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## **USO DO DOMINÓ COMO RECURSO DE APRENDIZAGEM DAS OPERAÇÕES MATEMÁTICAS: EXPERIÊNCIA COM ALUNOS DO 6º ANO EM UMA ESCOLA PÚBLICA**

## **USO DEL DOMINÓ COMO RECURSO DE APRENDIZAJE PARA OPERACIONES MATEMÁTICAS: EXPERIENCIA CON ESTUDIANTES DE 6TO GRADO EN UNA ESCUELA PÚBLICA**

## **USE OF DOMINO AS A LEARNING RESOURCE FOR MATHEMATICAL OPERATIONS: EXPERIENCE WITH 6TH GRADE STUDENTS IN A PUBLIC SCHOOL**

Presentation: Poster

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### **INTRODUCTION**

Over time, the learning of Mathematics has been widely investigated, as it is considered by the majority of primary and secondary school students as a complex subject to understand, causing learning difficulties and students' lack of interest. Mathematical knowledge is essential for logical reasoning, problem solving and interpretation of issues related to everyday problems that can be achieved with different methods or resources seeking to build knowledge.

Currently, the use of playful activities is used as a didactic methodological resource in education. Playful activities motivate and arouse student interest, contributing to more attractive and meaningful learning, allowing the retention of content aborted in the classroom. The use of playful activities developed by the teacher in the Mathematics teaching and learning process arouses student interest and promotes learning of the content studied. The game offers possibilities for playful action in a pedagogical practice based on an active teaching methodology (Souza and Salvador, 2019), developing in students the skills of questioning, researching information, making decisions and creating hypotheses (Wartha; Kiouranis; Vieira, 2018). The use of playful strategies in the classroom can be an efficient resource used by the

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teacher to awaken, attract and motivate the learning of Mathematics.

Given the context, the research aimed to use the Domino game of operations with natural numbers in order to assist the teaching-learning process in the classroom in the development of mental calculation and use of the concepts of addition, subtraction, multiplication and division into problems. resolution with 6th year elementary school students.

## **THEORETICAL FOUNDATION**

Learning Mathematics requires a lot of attention, motivation and dedication from students and teachers to obtain the desired understanding (Rodrigues, 2018). It must provide learning with understanding of the student's daily life (Masola; Allevato, 2019), but most students have difficulties in associating mathematical content with the studies of other subjects and without the ability to perform basic operations, they enter high school with this difficulty. (Holanda; Freitas; Rodrigues, 2020). With the student's course in elementary, secondary and higher education, it is possible to measure how much the mathematical skills of addition, subtraction, multiplication and division generate difficulties in learning more complex calculations (Cardoso, 2021), According to Miguel (2005), Aversion from the student to the study of Mathematics in Elementary School, is the complexity with which the contents are covered in the classroom. Therefore, it is necessary for the teacher to bring methodologies or resources to the classroom that facilitate the teaching-learning process. (Miguel, 2005).

According to Carneiro, (2018), alternative methodologies for teachers to speed up classes and combat learning problems in the subject, themes that cross everyday content and the student's reality, must be discussed and worked on concomitantly with curricular content. The game can be an alternative methodology of playful action in the process of teaching and learning Mathematics that sharpens curiosity and awakens the student's interest (Souza and Salvador, 2019). The use of games in the classroom is considered an important pedagogical resource in learning Mathematics, as it stimulates students' interest, making learning more attractive and meaningful. Classes with playful activities make the teaching-learning process more dynamic, enabling student motivation and pleasure (Melo; Lima, 2021). Through games, it is possible to capture content in a dynamic way, reducing the difficulties faced by students who have limitations in learning Mathematics and facilitating socialization between the



students themselves as they interact during the games. (Santos et al, 2021).

## METHODOLOGY

The research was carried out in an exploratory, descriptive way with a quantitative approach (GIL, 2008), with the objective of evaluating Dominó operations with natural numbers (UNESP, 2013), developed to assist the learning of mental calculation using the four fundamental operations with natural numbers. The game was held in June 2023, during normal class hours in the morning, with a total duration of 2 classes of 50 minutes each, with the participation of 40 students from the 6th year of Elementary School, in a public school located in the City from Pium, State of Tocantins. 10 (ten) groups were formed (4 students per group) for presentation (figure 1) and explanation of the rules of the game.

