Development of the Distinct Multiple Intelligences in Primary Students Through Interest Centers

Desarrollo de las distintas inteligencias múltiples de estudiantes de primaria a través de centros de interés

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This article reports on an action research study that focused on developing the distinct multiple intelligences of an English class of fifth graders through interest centers at a Colombian school. A multiple intelligences questionnaire, an open-ended observation form, and a student mini-report sheet were used to collect data. Findings revealed that through the interest centers, students maximized some of their intelligences. The implementation phase showed how careful planning, considering the students' needs and interests as well as predominant and less developed multiple intelligences, allowed the participants to follow a routine guided by activities and materials adapted to the English textbook and the school's curriculum while developing the multiple intelligences. Besides, it was found that interest centers not only foster language learning but maximize students' multiple intelligences.

Key words: Interest centers, learning styles, multiple intelligences, teaching English to children

En este artículo se reporta un estudio de investigación acción que buscó desarrollar las inteligencias múltiples de estudiantes colombianos de grado quinto a través de centros de interés, en las clases de inglés. Para colectar datos se usaron un cuestionario de inteligencias múltiples, un formato de observación abierta y una hoja de mini-reporte del estudiante. Los hallazgos revelaron que a través de los centros de interés, los estudiantes maximizaron sus inteligencias múltiples. La fase de implementación mostró cómo la planeación considerando necesidades e intereses de los estudiantes, las inteligencias múltiples predominantes y las menos desarrolladas, permitieron a los participantes seguir una rutina guiada por actividades/materiales adaptados al libro y al currículo de inglés mientras se desarrollaban las distintas inteligencias múltiples. Además, se observó que los centros no sólo promovieron el aprendizaje del idioma, sino que maximizaron las inteligencias múltiples de los estudiantes.

Palabras clave: centros de interés, enseñanza del inglés a niños, estilos de aprendizaje, inteligencias múltiples

Introduction

This research is the result of a reflection on the multiple intelligences (MI) theory. Through the observation and analysis of the development of different activities in the English class, it was noticed that by recognizing the MIs of the students, the teacher would be able to better design materials and activities according to their learning process. It was concluded from these observations that by identifying the students' more predominant MI and by developing their less predominant ones, the teacher could help them to improve their learning since it could be possible to plan more enjoyable and interesting lessons for them. Thus, the students would be able to learn in a more successful and meaningful way.

The relevance of carrying out this project lay with the fact that the teacher identified and applied a new strategy—interest centers—which helped the students in their English learning process while trying other possibilities to perform in the class. Learners got the knowledge and skills needed to be more successful. In such way, this project contributed to the students' improved academic performance as they took advantage of their distinct MIs and learning styles. This project provided tools for teachers to empower students, especially when one bears in mind that unfortunately many children do not receive much reinforcement in school for them to develop their MIs.

Finally, this project aimed at determining the incidence of interest centers in developing students' MI. Thus, the idea of doing this research took as a starting point the following question: How do interest centers contribute to develop the fifth graders' MI?

Research Setting and Participants

Setting

This project was carried out at a private school located in Tunja, Boyacá, Colombia. This school expects in the future to be a bilingual school of high quality. Thus, it looks for alternatives to benefit innovative teaching and learning processes of English language based on the communicative approach. The school has a great variety of resources for teaching and learning the English language, which contributed to the implementation of this project.

Participants

The group consisted of 21 fifth graders from 9 to 11 years old. There were 9 boys and 12 girls. Most of them were very spontaneous and easygoing with the teacher and classmates. They were active children who enjoyed participating in activities that offered them independence, a sense of freedom, opportunities to interact with each other and make

decisions. All of them had similar socio-economic and cultural statuses (4-5)[1] and shared an interest in learning the English language.

The Teacher

This study was conducted by the author of this paper (teacher-researcher), who currently works as an English teacher and as an academic coordinator at the school.

Theoretical Framework

The following theoretical constructs were considered: intelligence definition, MI theory, categories of intelligences, interest centers, and learning styles.

What Is Intelligence?

According to Gardner (1993), intelligence is the ability or captivity "to solve problems or to fashion products" (p. 9) in a specific cultural or social setting. It is understood as an ability to learn, reason and produce an abstract thought that when applied, allows us to interact with all around us.

Intelligence has been also defined by Armstrong (1993) as "the ability to respond successfully to new situations and the capacity to learn from one's past experiences" (p. 8). Therefore, the most intelligent person to call on to solve a problem depends on who has the intelligence that matches the situation.

What Are Multiple Intelligences (MI)?

