



Methodological Strategies for the Development of Multiple Intelligences in Tenth Year Students



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Abstract

The application of effective methodological strategies based on the theory of multiple intelligences is the fundamental objective of research to determine and verify the potential of students at different levels of learning, according to academic tasks and activities, both theoretically and practically. The type of research is argumentative, with scientific strategies developed by various authors. It was necessary to apply analytical, synthetic, comparative methods and a bibliographic review in information sources, through documents, scientific articles, journals, among other research instruments, to identify different teaching-learning models of a pedagogical and educational nature. high impact, in addition to methodological strategies that allowed to argue the theoretical basis of the authors, the systematic they proposed, for which each of their arguments and explanations were analyzed. The different types of skills were compared through the comparative method to contrast each of the methodologies and strategies exposed by the researchers, highlighting what is based on each of them and how they differ from one to the other, as well as the advantages and disadvantages possessed by each of the models taken, generating a cluster of ideas that continued to choose the best methodological strategy to apply in the classroom.

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1 Introduction

One of the topic's most discussed today is education, which is training aimed at developing the intellectual, moral and affective capacity of people following the culture and the norms of coexistence of the society to which they belong, being also a fundamental pillar in the transmission of knowledge to an individual so that it acquires a certain training or skill, however, education goes hand in hand with intelligence. Cabas (2017), points out that intelligence is the faculty of the mind that agrees to learn, reason, make decisions and form an idea of something.

Given this, there are different types of learning methodologies and models that try to improve the educational system and the way of teaching the teacher to the student at a more practical and appropriate level, all based on Howard's theory of multiple intelligences (Seufert, 2003; Hänze & Berger, 2007). Gardner. It was possible to identify the different types of intelligence that human beings possess and their way of using them, in addition, they highlighted the use of them differently in each child and that one was always better than another (Mercadé, 2019). To all this, Gardner established his theory of multiple intelligences through 8 types, which are: linguistic intelligence, musical intelligence, logical-mathematical intelligence, spatial intelligence, corporal-kinesthetic intelligence, intrapersonal intelligence, interpersonal intelligence, and naturalistic intelligence pictorial (Mercadé, 2019). Each of these types of intelligence is established differently in each individual and one also stands out more than the other, implying that all human beings possess the eight bits of intelligence that Gardner points out only that one has greater potential or is better developed. So, it is important to know these different types of intelligence, both the education manager as well as those who are directed to try to establish the best strategies that can contribute to the academic development of the student (Sulaiman et al., 2010).

For this reason, strategies must be applied that allows the teacher to provide techniques and tools where he can identify which of all the types of intelligence is the one with the greatest potential in the student? And if it is possible also, how to improve the other types of intelligence according to the level of development in the individual? In agreement with Gutiérrez (2018) who establishes that learning styles or models provide the facility to study, analyze and recognize the types of intelligence of the different students in a classroom, allowing to measure the range of each student's intelligence and also, how to apply them (Calderhead, 1989; Evans, 2008).

The application of methodological strategies through the theory of multiple intelligences in the classroom, in this regard Baños (2016), indicates the following: School is one of the most appropriate contexts to stimulate creative thinking from the first years of life, where the plasticity of cognitive structures and their ability to adapt to changes are extremely flexible, where this development will be much more effective if the methodologies and strategies that promote the development of students' creative attitudes are identified, and in turn, they foresee some resources, times and spaces in which to develop them; This means that the school is the center that allows creativity to be stimulated from the first years of life and goes hand in hand with the plasticity of cognitive structures, the child's adaptation changes and the resources available to the institution. The student will always be the main actor in the teaching-learning process and his instruction must be reinforced by the teacher who, with active methods, participates and involves the student in the acquisition of real knowledge that allows him to be for his whole life say it is durable and that he makes use of them and transfers them when he sees fit to do so (Murgui, 2017).

Multiple intelligences are a template that allows activities to be designed around a literary text under an established sequence and a route to follow (Díaz, 2015), this establishes that the student must have mastery and concentration of a topic and establish the contribution that occurs and in which area it is related to know its reality since the teacher can make it fail because it has not recognized the intelligence it possesses and can cause it to fail in the attempt (Suárez et al., 2010).

