

# Design of Didactic Activities Based On the Theory of Multiple Intelligences in the City Of Quevedo

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## ABSTRACT

This study examines the implementation of didactic activities based on the theory of multiple intelligence in the city of Quevedo, in order to improve the integral development of basic education students. The general objective was to analyze how these activities impact academic performance and student motivation. The study was developed with a qualitative approach, using a non-experimental design of longitudinal type and descriptive research. Surveys were also applied to identify the learning preferences of students and to evaluate the perception of teachers and students on the effectiveness of the implemented activities. The results revealed that a majority of students showed preferences for practical and visual activities, which indicates the need to diversify didactic strategies to meet different learning styles. In addition, there was high satisfaction among students and teachers regarding activities based on multiple intelligences, suggesting that these methodologies can improve motivation and engagement in the classroom. In conclusion, the study highlights the importance of personalizing educational strategies to maximize the potential of each student, promoting a more inclusive and effective education. These findings provide a basis for educational institutions in Quevedo and other regions to consider adopting pedagogical approaches based on multiple intelligences.

## KEYWORDS

Multiple intelligences;  
Didactic activities;  
Education; Strategies.

## 1. Introduction

In Latin America, the implementation of didactic activities based on the theory of multiple intelligences has gained relevance over the past decade. Various studies have explored how these strategies can transform teaching, particularly in areas such as mathematics in primary education. For example, according to the study by Bueno Díaz (2022) in Colombia, didactic strategies integrating multiple intelligences were developed to improve the teaching of mathematics in the fifth grade of elementary school, showing a positive transformation in the educational process. These initiatives aim to address the diversity of learning styles present in Latin American classrooms, promoting more inclusive and effective education.

In Ecuador, the application of the theory of multiple intelligences in the design of didactic activities has been the subject of research in various educational institutions. A study by Zaruma Hidalgo & Jumbo Campoverde (2023), conducted at the public missionary educational institution

“La Inmaculada,” the study implemented strategies based on this theory to strengthen the development of individual skills among eighth-grade students in the subject of Natural Sciences, achieving meaningful learning outcomes. Additionally, an increase in students’ active participation and motivation was observed, suggesting a positive impact on their attitudes toward learning.

According to Ramírez Morales (2022), at the local level, in the city of Quevedo, research has been carried out exploring the application of the theory of multiple intelligences in education. The Technical State University of Quevedo has developed studies focused on applying this theory in education, promoting innovative didactic strategies that aim to improve academic performance and address the diversity of intelligence in the classroom. These local initiatives highlight the importance of adapting teaching methodologies to the particularities of students, contributing to the improvement of educational quality in the region.

This study benefits the city of Quevedo by providing an innovative pedagogical approach that addresses the diversity of learning styles present in its classrooms, fostering the integral development of students. Through the analysis of the implementation of didactic activities based on the theory of multiple intelligences, the study seeks to understand their impact on academic performance and student motivation. For this reason, the central purpose of this research is to analyze how these strategies improve teaching in basic education, promoting more inclusive learning and adapting to the needs of each student. Specifically, it aims to: first, examine the theoretical foundations and their practical application; second, identify students' learning preferences through diagnostic surveys; and third, evaluate the perceptions of students and teachers regarding the effectiveness of the designed activities. This comprehensive approach enriches the educational experience in Quevedo and serves as a model for other regions interested in innovating their pedagogical practices.

## 2. Literature Review

### 2.1 Didactic Activities

Didactic activities play an essential role in the educational process, as they facilitate the understanding of complex concepts and promote meaningful learning. When designed in an interactive and participatory way, these activities stimulate students' interest, which in turn improves their academic performance. Román Mireles & Mora Barajas (2022), point out that didactic activities should be varied and adapted to different learning styles in order to maximize their effectiveness. This includes the use of games, group projects, and technological tools that not only facilitate knowledge acquisition but also foster social and cognitive skills. For his part, Vialart Vidal (2020), argues that well-structured didactic activities encourage autonomy and intrinsic motivation in students, resulting in a more enriching and personalized educational experience.