Gardner (1983) proposed that there is no single, unified intelligence but rather a set of relatively distinct, independent, and modular MI. Originally, his theory consisted of seven MI: interpersonal, intrapersonal, musical, bodily-kinesthetic, spatial, linguistic, and logical-mathematical. Gardner (1998) proposed one further domain of intelligence as a confirmed part of his theory—naturalist intelligence. These eight intelligences are independent rather than interconnected; people have different cognitive abilities and different cognitive styles. In addition, these intelligences are equally important because there is no discrimination between relatively "major" intelligence and "minor" intelligence; everyone has all of them but in each of us some are more developed than others. Gardner (1999) also proposed two additional claims for his theory. First, it is "an account of human cognition in its fullness" (p. 44). Instead

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[1]   Social strata 4-6 are middle and upper classes, referring to the more affluent Colombian population.

of seeing people as rational or irrational, he described human beings as organisms possessing a set of intelligences. Second, "we each have a unique blend of intelligences" (p. 45). This uniqueness needs to be cherished and taken advantage of. Intelligences are not fixed at birth but educable; they change and grow in response to a person's experiences.

Gardner's Categories of Intelligence

Arnold and Fonseca (2004) mentioned that "Gardner's MI theory is presented as a cognitive perspective on intelligence which has profound implications for education in general. More specifically, it has led to the application of eight of these frames to language teaching and learning" (p. 119).

At this point, it was relevant for doing this research to consider the main characteristics of each one of the intelligences in order to design and implement interest centers with suitable activities and materials which helped to achieve the research objectives, all the while taking into account the application of the MI theory to English language teaching. Thus, the distinct intelligences and the activities which can be developed will be mentioned according to what some authors such as Hughes (2002) and Richards and Rodgers (2001) have proposed in some of their studies.

Gardner (1999) proposed the following categories of intelligence:

The bodily-kinesthetic intelligence. It has to do with bodily movement.

> In theory, people who have this intelligence should learn better by involving muscular movement, i.e. getting up and moving around into the learning experience, and are good at physical activities such as sports or dance. They may enjoy acting or performing, and generally they are good at building and making things. They often learn best by doing something physically, rather than reading or listening about it. (Pal, 2011, p. 138)

According to Hughes (2002) teachers should design activities such as field trips, hand-on activities, games involving physical motion, role play activities, and dancing which allow students to interact with the space around them. Thus, they will remember and process information better.

The interpersonal intelligence. Pal (2011) pointed out that:

> It has to do with interaction with others. In theory, people who have a high interpersonal intelligence tend to be extrovert, sensitivity to others' moods, tempers, etc., and they have the ability to cooperate in order to work as part of a group. They communicate effectively and empathize easily with others, and may be either leaders or followers. They typically learn best by working with others and often enjoy discussion and debate. (p. 139)

Richards and Rodgers (2001) mentioned some activities to develop this intelligence, such as group activities and group brainstorming so that learners can interact among themselves,

share thoughts and, if there are conflicts inside the group, work together as mediators to solve those conflicts. In this kind of activities, teachers can develop competition games to integrate students and work cooperatively.

The verbal-linguistic intelligence. "It has to do with words, spoken or written. People with this intelligence display a facility with words and languages. They are typically good at reading, writing, telling stories, and memorizing words. They tend to learn best by reading, taking notes, listening to lectures, and discussion and debate". (Pal, 2011, p. 138). They are skilled at explaining, teaching, and speaking. Also, "those with this intelligence learn foreign languages easily as they have high verbal memory and an ability to understand and manipulate syntax and structure" (Pal, 2011, p. 138). Richards and Rodgers (2001) suggested some activities such as word games, listening activities, as well as collecting students' writings to publish them or create a class newspaper, create portfolios, meet in groups to discuss or tell stories, read books, take part in debates, and so forth.

The logical-mathematical intelligence.

> It has to do with logic, abstractions, reasoning, and numbers. While it is often assumed that those with this intelligence naturally excel in mathematics, chess, computer programming, and other logical or numerical activities, a more accurate definition places emphasis on traditional mathematical ability and more reasoning capabilities, abstract patterns of recognition, scientific thinking and investigation, and the ability to perform complex calculations. (Pal, 2011, p. 140)

Richards and Rodgers (2001) stated some activities in which students can create codes through scientific demonstrations, to look for answers for logical problems or puzzles, to make calculations through scientific thought, and develop logical-sequential activities such as statistic graphics.

The naturalistic intelligence. Regarding this type of intelligence, Pal (2011) stated that:

> It has to do with nature, nurturing, and relating information to one's natural surroundings. This intelligence was added to Gardner's theory in 1998. Those with it are said to have greater sensitivity to nature and their place within it, the ability to nurture and grow things, and greater ease in caring for, taming, and interacting with animals. Recognizing and classifying things are at the core of a naturalist. They must connect a new experience with prior knowledge to truly learn something new. (p. 141)

Richards and Rodgers (2001) proposed some activities such as visiting a zoo to get in contact with animals, plants, and the environment, participating in recycling programs, developing activities in which they have to classify or categorize nature items, and so forth.