While Mainieri (2015), affirms that to classify a good student: the results are similar in both types of educational centers. Reference is made to the dynamic aspect in boys or girls in the teaching-learning process, but motivational and stimulating factors are also indicated. In the CEP, exclusively, the support of the home is also referred to. No teacher focuses on the consideration of qualifications, rather reference is made, repeatedly, to the fact that the effort is made to get ahead, advance, reach the goal, and responsibility or other skills and characteristics are valued more, most of the psychosocial and attitudinal, rather than attitudinal (Al-Kalbani & Al-Wahaibi, 2015).

2 Materials and Methods

For this research, different methodologies were used, which were approached for the development of this work. The methodologies used were the analytical-synthetic method and the comparative method. For the application of the

analytical-synthetic method, it served in the dismemberment of the central theme, decomposing its parts or elements to observe the causes, nature, and effects and then relate each reaction through the elaboration of a general synthesis of the application of strategies in the different types of intelligence

With the comparative method, it was possible to relate the learning models, in addition to comparing them and pointing out their advantages and disadvantages. It should be noted that the methods served as a fundamental basis for granting validity and scientific rigor to the results obtained in the study and analysis process of this work. With these methods, it was analyzed based on the authors' arguments and synthesized the information with objective opinions of education, incorporating methodological strategies and multiple intelligences (Berg et al., 2018; Talluri & Narasimhan, 2004). In addition, in the comparison of models and methodological study strategies, it was identified which strategy is the most appropriate to execute it, generating a greater impact on education and different long-term benefits for students and teachers.

3 Results and Discussions

Multiple intelligences multiple intelligences

The Theory was devised by the American psychologist Howard Gardner as a counterweight to the paradigm of a single intelligence. He indicates that despite willingly acknowledging the existence of different capacities and faculties, many people oppose the use of the word intelligence. "It is possible to speak of talents," they argue, "but intelligence should be reserved for more general types of ability." Of course, words can be defined in whatever way we like best. However, in formulating a precise definition of intelligence, abilities that do not fall within the limits of that definition are often underestimated: thus, dancers or chess players may be talented, but not intelligent. Based on the author's opinion, it is correct to affirm that music or the ability to move in space are talents, insofar as we also call language or logic talent. But he opposes the unwarranted belief that certain human capabilities can be arbitrarily judged as intelligence while others cannot. Figure 1 shows the 8 multiple intelligences created by Gardner.

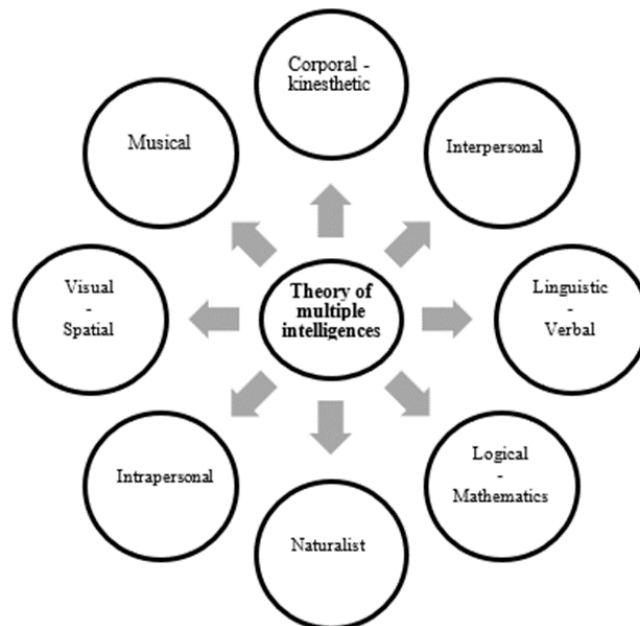


Figure 1. Multiple intelligences
Source: Authors of the research

Classroom skills

To improve the educational system, especially in the classroom, it is necessary to apply methodological strategies that allow the development of skills in each of the students. These strategies constitute a sequence of systematically planned

and organized activities, allowing the construction of knowledge and intervention in the interaction with cognitive abilities. Figure 2 raises the development of skills and the elements involved.



Figure 2. Development of skills in the classroom

The pedagogical interventions are carried out intending to enhance and improve spontaneous learning and teaching processes, as a means to contribute to better development of intelligence, affectivity, awareness, and skills to act socially (Maridueña, 2018). The methodological strategy allows identifying through different processes the best way to develop and enhance the skills of the individual. The authors, Kanhime & González (2017), state that both the strategy and the methodology are important for their integration into a single concept, the first allows planning the tactics and actions, the second evaluates the knowledge and other essential aspects for the formation of the student body (Vescio et al., 2008).

