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DIVISORES EM LINHA: UMA ESTRATÉGIA LÚDICA PARA O ENSINO DA DIVISÃO NO ENSINO FUNDAMENTAL

DIVISORES DE LÍNEA: UNA ESTRATEGIA LÚDICA PARA ENSEÑAR LA DIVISIÓN EN LA ESCUELA PRIMARIA

LINE DIVIDERS: A PLAYFUL STRATEGY TO TEACH DIVISION IN PRIMARY SCHOOL

Presentation: Poster

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INTRODUCTION

We live in a time of many transformations in society caused by the use of technologies. Elementary school students experience these technologies outside the school environment. The use of recreational technologies (electronic games) used by elementary school students in their daily lives awakens interest and desire to learn.

Carrying out numerical calculations related to division presents assimilation difficulties and is incomprehensible to most elementary school students, as the teaching of the division operation in many teaching units is carried out using mechanical teaching methods, memorization, lack of reflection and understanding the process involved in solving the problem.

The use of manipulative materials or alternative methods can arouse interest and develop the student's ability to perform mental calculations involving division. The game can be one of these alternative methodologies, presenting the possibility of acting as a pedagogical practice organized in an active teaching methodology, developing criticality, research and decision-making in the student. The use of games in the classroom can be an effective resource used by the teacher to motivate students in learning the division operation. It can collaborate with the dynamic fixation of the content taught, reducing difficulties in learning numerical calculations related to division and promoting socialization and interaction between players.

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Thus, in view of the above, the objective of the work was to use and evaluate an online Dividers game with the aim of assisting the teaching-learning process in the classroom on the development of mental calculation and the use of the concepts of divisors with students from 6th year of elementary school.

THEORETICAL FOUNDATION

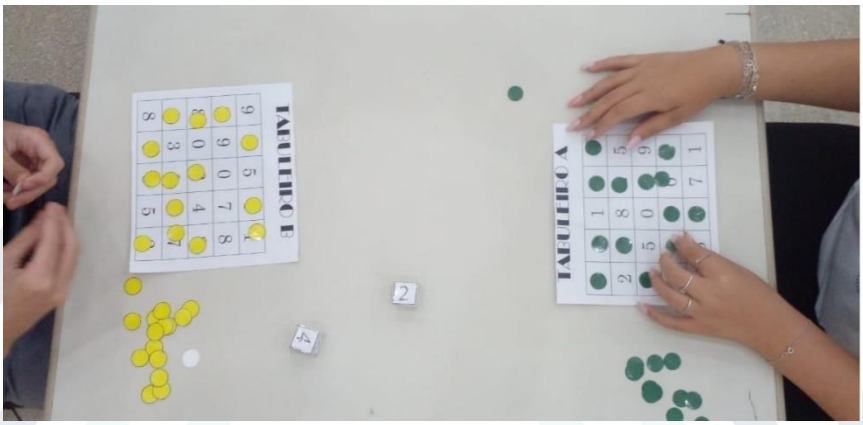
Understanding mathematics is essential to form a society and individuals who are critical and aware of their duties and social rights (Brazil, 2018). The understanding and knowledge of Mathematics provide analysis, exploration, examination and resolution of various occasional or everyday problems (Cardoso, 2021). When studying the calculation of division, elementary school students study that dividing means dividing into equal parts and this operation causes several difficulties for many students (LUIZ, 2020). In many schools, Mathematics teachers, activities involving division calculation are carried out mechanically, with memorization of formulas and operation rules without reflection on the concepts and problem-solving processes (Benvenutti, 2008). The teacher, when carrying out the division calculation, must contextualize and solve the problem in a reflective way, exploring the results with a demonstrative method to prevent the student from experiencing difficulties in carrying out the division calculations in the final years of Elementary and Secondary Education (LUIZ, 2020).

The game can be an auxiliary methodology to arouse curiosity and interest when calculating the student's division in Mathematics classes (Souza and Salvador, 2019). The use of games in the teaching environment promotes stimulation and encouragement, providing an environment for dynamic, motivational and enjoyable teaching and learning for students (Melo; Lima, 2021). They also provide the capture of content taught in the classroom in an attractive way, eliminating the difficulties faced by students who have limitations in learning, facilitating socialization between the students themselves as they interact during the games. (Santos et al., 2021). The use of games in the classroom can be an effective resource used by the teacher to motivate students in learning the content of division calculation. (Massa; Ribas, 2016).

METHODOLOGY

The study was developed quantitatively (Severino, 2016), aiming to evaluate a game (UNESP, 2013), developed to help learning concepts and calculating division. The game was applied in June 2023, with 40 students enrolled in the 6th year of Elementary School, in the morning, lasting 50 minutes, in a public school located in the city of Paraíso do Tocantins, State of Tocantins. 10 (ten) teams were formed, with 4 (four) students per team, to present and explain the rules of the game (figure 1).