The intrapersonal intelligence. "It has to do with introspective and self-reflective capacities" (Pal, 2011, p. 140). Those who have this intelligence are typically introverted and prefer to work alone. They often have an affinity for thought-based pursuits such as philosophy. They learn best when allowed to concentrate on the subject by themselves. There is

often a high level of perfectionism associated with this intelligence. Hughes (2002) points out that these learners try to understand their inner feelings, dreams, relationships with others, strengths, and weaknesses. The understanding of all these aspects of their lives can lead them to work hard to achieve whatever they want. Richards and Rodgers (2001) considered activities related to independent work, individualized projects, personal journals, reflecting tasks, goal setting, and self-teaching or programmed instruction as the ones they enjoy the most.

The visual-spatial intelligence. "It has to do with vision and spatial judgment. People with this intelligence are typically very good at visualizing and proficient at solving puzzles. They have a strong visual memory and are often artistically inclined" (Pal, 2011, p. 141). Hughes (2002) mentioned that learners enjoy looking at maps, charts, flashcards, pictures, videos, and movies. In addition, Richards and Rodgers (2001) talked about the use of diagrams and/or slides to make paintings or collages based on imaginative storytelling, and students' drawings, among others.

The musical intelligence. Pal (2011) mentioned that:

> It has to do with rhythm, music, and hearing. Those who have a high level of this intelligence display greater sensitivity to sounds, rhythms, tones, and music. They normally have good pitch and are able to sing, play musical instruments, and compose music. Since there is a strong auditory component to this intelligence, those who have it more developed may learn best by listening. They will often use songs or rhythms to learn and memorize information, and may work best with music playing in the background. (p. 142)

Hughes (2002) described this intelligence as the ability to produce and appreciate music, he stated that these learners "think of sounds, rhythms, and patterns and that they immediately respond to music either appreciating or criticizing what they hear" (p. 32).

From the abovementioned data, we can realize the relevance for teachers to combine activities considering students' intelligences because students are benefited by facilitating their learning. Armstrong (1987) stated that:

> One of the most remarkable features of the MI theory is how it provides *eight different potential pathways* to learning. If a teacher is having difficulty reaching a student in the more traditional linguistic or logical way of instruction, this theory suggests several other ways in which the material might be presented to facilitate effective learning. (p. 19)

What Are Interest Centers?

Interest centers have a variety of other names, "activity centers," "learning centers," and "interest areas" are just a few of them. Interest centers are areas within the classroom where similar materials are grouped together to encourage specific activities or experiences for the children. These areas are well defined, distinct, and easy to see (Norris, Eckert, & Gardiner, 2004). The teacher is in charge of creating these areas in the classroom and each area is

focused on a specific activity that offers all kinds of interactions with materials and among students. Learners learn in a more enjoyable way about several topics that teachers want to teach them.

According to DiCarlo and Vagianos (2009), interest centers allow children to make choices from a variety of materials that teachers have provided to address developmental skills. The free-choice format of interest center time prevents children from having to wait in large groups and allows children to spend more time engaged with materials. Although teachers should strive to create multiple opportunities for children to practice a variety of skills across interest centers, it is likely that not all skills will be embedded in each one of them. Often, individual children avoid certain areas of the classroom. It is desirable for children to play in a variety of interest centers to take advantage of all available learning opportunities.

How do interest centers work? Norris (2004) explained how interest centers are independent stations set up throughout the classroom where children can go to actually engage in some learning activity. In this project, each interest center aimed at discovering and developing the students' intelligences through different activities or workshops related to a distinct intelligence. Children chose the center they wished to work in and decided on the amount of time to spend there. This way, interest centers provided a time when children explored and practiced skills to their own satisfaction providing them with opportunities for hands-on learning, cooperative learning, social interaction, real-life problem solving, autonomous learning, and open-ended activities.

Students learnt various subjects as they moved from one center to another. For example, an English topic may be presented in one center of the classroom; such center may have crosswords or activities for children to handle and so, it is an attempt to help them to discover their own way of learning.

What Are Learning Styles?

Learning styles are related to MI. Claxton and Murrell (1987) pointed out that the ways in which an individual characteristically acquires, retains, and retrieves information are collectively termed the individual's learning style. Felder and Henriques (1995) mentioned that learning styles are a characteristic and preferred way of learning. Another way to look at learning styles is to think of them as the conditions under which an individual finds it easiest and most pleasant to learn. According to Brown (1980), learning styles are primarily visual, auditory, or kinesthetic (tactile). Visual learners prefer to learn by reading or watching. Auditory learners like to learn by listening. Kinesthetic learners learn by doing, by touching or manipulating objects, or by using their hands.

Although students can learn to adapt to learning styles that are not their preferred ones, most people have difficulty at first when asked to do something that seems unnatural to them.

The most successful teachers are those who can present material in a variety of ways using a combination of teaching methods in order to reach the diverse learning styles of their students.

Research Methodology

The Type of Research

The type of research applied in this project was qualitative, more exactly, *action research*. Reason and Bradbury (2001) point out that action research aims at posing and solving problems, understanding, changing, or innovating classroom processes by collecting information in a spiral way through four stages: Plan, Action, Observation, and Reflection.