Strategy and methodology

The methodological strategies grant the capacity of different tools that help to improve the abilities of the students in their different types of intelligence. With this arises the great need to integrate a methodology that is effective based on the theory of the types of multiple intelligence established by the psychologist, researcher, and Professor Howard Gardner, published in 1983. This theory provides a different framework: students can learn to manage their difficulties. Figure 3 shows the comparison between strategy and methodology.

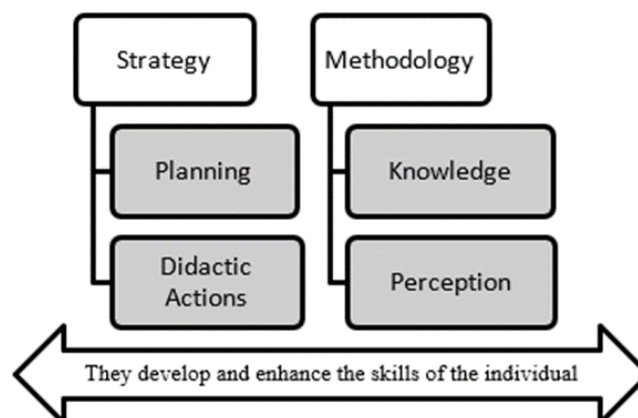


Figure 3. Comparison between strategy and methodology

In the analysis of the students' preferred styles, the resources and didactic strategies that can help them stimulate their intelligence were selected, developing the highest levels and drawing cognitive bridges, which help them improve skills with greater difficulty (Zabala, 2020). This refers to the fact that through multiple intelligences the student can improve the types of intelligence where they show more problems.

The concept of methodological strategy in conjunction with the theory of multiple intelligences seeks models that are applicable in the different classrooms that exist in the world since it goes according to the type of economic, social, political, and also religious situation (Martí, 2017). However, some different measures and activities can be developed with the physical, technological, and economic resources available. Precisely, technology plays an important role in the way of measuring the types of multiple intelligences. According to Ruiz & Sánchez (2019), they highlight that technology offers the opportunity to have virtual tools that develop a greater interaction between the student and the teacher, to know the potential that the student has in each type of intelligence, maximizing the opportunity to increase potential.

The intention is that each of the students does not feel rejected for being "less intelligent" in a subject or academic-physical activity, since all can correct errors in the types of intelligence they possess. With this, it is intended that all students obtain a level of mastery in each of the intelligence. For this to exist, it will depend a lot on the way the teacher is teaching and how technology is applied, inside or outside the classroom (Postareff et al., 2007).

Technology

Centeno et al. (2017), argue that technology offers a range of opportunities to improve intelligence, abilities, and skills that students of different ages possess, to maximize the positive aspects of knowledge and skills. intelligence, a viable education model is observed in Figure 4 that depicts the scenarios that technology offers for teachers and students.