Figure 1: Game presentation



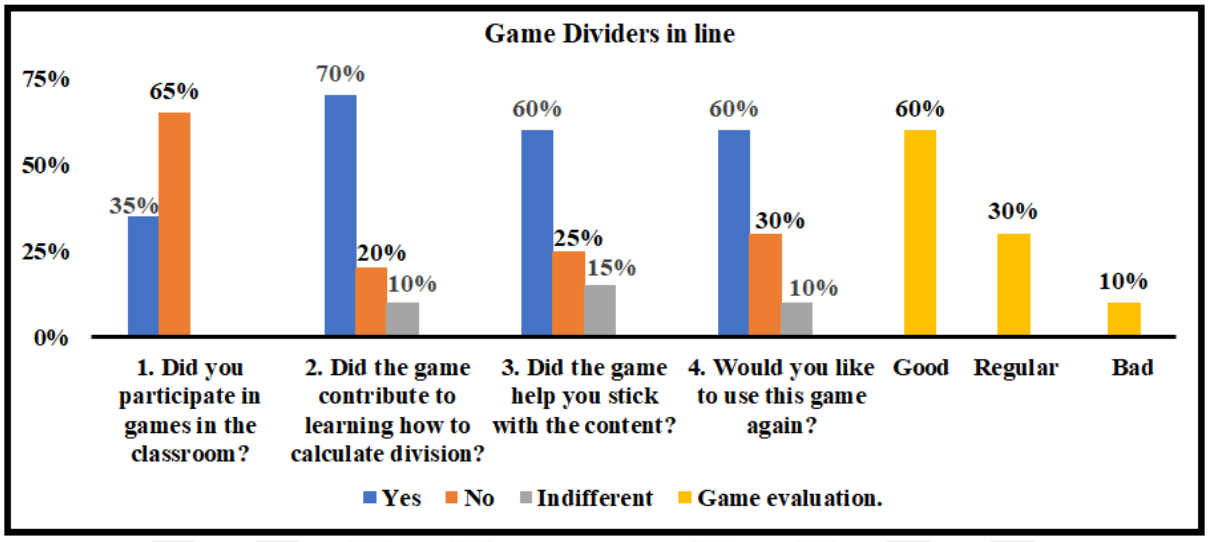
Source: Authors, (2023)

After drawing lots to see who would start the game, each player (or pair) chose one of the boards. Each player alternately rolled two dice, one at a time, the first digit being the ten and the second being the unit. Then, the player placed a marker on one of the numbers on his board, which was the divisor of the number obtained when rolling the two dice. The player will lose his turn when he places his marker in one of the spaces on the board with a number that is not a divisor of the number obtained on the dice, or there is no possibility of marking a number on the board. The player who places 4 (four) markers in a row, horizontally, vertically or diagonally, will win the game. Immediately after using the game, a questionnaire was administered with the following closed questions: 1. Did you participate in games in the classroom? 2. Did the game contribute to learning the content? 3. Did the game help you retain the content? 4. Would you like to use this game again? 5. Game evaluation.

RESULTS AND DISCUSSION

Graph 01 reports the responses to the evaluation questionnaire applied to 6th year students regarding the use of the online Dividers game.

Graph 1: Questionnaire about the game Divisors in line.



Source: Authors (2023)

The online Dividers game applied to students in the 6th year of elementary school reached a minimum percentage of 60% in all evaluation criteria. According to graph 1, the interviewees stated that they never participated in games in the classroom (65%), the game contributed to learning the content (70%), The game helped to fix the division calculation (60%), they would like to use this game again (60%) and the game was rated as good (60%).

Caldas, Graça and Marques (2020), using the game "Trilha do MDC e MMC" as an intervention alternative for learning mathematical content in a playful way, observed greater interaction between students and the content, ease of interacting with the content worked on in classroom and collaboration between opponents, showing that, in the pedagogical environment, the main focus needs to be on student learning. Macedo (2000), highlights that the game is an incentive, builds skills, instigates rationality, demystifying mathematical content, enabling the student to learn rules used in the entire process of acquiring the subject and transforming the perception that students have, about mathematics. According to D'Ambrosio (2013), education challenges the teacher to enable the student to interpret capabilities and their own cognitive action, with linear, unstable and discontinuous educational practices. For OLIVEIRA (2007),

learning is not exclusive to the acquisition of content, but also the assimilation of processes that lead to the desired ends, and the best situations for learning are those that teach how to think creatively in a playful atmosphere. The author also highlights that games rescue mental processes in a healthy way, allowing creation to try new paths.