### 2.2 Didactic Activities in Latin America.

Didactic activities in Latin America have evolved significantly in recent decades, adapting to the challenges and

educational contexts of the region. In many countries, these activities have shifted toward more participatory and inclusive approaches, aiming to address the cultural and socioeconomic diversity of students. According to Peralta Lara & Guamán Gómez (2020), pedagogical initiatives in the region have incorporated active methodologies such as project-based learning and the use of digital technologies to enrich the teaching–learning process. Likewise, Celi Rojas et al. (2022), highlight that, despite resource limitations in some contexts, teachers have developed innovative strategies that foster creativity and critical thinking, adapting didactic activities to local needs and promoting a more equitable and higher-quality education.

### 2.3 Didactic Activities in Ecuador

In Ecuador, didactic activities have undergone a transformation toward more dynamic and inclusive methodologies, aimed at improving educational quality at all levels. The Ministry of Education has promoted reforms that encourage the use of innovative resources and student-centered pedagogical strategies. According to Pinos Sumba et al., (2021), the focus on active learning has led to the implementation of activities such as problem-based learning and the integration of digital technologies in the classroom. These practices seek not only to enhance academic performance but also to foster skills such as collaboration and critical thinking. Furthermore, Zambrano Acosta et al. (2021), emphasize that, in both rural and urban contexts, teachers have adapted didactic activities to respond to the country's cultural and linguistic diversity, thereby strengthening a more personalized and contextualized approach to Ecuadorian education

### 2.4 Theories on Didactic Activities

Theory of Multiple Intelligences.

The theory of multiple intelligences, initially proposed by Gardner (1993), has evolved and found a prominent place in contemporary education, adapting to the needs of students in diverse contexts. Recent studies, such as that of Castro Cedeño & Vega Intriago (2022), highlight how this theory enables educators to design more inclusive and personalized strategies, fostering meaningful learning. They also underscore the importance of recognizing and enhancing

students' different intelligences, facilitating integral development and improving academic performance across various areas. This approach promotes not only the achievement of academic objectives but also the strengthening of socioemotional and creative skills, which are essential in today's educational context.

### 2.5 Experiential Learning Theory

This theory proposes that learning is a cyclical process involving concrete experience, reflection, abstract conceptualization, and active experimentation. According to Kolb (1984), effective learning occurs when students can directly engage in practical activities and then reflect on their experiences in order to develop new ideas and skills. This theory emphasizes the importance of adapting didactic activities to provide meaningful experiences, allowing students to apply what they have learned in real-world contexts. Similar to the theory of multiple intelligence, experiential learning underscores the need to diversify teaching strategies to address different learning styles and foster a more interactive and personalized educational process. Likewise, Soto Vergel et al. (2020), affirm that incorporating practical experiences into didactic activities not only enhances conceptual understanding but also improves long-term knowledge retention

## 3. Methodology

To comprehensively address the design of didactic activities based on the theory of multiple intelligences in the city of Quevedo, a quantitative approach was used. According to Arias Gonzáles (2021), the quantitative approach allows phenomena to be measured objectively, using statistical tools to analyze the collected information. In this way, the quantitative approach provides concrete and generalizable data on predominant intelligence and the effectiveness of the activities, offering a clear and precise perspective on the relationship between multiple intelligences and the applied pedagogical strategies.

The design of this study was non-experimental and cross-sectional, since the study variables were not manipulated but rather observed and analyzed in their natural state. According

to Vizcaíno Zúñiga et al. (2023), a non-experimental design is characterized by the absence of direct intervention from the researcher, which makes it possible to investigate phenomena as they occur in their natural environment. Furthermore, this cross-sectional design was applied at a single point in time to collect the quantitative and qualitative data necessary to analyze the perceptions, preferences, and predominance of multiple intelligences among participants, as well as the relationship between these and the proposed educational activities.

The type of research conducted was descriptive, as it focused on identifying and analyzing the main characteristics of multiple intelligences present in students and their perceptions of the designed didactic activities. According to Ramos Galarza (2020), the purpose of descriptive research is to detail the properties, characteristics, or behaviors of a specific phenomenon, group, or context. In this study, data were collected to describe how the different multiple intelligences manifested in participants, as well as their relationship with the proposed didactic strategies, without seeking to establish causal relationships.