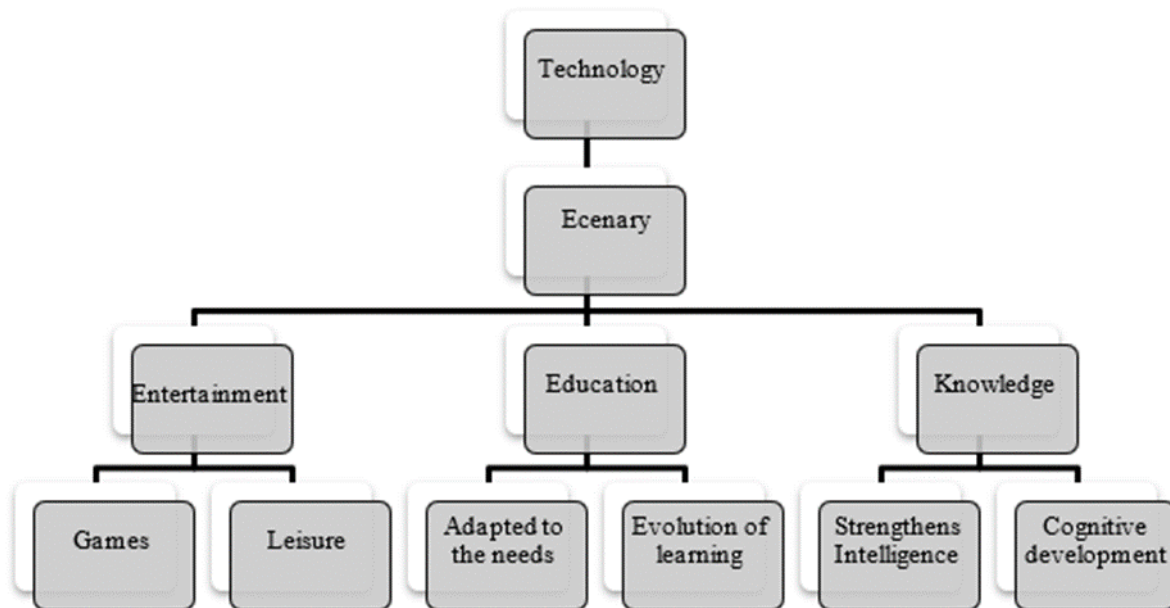


Figure 4. Technology as a primary resource

A strategy proposed by Champion (2019), is the inverse class model, this model is intended to establish cognitive processes in a particular and collective way at taxonomic levels, such as how to remember, understand, apply, analyze, evaluate, and create, highlighting that this author proposes the Flipped Learning model as a methodological strategy. The basic information of the content, which is more related to levels such as remembering or understanding, is offered to the student in a creative way to work in the individual space; and those more complex learning, from the cognitive point of view, are carried out with the teacher (Champion, 2019).

Another methodological strategy is the one proposed by author's Bravo & García (2020), such as the PowToon Platform, who point out that it can be used at the school level, for the development of multiple intelligences in high school education; In this tool, video animation is made, among other presentations that allows creating a cartoon of a person speaking showing dialog boxes that the user has written. It can be pointed out that it is visually attractive for

students, where they detach from the traditional monotony, towards a drawing where the appropriate details of a subject are explained. There are different characteristics that the PowToon has, highlighting those shown in figure 5.

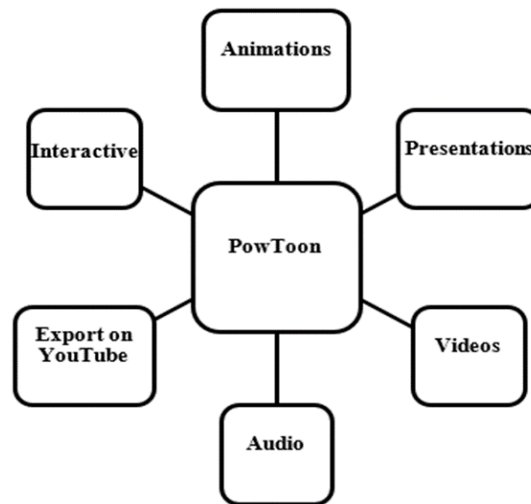


Figure 5. PowToon technological tool

As can be seen in the graph, the tool allows creating presentations and animated videos, favors the editing of videos, allows the didactics of a concept, an idea, or a situation, requires an internet connection, a presentation can be made in the shortest possible time, favors the export to YouTube, facilitates and benefits the editing of videos for free, allows text effects; frames; cartoon characters; objects; markers; backgrounds and other elements and presents the possibility of adding your voice from an MP3 file or recording it directly from PowToon. Its main advantage is that it is free and easy to use for both teachers and students of different ages. Its main disadvantage is that it needs an internet connection, making it difficult to apply it in areas with little internet such as rural areas.

The author's Caldera et al. (2018), state that, despite the difficulties in carrying out methodological strategies using the web, as is the case with PowToon, the teacher as trained and professional staff can stimulate and find a way to execute and develop these new strategies to get to promote multiple intelligences in their students. The professor in charge of teaching the class must not only impart his knowledge, academic or work experiences to his subjects, but also be strategic, that is, he knows how to adapt and know how to reach the students, taking advantage of the opportunities that are presented to them.

The performance of the teaching manager is crucial, especially in the classroom. Teaching becomes a creative process when the individual sees the need to improve their teaching techniques and strategies, creativity must be among the teaching objectives in any curricular area (Handayani et al., 2019). The educator is the leader, mediator, and facilitator that favors development and creativity in educational centers (Asencio Asencio, 2018).

Types of strategies

Education is important from the family, where parents play a fundamental role, being the first educators and trainers of the student, a stage of transition from childhood to adulthood. Each of these aspects must always be considered, so its rigor will depend on the actions of the three main actors in education: parents, teachers, and the student.