Data Collection Procedures

The instruments that were used for gathering information were as follows: an MI questionnaire (Appendix 1), classroom observation (Appendix 2), and a student mini-report sheet (Appendix 3). During the implementation of interest centers the MI questionnaire was applied before (to determine the predominant MI in the selected group) and after (to determine the incidence of interest centers on the development of the MI). For classroom observation, an open-ended observation form was used to identify how the teacher helped students to develop the MI in the classroom and what kind of learning activities were preferred by the students. After the students developed the activities proposed in each interest center, they had to complete a mini-report sheet with information related to the centers they worked in, the type and the activities they developed, what they liked the most, and their favorite interest center, among others. The information collected in the student mini-report sheet was analyzed in order to measure students' achievements, likes, and dislikes. It took place at the end of the data collection in order to validate and corroborate the gathered information during the whole process.

Instructional Design

It is crucial for language teachers to be aware of the educational needs of their students. All students do not learn the same way because they have different learning styles. This pedagogical proposal offered a perspective of teaching and learning in which students were encouraged to develop several activities—different from those usually offered by language teachers at school—allowing them to develop their MI. The methodology for the research context was based on interest centers in which students decided upon the activities they wanted to carry out, without losing the connection between centers' tasks and the English curriculum.

The activities and materials proposed in the centers were related to topics and aspects of language acquired in the English class. As a result, students improved their English language skills along the way. The implementation of the interest centers was aimed at developing the students' MI. Besides, it pointed out how to find ways of teaching English considering learning styles. It was noticed that by implementing these centers students got to make their own choices and learnt to work both individually and in groups, according to their unique minds. These centers also looked for providing a wide variety of activities for all the students to complete, changing the traditional way of learning English for them. Finally, interest centers provided a classroom structure that allowed the teacher to assess the students regularly while the class engaged in meaningful, useful, and purposeful activities, innovating in that sense, the traditional classroom arrangements.

The school administrators approved the implementation of this project and decided to establish a specific classroom with different resources for its development. It was expected to find new strategies and methodologies which could contribute to the school's bilingual process.

Data gathered from the preliminary analysis showed how verbal-linguistic, visual-spatial, logical-mathematical, and intrapersonal were the intelligences students developed least. Thus the project was mainly focused on developing these intelligences, without leaving aside the other ones.

How Were Interest Centers Focused?

The activities to be developed were focused on determining the incidence of interest centers on the development of the distinct MI. Through the implementation of the interest centers, the students were encouraged to develop several activities and mini-workshops related to each type of intelligence with corresponding materials and activities adapted to English as a foreign language (EFL) teaching, as shown in Table 1.

When developing the different activities in each interest center, students had to complete the student mini-report sheet that allowed the teacher to make an analysis of aspects related to the rate they gave to the centers they worked in, the way of working and the type of activities students liked the most in each center, their favorite centers, among others.

How Were the Interest Centers Set Up?

A special classroom at school was assigned for setting up the interest centers, and in this way, to facilitate the classroom arrangement. This classroom was divided into independent stations focused on the MI to be developed (see Figure 1). The location of each center allowed students to be engaged in some learning activity. For each center similar materials

were grouped together to encourage specific intelligence learning experiences for the students. The activities proposed for working in the centers had a relation to the school English curriculum. Regarding class time, two hours out of the seven of class instruction per week, were focused on the interest centers activities.

**Table 1.** Interest Centers Focused on Multiple Intelligences

Interest Center	Teaching Materials	Teaching Activities	Purposes
Verbal-linguistic intelligence	Books, paper, stories, word games, etc.	Storytelling, creating an English dictionary, reading comprehension exercises, riddles, missing words, etc.	– Read about it. – Write about it. – Talk about it. – Listen to it.
Logical-mathematical intelligence	Puzzles and games, computers, software, etc.	Solving problems, creating problems, asking questions, creating spreadsheets of interviews about likes and dislikes, etc.	– Quantify it. – Think about it. – Conceptualize it.
Visual-spatial intelligence	Computers, software, videos, posters, flashcards, etc.	Describing pictures, making diagrams, matching activities, mapping activities, drawing and painting crosswords, etc.	– Draw it. – Visualize it. – Color it. – Mind-map it.
Bodily-kinesthetic intelligence	Things to build, sports and physical games, tactile things, hands on materials, etc.	Hands-on activities, role plays, TPR activities, English concepts with bodily motion, sensory awareness activities, and singing songs.	– Build it. – Act it out. – Touch it. – Dance it.
Musical-rhythm intelligence	Song and music tapes, music videos, musical instruments.	Singing songs, singing-along, writing and singing music, playing music, using natural music and sounds.	– Sing it. – Rap it. – Listen to it.