### Population and Sample

The population considered for the present study consisted of students enrolled in Basic General Education, aged between 10 and 14 years, attending educational institutions in the canton of Quevedo, province of Los Ríos, Ecuador. According to official data from the National Institute of Statistics and Census (INEC, 2022), this population comprises a total of 37,345 students. This group was selected because it represents the educational level at which the different types of multiple intelligence manifest themselves most significantly, making it particularly relevant for analyzing their relationship with the design of didactic activities.

Participant selection was carried out through simple random sampling, ensuring that all students within the target population had an equal probability of being included in the study. To this end, both public and private educational institutions in the canton of Quevedo were considered, allowing for diversity in socio-educational contexts, pedagogical practices, and school environments. This

procedure helped to minimize potential selection biases and to strengthen the representativeness of the sample.

The sample size was calculated using a 95% confidence level and a 5% margin of error, following the model proposed by Casal and Mateu (2003), which is widely used in educational and social research. The formula applied was as follows:

$$n = \frac{N * Z^2 * p * (1 - p)}{(N - 1) * E^2 + Z^2 * p * (1 - p)}$$

Where:

- $n$  represents the required sample size.
- $N$  represents the total population size (37,345 students).
- $Z$  corresponds to the critical value of the standard normal distribution for a 95% confidence level (1.96).
- $p$  represents the estimated proportion of the characteristic of interest (0.5, used to maximize variability).
- $E$  represents the acceptable margin of error (0.05).

By substituting the values into the formula, a sample size of 380 students was obtained, which ensures adequate statistical precision and representativeness of the population under study.

$$\begin{aligned} n &= \frac{37345 * (1.96)^2 * 0.5 * (1 - 0.5)}{(37345 - 1) * (0.05)^2 + (1.96)^2 * 0.5 * (1 - 0.5)} \\ n &= \frac{37345 * 3.8416 * 0.25}{37344 * 0.0025 + 3.8416 * 0.25} \\ n &= \frac{37345 * 0.9604}{93.36 + 0.9604} \\ n &= \frac{35839.49}{94.32} \\ n &= 379.98 = 380 \end{aligned}$$

Nevertheless, it is important to note that the results should be interpreted in light of the specific context of the canton of Quevedo, whose sociocultural, educational, and curricular characteristics may differ from those of other regions of the country or from international contexts. Therefore, although the sampling design allows for valid inferences within the local setting, the generalization of the findings to other educational environments should be approached with

caution. Future comparative studies in different geographical and educational contexts are recommended.

### 3.1 Data Collection Techniques and Instruments

For data collection, the survey technique was used, which allowed information to be obtained in a structured and direct way from the study participants. According to Sierra Caballero (2019), the survey is a widely used technique in descriptive research, as it facilitates the collection of data on opinions, characteristics, and perceptions of a specific population. In this case, questions were designed to determine the predominant intelligence among students and their relationship with the proposed didactic activities, adapted to the principles of the theory of multiple intelligences.

The instrument used was a structured questionnaire, composed of multiple-choice questions. According to Arribas (2004), questionnaires are effective tools for collecting both quantitative and qualitative data, depending on the design of the questions. This instrument was previously validated to ensure clarity, relevance, and alignment with the objectives of the study. In addition, it was administered both in person and virtually, ensuring that students understood the questions and were able to complete the questionnaire autonomously.

### 3.2 Data Analysis

Data analysis was carried out using digital tools to ensure effective and accurate processing of the collected information.

The responses obtained through Google Forms were automatically tabulated, which facilitated data organization. According to Montrieux et al. (2015), digital tools streamline data processing and minimize errors in the analysis stage. Moreover, descriptive graphs and tables were generated from the data, which were used to identify trends, patterns, and frequencies related to students' predominant intelligence and their perceptions of the designed activities.