CONCLUSIONS

The evaluation of the game Divisores in line by students in the 6th year of Elementary School at a state public school located in the municipality of Paraíso do Tocantins presented values equal to or greater than 60% approval, demonstrating a satisfactory result and the satisfaction of the game participants. The application of the playful activity helped and contributes to stimulating logical reasoning, concentration and assisting in mathematical calculations of divisors, providing a pleasant and fun learning environment.

REFERENCES

BENVENUTTI, L. C. **A operação divisão: um estudo com alunos de 5ª série**. Dissertação Mestrado em Educação Universidade do Vale do Itajaí. 2008. Disponível em: https://siaiap39. univali.br/repositorio/handle/repositorio/1807 Acesso em: 1 set. 2023

BRASIL. Ministério da Educação. **Base Nacional Comum Curricular (BNCC).** Brasília, 2018. Disponívelem: http://basenacionalcomum.mec.gov.br/images/BNCC_EI_EF_110518_versaofinal _si te.pdf. Acesso em: 21 ago. 2023.

CALDAS, F. da S; GRACA, V. V. da; MARQUES, V. R. Múltiplos e Divisores: uma experiência com o uso do jogo de trilhas. **Rev. Exitus**, Santarém, v. 10, e020109, 2020. Disponível em: https://doi.org/10.24065/2237-9460.2020v10n1id1483. Acesso em 19 set. 2023.

CARDOSO, V. C. A utilização do dominó como recurso para o ensino das quatro operações para uma turma do sexto ano do Ensino Fundamental. **Revista Educação Pública**, v. 21, nº 33, 31 de agosto de 2021. Disponível em: https://educacaopublica.cecierj.edu.br/artigos/21/33/a-utilizacao-do-domino-como-recurso-para-o-ensino-das-quatro-operacoes-para-uma-turma-do-sexto-ano-do-ensino-fundamental. Acesso em 12 set. 2023.

D'AMBROSIO, U. **Etnomatemática: elo entre as tradições e a modernidade**. Belo Horizonte: Autêntica, 2013.

LUIZ, J. C. dos S. **Um estudo sobre os principais erros de alunos do 6° ano na operação de divisão. Monografia Licenciatura em Matemática**. Universidade Federal da Paraíba. Rio Tinto PB. 2020. Disponível em: https://repositorio.ufpb.br/jspui/bitstream/123456789/19239/1

/JCSL16122020 .pdf. Acesso em 28 ago. 2023

MASSA, L. S.; RIBAS, D. **Uso de jogos no ensino de Matemática**. In: OS DESAFIOS DA ESCOLA PÚBLICA NA PERSPECTIVA DO PROFESSOR PDE. Secretaria de Estado da Educação Paraná. Cadernos do programa de Desenvolvimento Educacional. Curitiba, v.1, 2016. ISBN 978-85-8015-039-1., v. I, 2016. Disponível em: http://www.diaadiaeducacao.pr.gov.br/portals/cadernospde/pdebusca/producoes_pde/2016/2016_artigo_mat_unicentro_deucleiaribas.pdf. Acesso em: 14 set. 2023.

MACEDO, L.; PETTY, A. L. S.; PASSOS, N. C. **Aprender com jogos e situações problema**. Porto Alegre: Artmed, 2000.

MELO, C. H. da C.; LIMA, C. N. de. A importância dos jogos no ensino de Matemática no Ensino Fundamental II. **Revista Educação Pública,** Rio de Janeiro, v. 22, nº 39, 18 de outubro de 2022. Disponível em: https://educacaopublica.cecierj.edu.br/artigos/22/39/a-importancia-dos-jogos-no-ensino-de-matematica-no-ensino-fundamental-ii. Acesso em: 5 ago. 2023

OLIVEIRA, D. de P. R. de. **Planejamento estratégico**. São Paulo: Atlas, 2007.

SANTOS, R. A. B. dos; ANDRADE, C. S. de; JUCÁ, J. M. B.; BARRETO, C. da C. A utilização de jogos como ferramenta auxiliar no ensino da Matemática. **Revista Educação Pública**, v. 21, nº 42, 23 de novembro de 2021. Disponível em: https://educacaopublica.cecierj.edu.br/artigos/21/42/a-utilizacao-de-jogos-como-ferramenta-auxiliar-no ensino-da-matematica. Acesso em: 5 ago. 2023

SOUZA, J. M. P.; SALVADOR, M. A. S. ***O lúdico e as metodologias ativas:*** **possibilidades e limites nas ações pedagógicas**. In. CONGRESSO NACIONAL DE EDUCAÇÃO, 6., Fortaleza, 2019. Anais eletrônicos [...]. Fortaleza, 2019. Disponível emhttps://www.editorarealize.com.br/editora/anais/conedu/2019/TRABALHO _E V127_MD1_SA8_ID6487130820191 82354.pdf. Acesso em 15 set. 2023.