Interest Center	Teaching Materials	Teaching Activities	Purposes
Interpersonal intelligence	Group games, surveys, questionnaires, etc.	Riddles, cooperative groups, English board games, computer games for pair or group work, discussion groups, team problem solving, etc.	– Teach it. – Collaborate on it. – Interact with respect towards it.
Intrapersonal intelligence	Reflective materials, instructive materials, individual games, jigsaws, etc.	Journaling activities, portfolios, biographies, giving personal information, personal diary, etc.	– Connect it to your personal life. – Make choices in regard to it. – Talk about you.
Naturalist intelligence	Pictures of nature things, readings from nature magazines, videos of nature, music of sounds of nature, collages, etc.	Awareness activities, mini-field trips outside the classroom, understanding relating to and functioning in the natural world, environmental protection activities, etc.	– Sense it. – Feel it. – Experience it. – Relate it.

Finally, for each interest center some components were established such as title, instructions, learning alternatives (materials-activities) goals, and a student mini-report sheet of the activities to be developed in each one. The activities to be proposed had a time length of 15 minutes. In the two hours devoted to the implementation of the interest centers, students were allowed to participate and develop the activities proposed in the eight centers.

How Did the Students Participate So That They Maximized Their MI?

Students were distributed in the centers randomly. They made decisions about the kind of work to do considering the learning materials and proposed tasks in each center. As a consequence, the interest centers provided a time when students explored and practiced skills and intelligences to their own satisfaction. These also provided students with opportunities for hands-on learning, cooperative learning, social interaction, real-life problem solving, autonomous learning, and open-ended activities. Although learners were assigned randomly, they explored other ways of learning through different hands-on activities. This exploration led to the discovery of how the centers helped students maximized their MI.
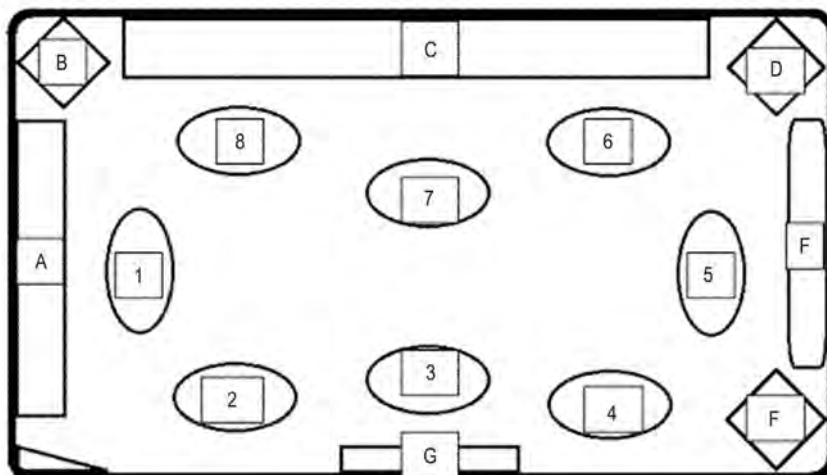
1. Naturalistic center   A. Book shelf (books, readings, visual aids)

2. Verbal-linguistic center   B. TV set (TV, DVD)

3. Visual-spatial center   C. Shelf with didactic materials and games.

4. Musical-rhythm center   D. Toy box.

5. Bodily-kinesthetic center   E. Costume shelf

6. Logical-mathematical center   F. Musical instruments.

7. Intrapersonal center   G. Computers.

8. Interpersonal center

Figure 1. How the Interest Centers Were Set Up

What Was the Teacher's Role?

The teacher-researcher had several roles when working with the centers. First, he was the manager. He was in charge of setting up the classroom and deciding how to implement the proposal. Second, he was a facilitator. He decided what didactic materials and activities were to be proposed so that learners acquired knowledge in different groups at different moments. Finally, he was an evaluator. He assessed students during the process of implementation. All in all, the implementation of the centers let the teacher assume different roles in order to guarantee students' work and the achievement of the research objectives. Pretti-Frontczak and Bricker (2004) stated that the teacher's role when implementing interest centers is to design the environment and select materials, activities, and routines that will promote children's opportunities to perform specific skills.

Data Analysis

Here, the data gathered from the instruments in the two moments they were implemented (before and after implementation) are presented through a data analysis matrix for each one of the instruments (MI questionnaire, open-ended observation form, and student mini-report sheet), in which the data gathered are summarized and presented in general terms for both moments. Finally, general conclusions in relation to the findings of each instrument are mentioned.

The MI questionnaire was applied before (to determine the predominant MI in the selected group) and after (to determine the incidence of interest centers on the development of the MI). For each one of the MI, there were five questions addressed to identify key aspects to determine what the most developed intelligences in the students were. It was expected that a clear idea would be got of what intelligences most of the students needed to foster so that they maximized their skills. The results are shown in Table 2.