Another of the methodological strategies present in the stimulation of Gardner's multiple intelligences is the Playful Method. This method is implemented mostly in children, since the presence of interactive games arises where the child feels more relaxed and can express themselves more openly and freely in their actions, getting to identify the potential of multiple intelligences in a very considerable (Velasco, 2017). This means that children have the great opportunity to be more confident in responding and interacting with others, generating an affective social bond and a new modality in education, since this model is presented as entertaining teaching since children learn and develop their different types of intelligence more when they learn by playing, whether physically or technologically or in some cases in a mixed way (Oka, 2021). Figure 6 shows the types of strategies that are used as a tool in the classroom.

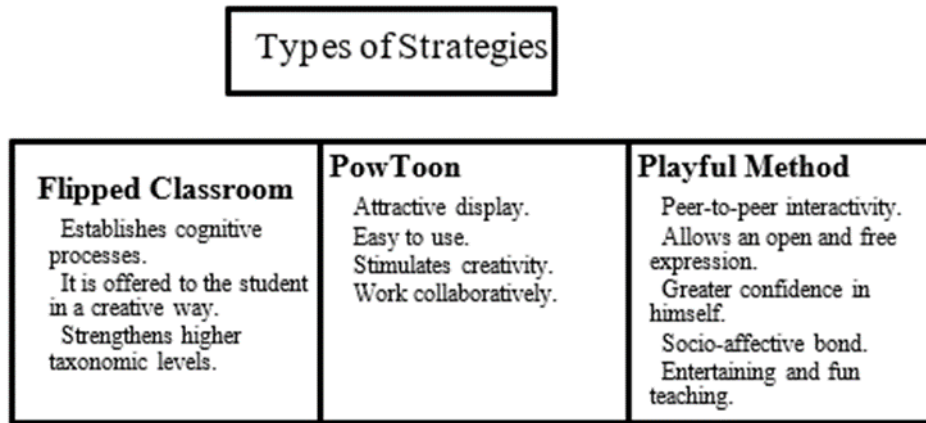


Figure 6. Types of strategies applicable in the classroom

One of the main advantages of this strategy is its use in young children from 3 years to 10 years and in other cases up to 12 years. However, its detriment would be because it can only be applied to young children and not to adolescents or young people, since the way of showing themselves between one group and another is different, and if it could, the possibilities are remote. This will depend a lot on the change in the way of providing education to children, adolescents, or adults. The methods and strategies must be oriented in general education, that is, that encompasses all stages of cognitive development, trying to improve various specific aspects that they need in the educational process. The methodological strategies must provide different resources that can be applied within the classroom (Espinosa, 2020).

Project-Based Learning

Lázaro (2017), proposes an integration between a project model and the theory of multiple intelligences to focus on the emotions of the students. With this, the central objective of this strategy is to get from the emotions and feelings of the students to the development of their intelligence. Figure 7. shows the advantages of applying project-based learning with high school students.

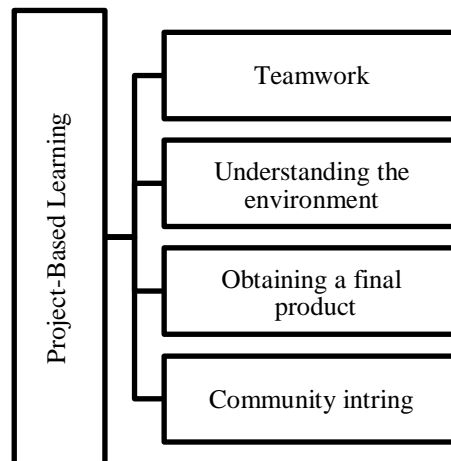


Figure 7. Project-based learning

With this, it can be pointed out that this model differs from the others because it starts from the subjective (feelings and emotions) towards the objective (logical and concrete) to establish a better network of information and knowledge that are viable and fundamental for the academic and professional training of the student body. However, one of the great disadvantages is that it has losses in the process of reaching the extrinsic personally, since the first is taken more importantly than the second.

Many methodological strategies are not established and are relevant in integrating the theory of multiple intelligences with a method known as the Gardner test. According to Cruz & Guzmán (2018), they assert that the test allows

identifying, through a template of two options (true and false), which intelligence has developed in the individual, to select the appropriate academic resources within the classroom.