The survey results were organized into explanatory and analytical tables, which facilitated data interpretation. Descriptive tables were created to show the frequencies and percentages of responses, highlighting the didactic activities preferred by students and the predominant intelligences. According to Hernández Sampieri & Mendoza Torres (2020), tables allow for clearer and more detailed analysis of quantitative data. In addition, analytical tables were used to

compare responses according to learning preferences and multiple intelligences, identifying key patterns such as the prevalence of kinesthetic intelligence in practical activities.

#### 4. Results And Discussion

In the first objective, the theory of multiple intelligences (MIT) and its application in the design of didactic activities are analyzed. The theoretical study of multiple intelligences highlights the need to diversify educational methodologies to address different ways of learning. Posso Pacheco et al. (2022), argues that everyone possesses a unique combination of intelligence, such as linguistic, logical-mathematical, and spatial, among others. This diversity implies that teaching activities should be designed to leverage individual strengths, thereby promoting more personalized learning. Recent literature supports this assertion, noting that educational strategies integrating MIT contribute to improving students' academic performance and motivation.

The implementation of didactic activities based on MIT has proven effective in enhancing students' overall learning. A study by Macías Figueroa et al. (2021), indicates that activities aligned with students' predominant intelligences, such as music or bodily movement, lead to greater engagement and comprehension of content. Moreover, these activities foster the development of emotional and social skills, essential elements for both academic and personal growth. This holistic approach is particularly beneficial in basic education, where the development of diverse competencies is fundamental.

Finally, the application of MIT in educational settings has shown a positive impact on inclusion and school equity. Torres Silva & Díaz Ferrer (2021), highlight that schools implementing activities based on this theory report reduced dropout rates and improved student self-esteem. By recognizing and valuing different forms of intelligence, a more welcoming and motivating learning environment is created. This not only enriches the educational experience but also fosters a culture of respect and recognition of diversity in the classroom.

The results suggest that the implementation of the theory of multiple intelligence enhances student engagement and academic performance, supporting the idea that personalized teaching can better address cognitive diversity. agree that considering different forms of intelligence enables more effective and relevant learning for each student. However, implementing this approach can be complex, as Arguello Muñoz et al. (2021), note, since teachers often face limitations of time and resources to adapt activities to all intelligences.

The positive impact of MI-based activities on student engagement is reinforced by Martínez Yacelga & Salinas Flores (2020), who emphasize that differentiation in the classroom is essential to meet individual student needs. This approach fosters a more inclusive and motivating environment. Nevertheless, Mieles Pico & Moya Martínez (2021), question the applicability of MIT in educational contexts, suggesting that the approach may lack sufficient empirical evidence to justify widespread implementation, raising the need for further research in this area.

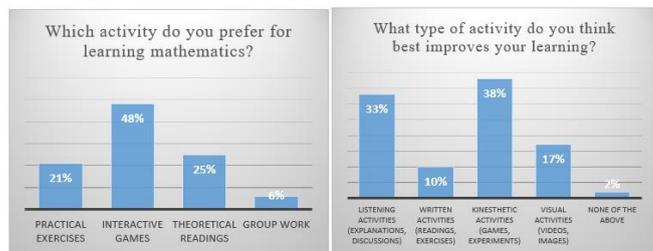
Regarding improvements in inclusion and educational equity, the results are consistent with Casanova Zamora et al. (2020), who advocate for an education that values students' diverse abilities to promote integral development. However, Sospedra Baeza et al. (2022) argue that although MIT is theoretically attractive, more empirical testing is needed to validate its effectiveness. This critique underscores the importance of continuing to explore how different intelligences can be more effectively integrated into the school curriculum in a measurable way.

To address the second objective, a theoretical review and a diagnostic survey were carried out with students to identify their preferences and learning styles. López (2021), highlighted that individuals possess diverse cognitive abilities that influence their learning, which aligns with the principles of MIT. This theory identifies intelligence such as linguistic, logical-mathematical, spatial, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic. According to Galarza Galarza et al. (2023), understanding these intelligences allowed educators to design activities that not only respected but also enhanced students' innate abilities. The literature suggested that when teaching methods were aligned

with students’ dominant intelligence, motivation and academic performance increased. Furthermore, recognizing learning preferences was fundamental to creating more inclusive and effective educational environments.