For classroom observation, an open-ended observation form was used to identify how the teacher helped students to develop the MI in the classroom and what kind of learning activities were preferred by them. This instrument was applied at random, which means that the observations took place in different classes in order to collect data that helped to identify how the MI were developed in the classroom and what kind of learning activities were preferred by the students. These observations were carried out over a period of two months, one hour per day, during the time devoted for the English class. To do this data analysis, the *basic path of data analysis* in an a priori approach was followed as proposed by Freeman (1998), considering that this research began with a set of established categories (Multiple Intelligences), which were determined in advance. The results are shown in Table 3.

After the students developed the activities proposed in each interest center, they had to complete a mini-report sheet with information related to the centers they worked in, the type and the activities they developed, what they liked the most, and their favorite center, among others. It was applied at random to all the participants at different moments in which interest centers activities took place. It was used only after implementation considering that it had as a main purpose the collection of information that allowed describing how interest centers helped students to maximize their MI and, as a consequence, their own learning styles plus determining the incidence of interest centers on the development of the MI. This instrument was applied for a period of two months, during the time devoted for the implementation of the interest centers in the English class.

The information collected in the student mini-report sheet was analyzed in order to measure students' achievements, likes and dislikes. It took place at the end of the data collection in order to validate and corroborate the gathered information during the whole process. The results are shown in Table 4.

Table 2. Results from the MI Questionnaire

Objective	Relevant Date	Observations
Before implementation of interest centers		
— To determine the predominant MI in the selected group.	— The predominant MI were: naturalist, interpersonal, bodily-kinesthetic, and musical. — The less predominant MI in the group of students were: verbal-linguistic, visual-spatial, logical-mathematical, and intrapersonal.	— It is necessary and relevant in the teaching practice that teachers combine activities considering students' MI to benefit most of students' learning process, so that each student has the opportunity to learn in harmonious ways with his/her unique mind.
After implementation of interest centers		
— To determine the incidence of interest centers on the development of the MI.	— The results showed a similar tendency in relation to predominant MI. The predominant MI were: naturalist, interpersonal, bodily-kinesthetic, and musical. — The results showed a different tendency in relation to the least predominant MI. There was an increase in the number of students who selected or always answered some of the items referring to verbal-linguistic, visual-spatial, logical-mathematical, and intrapersonal intelligences as their preferred ones.	— After implementing the interest centers, we found the gathered results from the questionnaire varied considerably. This was achieved due to the opportunity that interest centers offered the teacher at the moment of combining activities in his daily teaching practices considering students' intelligences. Students benefit by facilitating their learning process.

Table 3. Results From Classroom Observation

Objective	Relevant Data	Observations
Before implementation of interest centers		
— To identify how the MI were developed in the classroom and what kind of learning activities were preferred by the students in order to focus the interest centers.	— It was noticed that the activities proposed in the English class were planned according to the methodology of a textbook. The students and the teacher followed a work routine that was guided by these texts and what was suggested by the English curriculum. — Most of the time students developed activities related to the development and reinforcement of language skills.	— Activities were not planned around the students' needs and/or interests; these were planned around the textbooks' suggestions. — Students were not allowed to maximize their distinct intelligences since they just completed activities designed to fulfill some specific intelligences.
After implementation of interest centers		
— To determine the incidence of interest centers on the development of the MI.	— It was noticed that the activities proposed in the interest centers allowed the students to maximize their distinct intelligences. — In contrast with the observations before the implementation, in which they just developed or completed activities designed to fulfill some specific intelligences (e.g. verbal-linguistic, intrapersonal) — The activities proposed in the interest centers allowed the students and the teacher to follow a work routine that was guided by activities and materials that could work jointly with what was proposed in the English textbook and what was suggested by the English curriculum of the school.	— Interest centers considered the students' needs and/or interests. The students had the opportunity to explore different and meaningful activities which contributed to develop their MI. — During the implementation of the interest centers, it was noticed that aspects related to specific intelligences were combined in a meaningful way in other centers, allowing the teacher to think about specific center activities in which one or more MI could be developed or performed at the same time. — The implementation of the interest centers allowed observing how, despite the activities and in some sense the non-controlled space on the part of the teacher (monitoring), the students were encouraged to develop the activities, without showing any relevant behavior difficulty.

Table 4. Results From the Student Mini-Report Sheet

Relevant Data	Observations
— In general, the students rated the interest centers as excellent or good. Items like fair, poor, or I did not participate were not selected. — In general, the students were in agreement with answering what they liked the most about the interest centers, including aspects such as the materials they used, the interaction with others, the English practice and the self-challenging component. — In general, the students coincided with answering they wanted to do these kinds of activities again. Items like never or not sure were not selected. — In relation to the item referring to the favorite interest centers of the students, the musical-rhythm, intrapersonal, visual-spatial and bodily-kinesthetic were selected as the preferred ones.	— The data gathered from the student mini-report sheet demonstrated that the implementation of the interest centers had an incidence in the development of the MI of fifth graders. — The data gathered allowed describing how interest centers helped students to maximize their MI and, as a consequence, their own learning style plus the kind of activities needed to help in such purpose.

