

## EDUCATIONAL GAMES: DIDACTIC RESOURCES UTILIZED AT TEACHING HEALTH EDUCATION CLASSES

JOGOS EDUCATIVOS: RECURSOS DIDÁTICOS UTILIZADOS NA MONITORIA DE EDUCAÇÃO EM SAÚDE

JUEGOS EDUCATIVOS: RECURSOS DIDÁCTICOS UTILIZADOS EN EL MONITOREO ACADÉMICO DE EDUCACIÓN EN SALUD

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### ABSTRACT

Experience report with the aim to describe the utilization of games in the undergraduate teaching assistant classes of the discipline of Health education. The games used were: dominoes, group trivia game, tic-tac-toe, darts, and memory game, all of them adapted to the content taught in the discipline. All of them were developed according to the topics covered in the classroom, as such: dominoes – health promotion concepts, disease prevention and health education; group trivia game – health education historical background; bingo – documents of health promotion; memory game – characteristics of students; tic-tac-toe – teaching and learning techniques and strategies; dart game – the educational approach of Paulo Freire. It was concluded that games could be used in undergraduate teaching assistant tutoring activities, adapting them to the contents of the discipline.

**Keywords:** Health Education; Nursing Students; Games and Toys; Educational Materials.

### RESUMO

*Relato de experiência com objetivo de descrever a utilização de jogos na monitoria da disciplina Educação em Saúde. Tiveram-se como jogos: dominó, passa ou repassa, bingo, jogo da velha, jogo de dardos e jogo da memória, os quais foram adaptados aos conteúdos ministrados na disciplina. Todos foram desenvolvidos conforme os temas abordados em sala de aula, estabelecendo-se: dominó – conceitos de promoção da saúde, prevenção de doenças e educação em saúde; passa ou repassa – antecedentes históricos da Educação em Saúde; bingo – cartas de promoção da saúde; jogo da memória – características do aprendiz; jogo da velha – técnicas e estratégias de ensino e aprendizagem; jogo de dardos – abordagens de Paulo Freire. Concluiu-se que os jogos podem ser utilizados nas atividades de monitoria, adaptando-os aos conteúdos da disciplina.*

**Palavras-chave:** Educação em Saúde; Estudantes de Enfermagem; Jogos e Brinquedos; Materiais de Ensino.

### RESUMEN

*Informe de experiencia con el objetivo de describir el uso de los juegos en el monitoreo de la asignatura Educación en salud. Se utilizaron los siguientes juegos: el dominó, el juego de preguntas y respuestas, el bingo, el ta-te-ti, los dardos y el juego de la memoria, todos adaptados a los contenidos impartidos en la asignatura. Estos juegos fueron desarrollados conforme los temas tratados en el aula, estableciéndose que el dominó tenía que ver con conceptos de promoción de la salud, la prevención de enfermedades y educación en salud; el juego de preguntas y respuestas con los antecedentes históricos de la educación sanitaria; el bingo con cartas de promoción de la salud; el juego de la memoria con las características del aprendiz; el ta-te-ti con técnicas y estrategias de enseñanza y aprendizaje y los dardos con los enfoques de Paulo Freire. Se concluye que los juegos pueden ser utilizados en las actividades de monitoreo académico, adaptándolos a los contenidos de la asignatura.*

**Palabras clave:** Educación en Salud; Estudiantes de Enfermería; Juego e Implementos de Juego; Materiales de Enseñanza.

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## INTRODUCTION

Among the many possible activities of nursing professionals in modern society, educational practices have been one of the main strategies of health promotion. Health education actions have been standing out as articulated strategies between concepts about the reality of the health context and the search for possible attitudes that generate changes based on teamwork and on the services that seek to improve the health of the population. Therefore, health education is an essential tool for the offering of integral assistance, and the educational function is indissociable from the practice of nursing.

The predominant model of teaching, generally called "traditional", is characterized by the transmission of knowledge and the emphasis on memorization. Paulo Freire called this method "banking education", since its classes are based on exposition, the teacher is the bearer of knowledge, and the task of the students is to repeat with exactitude the content they memorized.<sup>1</sup> The act of teaching, however, is not the mere transmission of knowledge. It is, first and foremost, based on the willingness to direct the student towards the construction of knowledge. For the intention turn from objective to actuality, didactic procedures are used, to generate change in the pupil, making them better, more skillful, competent and capable.<sup>2</sup>

Strategies of teaching and learning are used to provoke methodological changes in the educational process of the students, focusing on the appreciation of active learning-teaching methodologies. To do so, instructional methods are used (exposition classes, group discussions, individual teaching, demonstration and execution, games, simulations, dramatizations, modeling and self-study), which are basically different ways to teach information. These are the ways in which the learner gets in touch with what should be learned, aiding in the exchange of knowledge between the undergraduate teaching assistant and the students.