The findings from the theoretical review and diagnostic survey highlight the importance of adapting educational activities to students’ diverse intelligences. This aligns with Bravo Acosta & García Vera (2020), who maintain that recognizing multiple intelligences in the classroom can improve motivation and performance. However, Romero Rojas et al. (2021), question the empirical evidence behind the theory, suggesting that learning preferences do not always translate into better academic outcomes. Murat (2015), also emphasizes that beyond personalization, teaching quality and feedback are key factors for educational success. Therefore, a balanced approach is essential—one that combines the theory of multiple intelligence with evidence-based pedagogical practices.

Figure 1: Activities for Learning Mathematics – Type of Activity to Improve Learning.



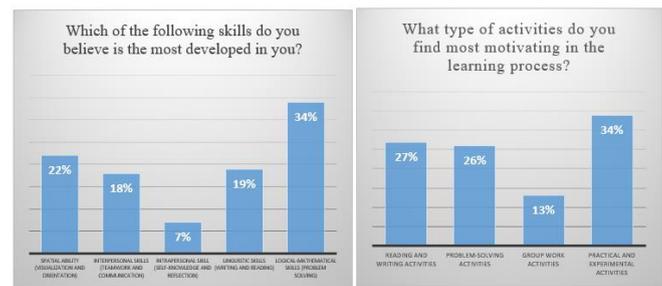
Source 1: Survey conducted by the authors.

In Figure 1, it can be observed that 48% of students prefer interactive games to learn mathematics, while 21% of students choose practical exercises for their learning. On the other hand, 38% prefer kinesthetic activities such as games and experiments, and 33% indicate that auditory activities, such as explanations and discussions, are the most effective for their learning. These preferences reveal a diversity of learning styles, reflecting the need to use varied pedagogical strategies. According to Calisaya Mamani et al. (2022), adapting teaching to different multiple intelligences, such as kinesthetic and linguistic, can increase motivation and academic performance. The data shows that students not only seek dynamic and participatory activities but also those that involve the processing of auditory and written information,

underscoring the importance of a balanced approach that addresses multiple forms of intelligence.

In Figure 2, it can be seen that 34% of students believe they possess a more developed logical–mathematical ability, while 22% consider spatial ability to be their predominant strength. These perceptions reflect a tendency toward the strengthening of analytical and visualization skills. On the other hand, regarding the activities that students find most motivating in the learning process, 34% prefer practical and experimental activities, followed by 27% who opt for reading and writing activities.

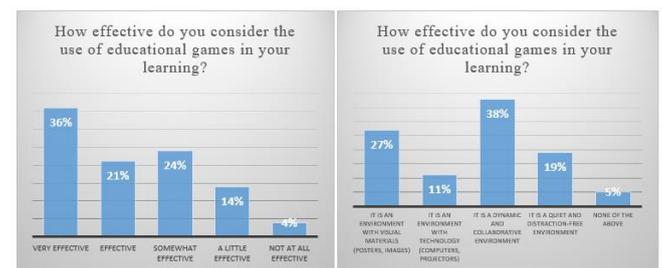
Figure 2: Skills Developed – Most Motivating Activities for Learning.



Source 2: Survey conducted by the authors.

These results reinforce the findings of Irrazabal Bohorquez et al. (2022), who argue that the implementation of diversified didactic strategies that address the different multiple intelligences not only fosters greater student engagement but also enhances their integral development. By adapting activities to individual skills and preferences, a more inclusive and effective learning environment is promoted, where each student can maximize their potential.

Figure 3: Effectiveness of Educational Games in Learning – Preferred Study Environment.



Source 3: Survey conducted by the authors.

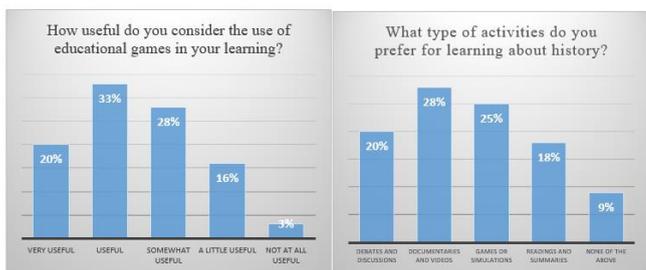
To address the third objective, students’ responses to selected survey questions were analyzed in order to evaluate their perception of the effectiveness of didactic activities designed

on the basis of multiple intelligences. The following results provide a detailed view of students' opinions and preferences regarding the methodologies employed.