**Figure 1.** Domino operations with natural numbers



**Source:** authors, (2023)

After defining the strategy to start the game (which piece should start the game), the game started with a group of 4 (four) students receiving 7 (seven) pieces each. The next participant to play was the one to the right of the game initiator. The winner will be the member of the group who first manages to fit all their pieces into the domino displayed on the table. If there were no game options for any of the participants (end of the game), the winner will be the one who has the lowest number of pieces in hand, if the tie persists, the winner will be the one who has the piece with the lowest value in hand.

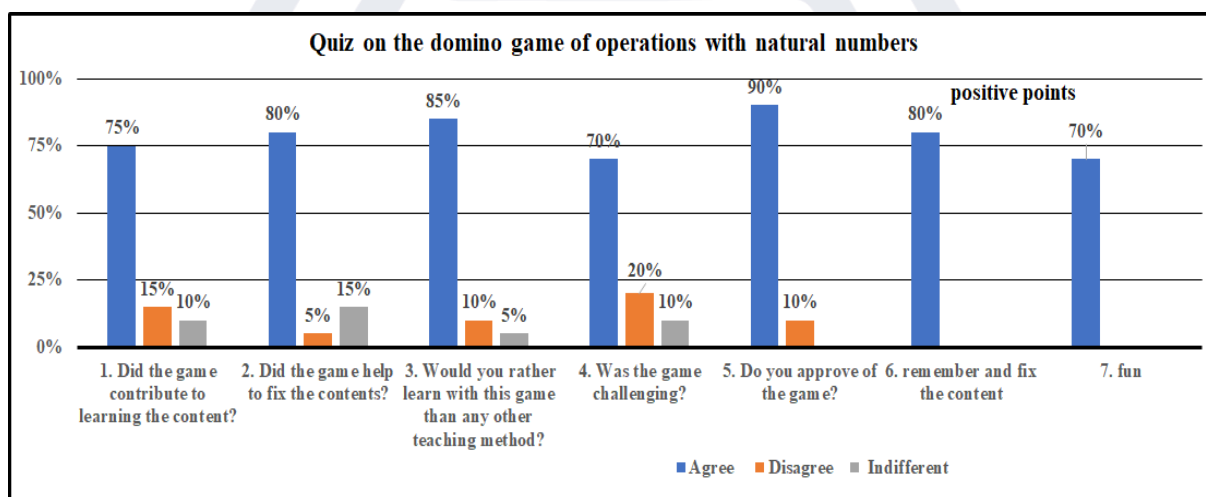


After using the game, students were invited to answer a questionnaire with the following closed questions: 1. Did the game contribute to learning the content? 2. Did the game help you retain the content? 3. Would you rather learn from this game than any other teaching method? 4. Do you approve of the game? 5. Was the game challenging? 6. What positive points do you highlight when playing Domino of operations with natural numbers?

## RESULTS AND DISCUSSION

Graph 01 reports the responses to the evaluation questionnaire applied to 6th year students on the use of the Domino game for operations with natural numbers.

**Graph 1.** Response to the questionnaire



Source: Authors, (2023)

According to the graph, 75% of students agreed that the game contributed to learning the content, 15% disagreed and 10% were indifferent to the game's contribution to learning. 80% stated that the game helped to fix the content, 5% disagreed, and 15% were indifferent to the game's help in fixing the content. Regarding the preference for learning operations with natural numbers with domino instead of another teaching method, 85% agreed with the statement, 10% disagreed and 15% were indifferent to the statement. 70% of students considered the game challenging, 20% disagreed and 10% were indifferent. 90% of those interviewed approved the game and 10% did not approve the game. The reason for failure is due to the fact that 4 (four) students did not understand the rules of the game. The students



interviewed highlighted fun (70%), memory and retention of the content studied (80%) as positive points.

Teamwork, concentration and interaction between students and teacher were also reported as positive aspects of the game. There was participation, relaxation and involvement of students during the game. The game contributed to more meaningful learning, causing interaction and sharing of information among students, motivating them and thus ensuring success in assimilating the content studied in the classroom.

By analyzing the application of the game, it was observed that the playful approach carried out presented values equal to or greater than 70% in all questions asked, demonstrating good acceptance and contributing to significant learning about the content studied.

## CONCLUSIONS

The game provided a socialization situation, a relaxed and interactive environment for contextualized learning that was closer to the student's daily life. Therefore, the Domino of operations with natural numbers was an auxiliary strategy of great relevance for learning and maintaining the study of basic operations, supporting the teacher to contextualize the content and motivate students.

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