In this study, games stand out as an effective teaching method and technology, to improve cognitive functioning and psychomotor abilities, as it influences the affective behavior through an increase social interaction.<sup>3</sup> In addition, games allow for the memorization of data through the enthusiasm and greater involvement of the learner, and can be used in many moments of the teaching-learning process, both by the professor and the undergraduate teaching assistant.

Among the active teaching-learning methodologies, undergraduate teaching assistant tutoring classes are pedagogical support services offered to students who are interested in learning more about subjects, as well as in finding solutions for any difficulties they had in learning the theoretical content discussed in the classroom. In addition, undergraduate teaching assistant classes offer subsidies for the student to develop a more precise and safe Nursing practice.<sup>4</sup>

Therefore, mediated learning is recognized as a form of interaction that develop the basic attitudes and competences needed for an effective learning, giving space for a dynamic of deconstruction and re-construction of knowledge and information.<sup>5</sup>

Another aspect of the use of games that should be highlighted is their use by undergraduate teaching assistants to make the interpretation and signification that the students acquired in the classroom easier, since the undergraduate teaching assistant class activities ought to be dynamic and innovative, to help the students to get involved, participate and feel motivated to learn. Considering this, the objective of this work is to describe educational games used in the undergraduate teaching assistant classes of the discipline Health Education, to make the teaching-learning process easier.

## DESCRIPTION OF THE EXPERIENCE

This is an experience report of the undergraduate teaching assistant class activities of the discipline of Health Education, from the Nursing course of the Federal University of Ceará, which included the use of games as a teaching resource.

The games were used to teach students whose participation was conditioned to the following inclusion criteria: they were enrolled in the subject, attended the undergraduate teaching assistant classes and accepted participating in the games. The undergraduate teaching assistant classes that used the games took place over three semesters. In each semester, about 40 students were enrolled in the subject. The undergraduate teaching assistant classes, however, had nearly 20 students who fit the inclusion criteria.

The meetings happened in a specific day of the week, accorded in the beginning of the academic semester between the students and the undergraduate teaching assistant, according to their availability, always from 1:00 p.m. and 2:00 p.m. There were six meetings each semester, with six educational games.

Traditional educational games were used as audiovisual didactic resources, which were adapted according to the educational objectives in mind, according to the subjects that were taught in the Health Education discipline. The games used were: dominoes, group trivia game, bingo, tic-tac-toe, darts and memory game.

The content discussed in the games was chosen according to previous reading and study by the undergraduate teaching assistants of the discipline, with the evaluation and opinion of the teachers of the subject Health Education regarding the content of the games, so that these activities could be implemented with the students during the undergraduate teaching assistant classes.

A field journal was used by the undergraduate teaching assistants as a resource to aid in the data collection reports for the teaching-learning process. The description of the games was registered according to their use, including: resources used,

objective, game rules, Health Education content discussed in the activities and verbal evaluation of the participants. The analysis of the game was conducted as the activities were, after each class in which this educational strategy was applied.

## EXPERIENCE REPORT AND DISCUSSION

To improve the teaching and learning experience, games were applied as teaching methods, so that knowledge could be built by and within a group.

It stands out that having studied previously the theme was necessary, to make the discussion richer and aid in the elaboration of the game itself.

The games were elaborated, discussed and demonstrated to the coordinator of the discipline and the undergraduate teaching assistants, and were adapted until a final version was reached, to be applied in the classes with the students.

The resolution of problems and development of critical thinking are the educational objectives to be achieved with the use of the games. Considering this, the games used in the activities of Health Education undergraduate teaching assistant classes are described below.

### DOMINOES

The dominoes game was elaborated regarding the theme *health promotion concepts, disease prevention and health education*. The matters discussed led to reflections about the concepts of health and disease, the process of health-disease, the aspects that involve health promotion, disease prevention and health education, and the differences among them. To do so, 27 pasteboard pieces were made, each divided in two parts. In one of them, there was a question regarding the theme or the description of a certain concept, while in the other, there was the answer for a question from another piece. At the start of the game, the pieces were randomly distributed among the students in the class, and the game started with the piece "what is health?/ what is disease?". From there on, the dominoes were put together according to the questions and answers presented by the following pieces (Figure 1). The game was over when the last two pieces that only had one side - the answer of corresponding questions – were used.