The survey results presented in Figure 3 revealed that 36% of students considered the use of educational games in their learning to be "very effective," followed by 24% who rated it as "somewhat effective" and 21% as "effective." On the other hand, only 14% and 4% evaluated it as "slightly effective" and "not effective at all," respectively. Regarding the preferred learning environment, 38% of students chose a "dynamic and collaborative" environment as the most effective, followed by 27% who preferred an environment with "visual materials," and 19% who favored a "quiet and distraction-free" setting. Only 11% opted for a "technology-based" environment, while 5% did not identify with any of the previous options.

These findings are consistent with Tobón Villada et al. (2021), who argued that educational games are a powerful tool for learning, as they foster motivation and active student participation. Moreover, dynamic and collaborative environments have been associated with greater social interaction and the development of critical skills, as noted by Alcivar Cedeño (2022), who emphasized the importance of creating learning settings that promote collaboration and engagement. These results support the idea that both game-based pedagogical strategies and carefully designed learning environments can significantly enhance the educational experience of students.

Figure 4: Effectiveness of Educational Games in Learning – Preferred Activities for Learning History.



Source 4: Survey conducted by the authors.

The results of Figure 4 obtained from the survey indicated that 33% of students considered the use of educational games in their learning to be "useful," while 28% evaluated it as

"somewhat useful" and 20% as "very useful." In contrast, 16% of the students found it "slightly useful," and only 3% indicated it was "not useful at all." Regarding the type of activities preferred for learning about history, 28% of respondents chose "documentaries and videos," followed by 25% who preferred "games or simulations." Another 20% opted for "debates and discussions," while 18% leaned toward "readings and summaries." Finally, 9% of the students did not identify with any of the previous options.

The results are consistent with Meléndez Zárata & Escobar Reyna (2020), who stated that multimedia resources, such as documentaries and educational games, are highly effective in capturing students' interest and facilitating the understanding of complex topics. Similarly, Espinoza et al. (2021), emphasized the importance of integrating interactive and technology-based teaching methods to enrich the learning process and make it more dynamic. These findings suggest that students not only value interactive educational resources but also recognize their usefulness in learning subjects such as history, reaffirming the need to adapt didactic strategies to students' preferences and needs in order to maximize their effectiveness.

## 5. Conclusion

The theoretical review of the theory of multiple intelligences demonstrates that its application in the design of didactic activities provides a solid foundation for diversifying the learning process. This theory makes it possible to address the different ways in which students learn, fostering a more inclusive educational environment and adapting to their needs. By recognizing the diversity of intelligence, teachers can design strategies that enhance individual abilities, promoting comprehensive and effective learning.

The combination of theoretical analysis and survey results reveals that students have varied preferences and learning styles, with interactive and kinesthetic activities prevailing. These preferences reinforce the relevance of implementing diverse didactic strategies that allow students to learn effectively. The incorporation of activities tailored to their learning styles not only improves their performance but also

increases their motivation and commitment to the educational process.

The evaluation of students' and teachers' perceptions indicates that activities centered on multiple intelligences are highly effective in the educational environment. Students find practical and collaborative activities motivating, while teachers observe improvements in participation and academic performance. These results suggest that the implementation of didactic strategies focused on multiple intelligence contributes to more meaningful and effective learning, benefiting both students and teaching practice.

The implementation of didactic activities based on the theory of multiple intelligence in basic education proves to be an effective strategy to address the diversity of learning styles. The results indicate that students respond positively to pedagogical approaches that integrate practical, interactive, and collaborative activities. The perception of both teachers and students confirms that strategies that value different intelligences not only enrich the teaching-learning process but also foster an inclusive and stimulating environment. These conclusions highlight the need to adopt flexible and adaptive educational approaches capable of addressing the particularities of each student, thereby promoting integral and balanced development.

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