Findings

Considering that this project aimed at determining the incidence of interest centers in developing the MI of fifth graders, we pose the following question: How do interest centers contribute to develop fifth graders' MI? The findings were as follows:

In relation to the MI, it was noticed that through creating educational experiences based on natural talents, the teacher was more likely to increase opportunities whereby students could become actively engaged in learning experiences that were pleasurable, heightened or magnified. All human beings have MI and these can be nurtured and strengthened, or ignored and weakened. The most relevant aspects to think about in incorporating the MI theory in the classroom are that it creates a dynamic environment in the classroom, it suggests several ways in which materials and activities might be presented to facilitate effective learning in the students, and students have the opportunity to learn in harmonious ways with their unique minds.

Students differ in the strengths and combinations of intelligences, which can be enhanced through training and practice. The broad view of human intelligences in the MI theory gives teachers a complex model with which to construct curriculum and offers teachers a way to analyze their best techniques and strategies in light of the students' differences. Thus, its inclusion allows teachers to apply a way to maximize students' potential in their lesson planning and curriculum development.

A general knowledge of the students' abilities, interests, needs, attitudes, and ways of learning was got along the process of the implementation of the interest centers. For the future it will allow a better adaptation of the English class objectives and contents, keeping under consideration the characteristics of the students.

This project made its greatest contribution to language teachers because through its development, it could be noticed that they can expand their repertoire of techniques, tools, and strategies beyond the typical linguistic and logical ones often used by them in the EFL classroom.

In this research, interest centers were organized spaces inside the classroom addressed to develop the distinct MI of the students. Thus, in the centers students had the opportunity to encounter different materials and activities which had the purpose of developing the MI and reinforcing the English language practice. It allowed learners a chance to work and explore materials and activities they usually did not use in class.

Interest centers provided an opportunity for the students to develop activities that helped them to discover their own way of learning. They provided opportunities for authentic learning based on students' needs, interests and talents. As a result, all students developed and applied new skills. In the fall, most students described some centers as their "favorite" and as the ones where they felt confident. This means interest centers had a great incidence on the development of MI. Hughes (2002) stated that teachers should design activities and spaces which will allow students to interact with the space around them. Thus, this project allowed students to remember and process the information in a better way, allowing them to take advantage of their distinct intelligences.

Interest centers allowed children make choices from a variety of materials that the teacher provided to address developmental skills. The free-choice format of interest centers prevented children from having to wait in a large group and allowed children to spend more time engaged with materials. Since so much of the centers' work was collaborative, cooperative learning skills improved in all the students, that is, they became skilled at listening, accommodating group changes, helping each other and sharing leadership in different activities. Students learnt not only to respect each other, but also to appreciate and call upon the abilities and unique talents of their classmates.

To conclude, findings revealed that through the implementation of interest centers activities, students maximized some of their MI. The implementation phase described how planning while considering the students' needs and/or interests, including the predominant and the less developed intelligences, allowed the students and the teacher to follow a work routine that was guided by activities and materials adapted to the English textbook and the English curriculum of the school while developing distinct MI. The way interest centers were organized for this project showed that these centers not only foster language learning but maximize students' MI.

New students' skills emerged from this project in the sense that some students discovered artistic, musical, literary, and other new capacities and abilities. Others developed self-reliance and independence as they took an active role in shaping their own learning experiences. In addition, aspects related to self-confidence, interaction, and motivation when practicing and learning English increased significantly.

By implementing MI and interest centers, language learning was supported by bringing in the musical, visual-spatial, bodily-kinesthetic, interpersonal, intrapersonal, logical- mathematical, and naturalistic abilities as they constitute distinct frames for working on the same verbal-linguistic content. The teacher not only did this variety of presentations allowing students to learn in their own learning styles, but it also helped to reduce boredom as language learning and teaching processes require a frequent "circling back" to cover the same material if learning is to be sustained.

When applying both MI and interest centers, the teacher was able to organize a variety of contexts, activities and materials that offered students several learning opportunities; they were an alternative for the teacher to plan lessons that increased the attractiveness of language learning tasks; therefore, they created favorable motivational conditions for the learning process.

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Appendix 1: Multiple Intelligences (MI) Questionnaire[2]

Goal of the questionnaire: The purpose of this questionnaire is to determine the multiple intelligences that students use most frequently in their learning.

Answer the following questions in the most sincere way possible. Mark an X in the checkbox corresponding to the statement.

Name: _____.