The authors refer to the fact that this test is a strategic method, that according to the results, different didactic strategies are created, the strengths and weaknesses of each student are recognized and in which types of intelligence they stand out the most and how they do it. This type of reaction motivates teachers to guide their teaching with a greater understanding of their environment. Students and teachers are motivated who come to create different tactics so that in the classes the abilities of each of the students are highlighted without any limitation.

After reviewing the bibliography of the methodological strategies, they can be compared with each other, despite having certain similar characteristics. For example, the inverse class method shares the criteria of the Gardner test method by separating the individual from the collective, trying to verify which type of intelligence stands out more than the other to get to form different strategies that include tasks and character activities academic and problem-solving in real life, however, the reverse class does not aim to solve real problems as if the Gardner test has since it only seeks to improve the education and teaching that teachers provide to students. Something similar happens with PowToon and Flipped Classroom, two digital platforms that have different motivations, differing in content and learning modality.

The playful method seeks to interact with children through didactic games, while the methodologies established by PowToon and Flipped Classroom are for a more secondary and third level of study, but they are assimilated in that these methods have as strategies to establish games of knowledge and learning. This will help to decide which methodological strategies studied and analyzed in this research have fundamental advantages and disadvantages to recognize, for which considerable value should be given to the elaboration of each one since they all present interesting contributions in the practical-pedagogical elements. To choose a single methodological strategy, it is important to extract the most relevant from each one, to improve in a real way, how it is taught and learned in classrooms.

Research strategies

This research details the application of a viable methodological strategy through the incorporation of the theory of multiple intelligences, to develop it in the classroom. The strategies defined to improve the teaching-learning technique in the classroom in a theoretical and practical way are: 1) to assess the intelligence of all students, 2) to diversify the contents and didactic strategies, 3) to innovate in traditional methodologies, 4) bet on active and real learning, 5) use information and communication technologies (ICT) and 6) evaluate the performance of students from multiple intelligences. With these 6 key strategies, it will be possible to optimize the quality of education in the way of teaching. Each of these strategies is detailed more specifically in the following paragraph. Figure 8 defines the strategies selected in the research.

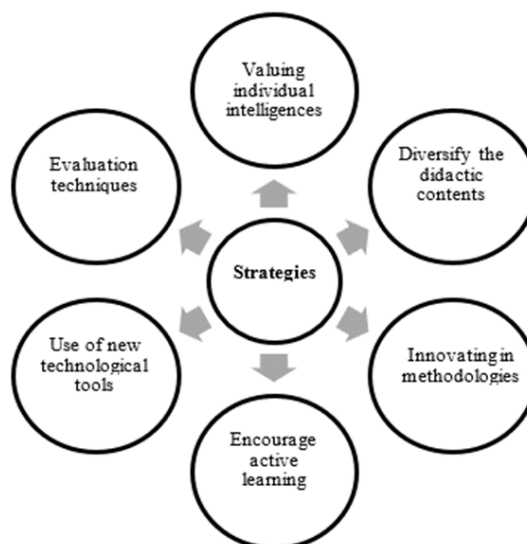


Figure 8. Strategies identified in the research

The first strategy (assessment of intelligences) allows to know what intelligence predominates in each student and the teacher must support their supervisors in those that are more developed. The second (diversification of contents and teaching strategies) suggests that the teacher have and work with materials of all the intelligence treated and opt for a transversal treatment. The third (innovation of methodologies) provides an integration in collaborative work based on projects and educational games. The fourth strategy (active-real learning bet) looks for activities where all the intelligence associated with real situations works. The fifth (using ICT) allows the use of multiple languages, tools, and supports in the classes. Finally, the sixth strategy (MI Evaluation) proposes multiple options for the student to demonstrate what they have learned in class.

4 Conclusion

The methodological strategies that are developed daily in the classroom allow us to check what type of intelligence each student possesses to strengthen, develop, and improve in the desired area, and the teacher must assess each one to bet on active learning and real and strengthen the use of information and communication technologies (ICT), evaluate the performance of students from the multiple intelligences taken into consideration. The characteristics of each of the multiple intelligences are specifically detailed and compared with all the models to select the most appropriate strategy to establish activities and tasks in the classroom, resulting in that instead of choosing one they are all integrated into a single strategic-methodological model since they present relevant contributions to be considered within the same teaching-learning methodology.

Conflict of interest statement

The authors declared that they have no competing interests.

Statement of authorship

The authors have a responsibility for the conception and design of the study. The authors have approved the final article.

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