After that, the students were reminded of the theme of the game, so that the main topics regarding the concepts of health promotion, disease prevention and health education could be approached, any doubts clarified, and the activity concluded with an evaluation of the undergraduate teaching assistant class.

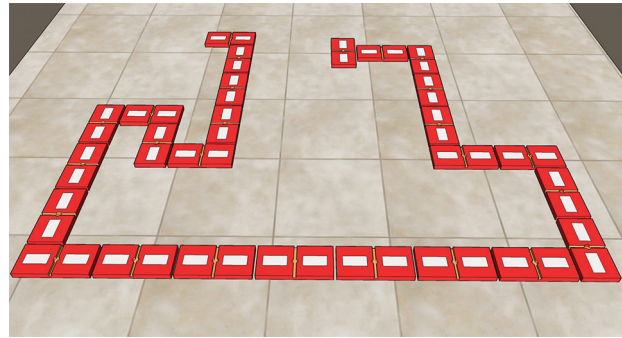


Figure 1 - Dominoes Game. Source: the authors.

### GROUP TRIVIA GAME

The group trivia game was elaborated based on the theme *historical background of health education and current discussions - public policies*. The discussion involved historical milestones of the health/disease relationship, including International Health Promotion Conferences and their relationship with current public policies. The game included 17 questions, each with three options, from which only one was true. To start the game, the students were divided in two groups: A and B. One of the groups was randomly selected to start answering the questions. The questions were alternately asked to the groups, making it possible for everyone to participate in the game. If the team A did not know the answer, they could "pass" the question to team B; if they knew, they could answer and get the points; if they did not, they could "pass it back" to team A, which should then answer - otherwise the points would go to team B. The game continued as such until all questions were answered.

### BINGO

This game was elaborated to improve learning about the theme *health promotion documents*, and to better assimilate the subjects discussed in the previous undergraduate teaching assistant class. The documents discussed were: the Alma-Ata; the Ottawa Charter; the Adelaide Statement, the Sundsvall Statement, the Jakarta Declaration, the Mexico Statement, and the Bangkok Charter.

The game was composed of 20 cards separated in six parts, each one containing, at random, the names of the documents of health promotion (Figure 2).

The bingo was conducted with the help of a globe, which contained folded pieces of paper with sentences regarding the theme written on them. The cards were individually distributed to the participants so they could mark them with pieces of ethylene-vinyl acetate (EVA) whenever they successfully associated the sentence drawn with a document from their cards.

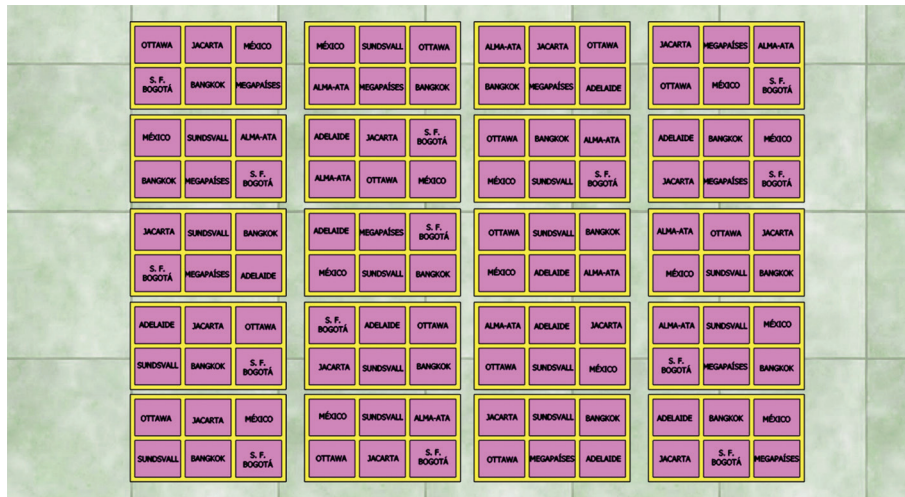


Figure 2 - Bingo game. Source: the authors.

The undergraduate teaching assistant randomly distributed the card and read the sentences corresponding to one of the health promotion documents, being that not all cards had all documents. Therefore, the bingo was concluded once one of the participants completed their card, receiving a small prize as motivation.

