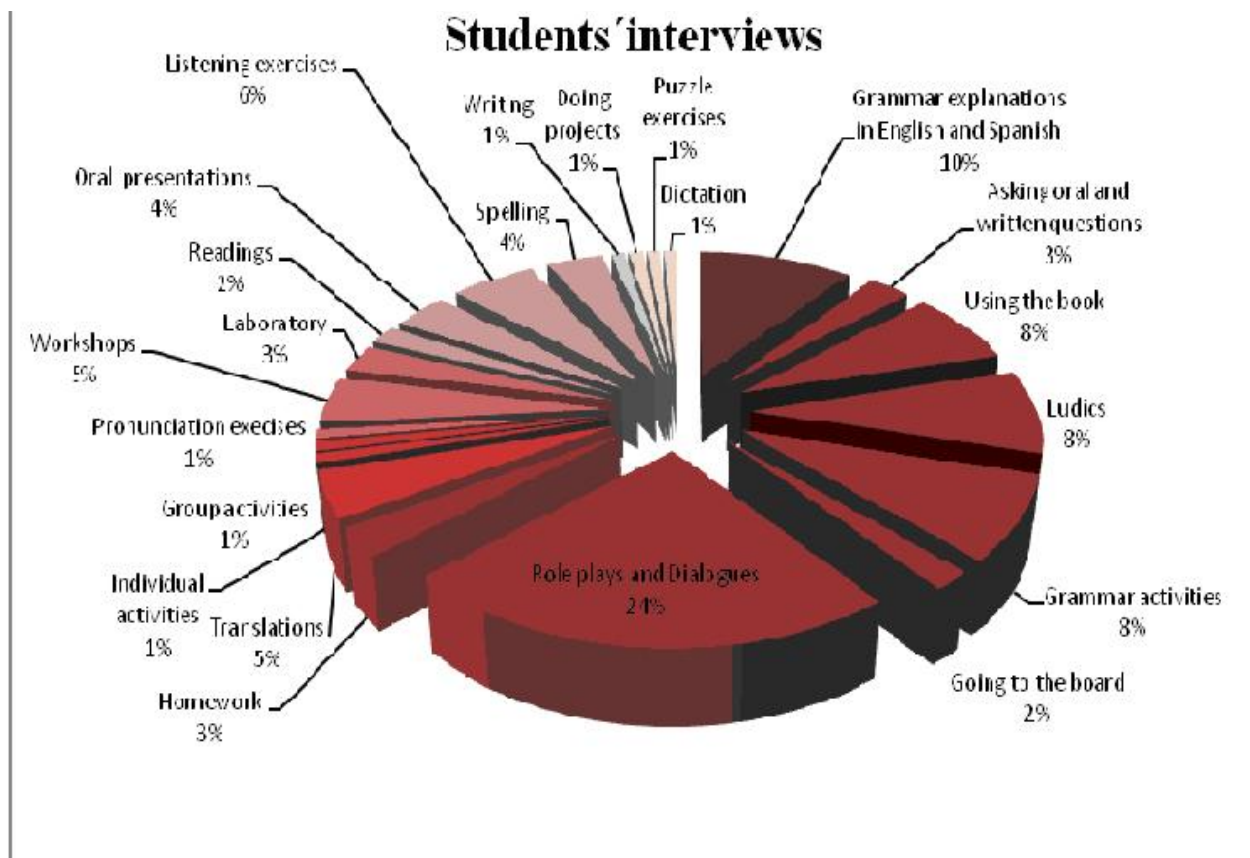


Figure 17  
Interviews: Students

### Match or Mismatch of Learning Styles

According to the activities developed in class, only three out of fifteen were kinesthetic and tactile. For this reason, it can be concluded that there was no match between learners' learning styles and teachers' teaching styles. It was also observed that teachers used auditory style in most of their classes. Most of the teachers did not apply group work in class; however, this is contrary to student interviews.

Kinesthetic and tactile styles were the most prevalent ones in the group and they were not used by teachers; however, students felt satisfied with the activities carried out inside the classroom as was indicated in the interviews. It was noted that most teachers chosen for this research study 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 may have selected an activity without considering the students' learning styles.



## Pedagogical Implications

Recent studies have shown that a match between teaching and learning styles helps to motivate students in the process of learning. It is recommended that teachers do the following:

- 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 adopt 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.

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