Multiple Intelligences Questionnaire	Always	Sometimes	Never
Verbal-Linguistic Intelligence			
1. Communicates with others in a verbal way.			
2. Often creates or tells stories or jokes.			
3. Likes developing word searches, crossword puzzles, riddles, etc.			
4. Enjoys listening to stories.			
5. Likes reading stories, books, etc.			
Naturalistic Intelligence			
1. Shows interest in animals and plants around him/her.			
2. Likes developing activities having to do with animals and plants.			
3. Enjoys reading and studying subjects related to nature.			
4. Likes speaking about his/her favorite animals.			
5. Distinguishes living things from nonliving ones.			
Visual-Spatial Intelligence			
1. Likes describing images, places, things, etc.			
2. Likes watching movies, slides and other visual presentations.			
3. Likes drawing and coloring.			
4. Has the ability to solve puzzles and mazes.			
5. Likes designing posters, collages, murals, etc.			

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[2] This questionnaire was administered in Spanish.

Logical-Mathematical Intelligence			
1. Likes having to measure activities, compare or classify objects.			
2. Solves math operations quickly.			
3. Likes solving logic games (chess, puzzles).			
4. Likes playing board games.			
5. Likes working with numbers and figures.			
Interpersonal Intelligence			
1. Likes activities that need the help of other people.			
2. Enjoys playing with others.			
3. Likes participating in conversations and group activities.			
4. Likes talking with her/his partner (s).			
5. Likes working in groups.			
Bodily-Kinesthetic Intelligence			
1. Excels in one or more sports.			
2. Enjoys activities that need body movement.			
3. Likes creating shapes with Play-Doh, clay, etc.			
4. Good at imitating the gestures and movements of other people.			
5. Tends to touch things with her/his hands when seeing them.			
Intrapersonal Intelligence			
1. Prefers games you can do single-handedly.			
2. Prefers to do things working alone.			
3. Capable of correctly expressing feelings or likes.			
4. Enjoys activities related to speaking, writing or saying something about him/herself.			
5. Knows what his/her skills and weaknesses are.			
Musical Intelligence			
1. Likes singing.			
2. Knows how to play any musical instrument.			
3. Likes imitating sounds or creating rhythms with objects.			

Musical Intelligence			
4. Has a good memory for the melodies of songs.			
5. Enjoys listening to music.			

Questionnaire adapted from Colegio Cristo Rey – Counseling Department.

Thanks for your help!

Appendix 2: Classroom Observation Form

The following classroom observation form provides a question that attempts to reflect features of the distinct Multiple Intelligences that are observed during the time devoted to the English class. The situations described emerged from daily practice in the classroom.

Observer: _____ **Number of students:** _____

Date of observation: _____ **Time:** _____

Directions: Answer the following questions according to what you observed based on which multiple intelligences are being developed in a period of time in a class and the kind of activities used for this purpose.

Are activities related to the verbal-linguistic intelligence developed?
Are activities related to the intrapersonal intelligence developed?
Are activities related to the interpersonal intelligence developed?
Are activities related to the visual-spatial intelligence developed?
Are activities related to the logical-mathematical intelligence developed?

Are activities related to the musical intelligence developed?
Are activities related to the naturalist intelligence developed?
Are activities related to the body-kinesthetic intelligence developed?

Final Comments:

_____

_____

_____

Appendix 3: Student Mini-Report Sheet

Developing the Distinct Multiple Intelligences
Through Interest Centers

1. Interest centers I worked in:

☐ Verbal-linguistic   ☐ Visual-spatial   ☐ Intrapersonal

☐ Musical-rhythm   ☐ Logical-math.   ☐ Bodily-kinesthetic

☐ Interpersonal   ☐ Naturalist

2. In general, I rate interest centers…

☐ Excellent   ☐ Good   ☐ Fair

☐ Poor   ☐ Did not participate

3. I worked…

☐ Individually   ☐ In pairs   ☐ In groups

4. In the interest centers I …

– read and talked about a story to a friend ☐ – created an English dictionary ☐ – did reading exercises ☐ – wrote something ☐	– solved problems ☐ – developed puzzles ☐ – asked questions ☐ – played maths/ logical games ☐	– described pictures ☐ – did matching activities ☐ – drew or painted ☐ – developed crosswords ☐	– did a role play with someone ☐ – danced ☐ – built things ☐ – created a choreography ☐
– listened to music ☐ – sang a song(s) ☐ – wrote lyrics ☐ – played musical instruments ☐ – watched musical videos ☐	– participated in group games ☐ – talked to my classmates ☐ – solved an activity/exercise in group ☐	– draw or wrote about me ☐ – played a game alone ☐ – solved an activity alone ☐ – developed a computer activity ☐	– read or watched a video about nature ☐ – described animals/plants ☐ – wrote or drew about things in nature ☐

5. What I liked the most was…

☐ Materials I used ☐ Interaction with others ☐ English practice

☐ Freedom to choose activities ☐ Self-challenging

☐ Other subjects' practice

6. I want to do these activities…

☐ Never again ☐ Again ☐ Not sure

7. My favorite center was…

☐ Verbal-linguistic ☐ Visual-spatial ☐ Intrapersonal

☐ Musical-rhythm ☐ Logical-math. ☐ Bodily-kinesthetic

☐ Interpersonal ☐ Naturalist

☺ **Thanks!**