### TIC-TAC-TOE

The tic-tac-toe included content about the *teaching-learning techniques and strategies: behavioral objectives; instructional methods and environments; and instructional material*. The theme “behavioral objectives” discussed the differences between goals and objectives and the domains related to learning as associated to instructional methods adequate to teaching. The theme “instructional methods and environments” was related to their differences, to the existing types of material and to the advantages and disadvantages of learning resources such as projection, audio, video, telecommunications and computers. The theme “instructional material” discussed many ways through which information can be taught, describing their advantages and limitations, as well as deciding what institutional materials were the most adequate.

Nine green pasteboard squares were made, and then pasted on the board in the same distribution of a tic-tac-toe, that is, three lines and three columns (Figure 3). Three themes from the subject were included, and each subject was repeated three times, once every line and every column.

To start the game, the students were separated in two teams, each with a color. If a team got a question right, a rectangle of pasteboard of the same color attributed to the team was pasted on the subject discussed. Therefore, the team that completed a vertical, horizontal or diagonal line with squares

of their color would win the game. The game was repeated, on average, three times every class.

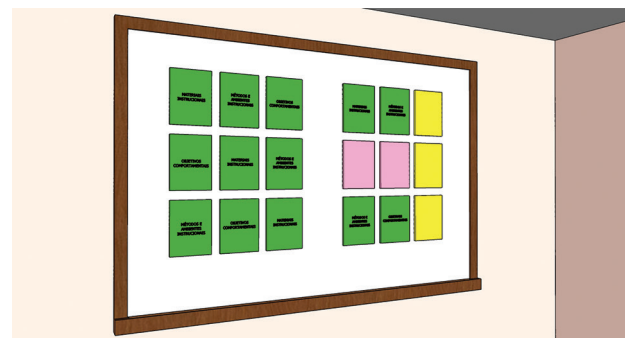


Figure 3 - Tic-tac-toe. Source: the authors.

### DARTS

The darts game was created to help fixing the content regarding *Paulo Freire*.<sup>3</sup> It concerned the ideas-strengths of the educator, the methods of Paulo Freire, and the contribution of his didactic practice to critical Nursing education. 10 balloons numbered from one to ten were used, each containing a piece of paper with questions about the subject, as well as the number of points awarded by giving it a correct answer. The score varied from one to seven points, and could also include: lose all points, win a prize, and pass the turn, results that helped with the interaction of the students during the game. The balloons were taped in a panel, distributed in five columns and two lines, to improve the positioning of the students as they tried to hit them (Figure 4). To blow the balloons up, a dart was created from repurposed materials, with a sharp edge that could blow up the balloons it hit.

The participants were separated in two groups to stimulate competition, instigating them to acquire the necessary



knowledge. Once the participant chose a balloon, they should hit it and blow it up in order to get the paper inside of it, read the question to everyone present, and answer it. If they did not know the answer, they could pass the question to the other team without losing or gaining any points. If they gave it a wrong answer, they would lose a point.

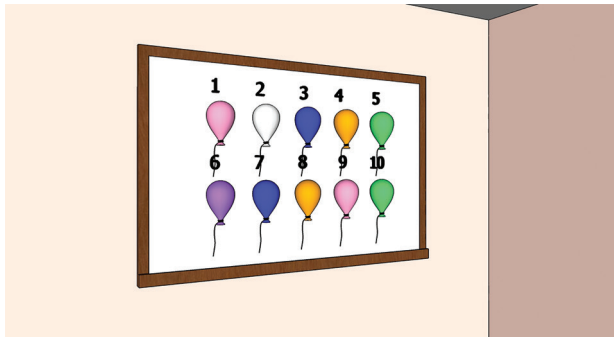


Figure 4 - Darts Game. Source: the authors.

## MEMORY GAME

The memory game was about the subject *characteristics of the student*, whose objective was showing the different ways in which individuals learn. It discussed how gender, socioeconomic and cultural attributes of the students are important to differentiate the learning act, as well as educational strategies to special groups of people.

16 pieces of EVA were made, eight of which were orange, containing questions, while the other eight were red, and contained answers (Figure 5). The use of colors was to make it easier to associate the questions and the answers, since the objective of the game was to form pairs.

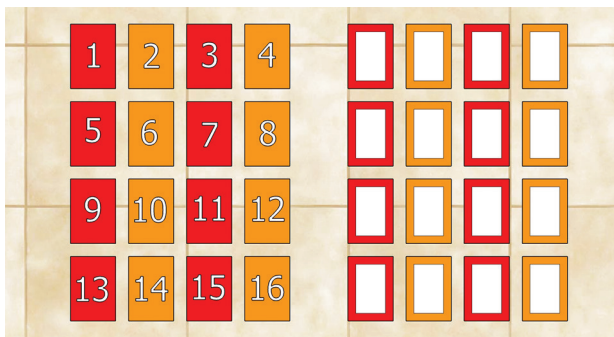


Figure 5 - Memory Game. Source: the authors.

The pieces were randomly distributed, but separated according to their colors, on a plane surface - in this case, a table - upon which the side of the piece with the sentence (question or answer) was positioned downwards. The participants were distributed in three teams, who chose an orange piece (a question) and a red one (an answer), looking for pairs. If the team

found a correct combination of question and answer, they got one point and earned one more try. If they did not, both pieces were once again placed downwards upon the table, and it was the turn of the opposite team to play.

It should be highlighted that, when the pairs were incorrect, the undergraduate teaching assistant gave all necessary explanations, to solidify the knowledge acquired in the classroom. The game continued until all pairs were formed from the pieces. The winner was the team that formed the highest number of pairs, receiving a symbolic prize.

A lot has been said about the contributions of ludic techniques for the prevention of diseases, behavioral changes or processes of education in health. There are many approaches to the use of games in international literature, such as: playfulness in the promotion of healthy lifestyles; damage resulting from video game addiction; the relevance of games for scientific thought; games in the education of health professionals, among others.<sup>6</sup> However, no other reports were found regarding ways to replicate games as an instructional method, as was done by this study.

Games aim to include all people, in a ludic and interactive way, with the participation of the students. Since they are a voluntary and pleasurable activity, the ludic character of the game favors dialog, the creation of knowledge by and within a group, and the development of autonomy in challenging and reflexive environments.<sup>7</sup>

It can be noticed that the elaboration of this pedagogic-didactic material makes the teaching-learning process easier and more dynamic, since games with established rules can be valuable resources for the students, and through them the problems are proposed in an attractive form in which, in the search of solutions, situations can emerge that promote comprehension and make the activity better, leading the student to reorganize their thinking process and the construction of concepts, and to feel motivated and active.<sup>8</sup>

The importance of games in the development of the reasoning and cognition of students also stands out, both essential factors for a good learning process and for the development of other educational activities that are influenced by these ludic methods.<sup>9</sup>

The activities with games prove their efficacy when the students try themselves to replicate them and improve the activity conducted. Through that practice and through extension programs they can enjoy even more benefits from the information acquired in the class, associating theoretical and practical classes that function as bases for the knowledge acquired in the classroom.<sup>10</sup>

In addition, it can be noted that educational games are efficient teaching and learning instruments that work through expression and communication and, additionally, offer immediate emotional satisfaction to the participants. Such a didactic resource is also capable of instigating the students to spontaneously manifest themselves, for the professor/ undergraduate

ate teaching assistant to act according to them, possibly using them as paths to very rich discussions.

The participants feel stimulated by the use of the game, since competitiveness is intrinsic to humans, and the desire to win shows the interest and previous knowledge of these students. Therefore, the level of the opinions of the students can be evaluated, to seek improvement from the needs regarding that problem, highlighting the positive characteristics and the limits found during their application concerning the subject.

Therefore, as a limitation of the study, the lack of a system to evaluate how ludic are the games can be pointed out, verifying the level of involvement, immersion and re-invention of the students during the match. Connected to these aspects, there is also a need to evaluate the perception of learning, from the feelings, reflections and the degree of cooperation between players, among other items.

## CONCLUSION

This experience report led to the observation that educational games used as teaching resources during undergraduate teaching assistant class activities on the subject Health Education made the teaching and learning process easier.

The importance of the use of the ludic as a way to improve the assimilation of the subjects taught in the classroom can be noticed, as the students verbally expressed that the use of educational games stimulated their participation, and helped in the construction of the knowledge discussed in the classroom.

Therefore, educational games are efficient teaching and learning instruments that work through expression and communication, and, additionally, offer immediate emotional satisfaction to their participants. The process of knowledge construction, aided by the activities in the undergraduate teaching assistant class, allowed for both the student and the undergraduate teaching assistant to reach a deeper theoretical understanding.

As a consequence, since the undergraduate teaching assistant class is a pedagogical support service offered to students who are interested in better understanding the contents of a subject, the students stated that they feel more at ease to ask

questions to the undergraduate teaching assistant, who is seen as an intermediary between the professor and the students. Therefore, educational games that discuss the contents taught in the subject Health Education favor the learning process.

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