

UMA ABORDAGEM DIFERENCIADA PARA O ENSINO DO TEMA SAÚDE NO ENSINO MÉDIO

UN ENFOQUE DIFERENCIADO A LA EDUCACIÓN EN SALUD EN LA ESCUELA SECUNDARIA

A DIFFERENTIATED APPROACH TO HEALTH EDUCATION IN HIGH SCHOOL

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RESUMO: Jogos didáticos são instrumentos muito úteis para auxiliar o ensino nas escolas, principalmente para conteúdos mais complexos e de difícil fixação pelos alunos. O tema saúde abordado no ensino médio se encaixa no grupo de temas de difícil fixação pelos alunos, tendo em vista o número elevado de nomes e características a serem aprendidas, a utilização do jogo "San San da Saúde" veio como sugestão de uma forma diferente de abordar o tema, tornando-o mais divertido e amigável para os alunos. Observou-se que os alunos avaliaram de forma muito positiva os resultados do jogo como instrumento didático, dando indícios de que o aprendizado foi facilitado com a utilização do mesmo, principalmente em função de como este instrumento foi utilizado.

PALAVRAS-CHAVE: Saúde. Jogo didático. Metodologia ativa. Instrumento de ensino.

RESUMEN: Los juegos educativos son herramientas muy útiles para ayudar a enseñar en las escuelas, especialmente para contenido más complejo y difícil de arreglar para los estudiantes. El tema de la salud que se aborda en la escuela secundaria encaja en el grupo de temas difíciles de resolver por los estudiantes, dada la gran cantidad de nombres y características que deben aprenderse, el uso del juego "San San da Saúde" sugirió como una forma diferente de Aborde el tema haciéndolo más divertido y amigable para los estudiantes. Se observó que los estudiantes evaluaron los resultados del juego como un instrumento didáctico de manera muy positiva, dando evidencia de que el aprendizaje se facilitó con el uso del mismo, principalmente debido a cómo se utilizó este instrumento.

PALABRAS CLAVE: Salud. Juego educativo. Metodología activa. Instrumento de enseñanza.

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ABSTRACT: *Educational games are very useful tools to help teaching in schools, especially for more complex content in which students have difficulty to fix what they've learned. The health theme addressed in high school fits into the group of subjects difficult to fix by students, given the high number of names and characteristics to be learned, the use of the game "San San da Saúde" suggested as a different way of addressing the topic by making it more fun and friendly for students. It was observed that the students evaluated the results of the game, as a didactic instrument, in a very positive way, giving evidence that the learning was facilitated with its use, mainly due to how this instrument was used.*

KEYWORDS: *Health. Educational game. Active methodology. Teaching instrument.*

Introduction

The debate on the quality of Brazilian education and the allocation of resources to the area has been the subject of several ideological disputes in the current political-economic scenario. This conjuncture often reveals a discourse that raises doubts on the true role of the teacher in the classroom and how the didactic transposition of the contents taught to the students happens. With this, especially in the current moment in the country, the teacher's update on innovative didactic resources, which rescue the student's attention to the contents taught, which do not compete with other technologies present in the classroom, but which are not part of the project pedagogical at first, as is the case with cell phones, and that make the learning process more playful and fun, should be encouraged and disseminated.

Within this debate, it is very important to approach the subject of diseases in the classroom, in a playful, light and informative way for students aged 16 and 17 years. This subject, much neglected in classrooms and the subject of much criticism in the current conjuncture of the country, often becomes a taboo and the teacher needs to know how to deal with it and learn to approach this theme in a playful and interactive way, so that students understand the importance of the topic not only as another important information for the entrance exam, but as an informative class for the students' lives.

For Mafuani (2012), the teaching experience that the internship provides the student is essential for integral formation, enabling contact with the daily life of a school and with teaching practice. Often, the student at the university is faced with technical-theoretical knowledge and has difficulties in relating this content to daily life due to the lack of experience. The internship provides that contact.

Piaget (1970), on the other hand, collaborates in the educational field through psychology, as well as other very important names. He speaks of constructivism, a philosophy

that believes that knowledge is a human construction of meanings, that seeks to make sense in your world. This conception has the student as an active agent in the learning process.

Vygotsky (1982) also nods with ideas similar to Piaget's, saying that the individual is not the result of cultural determinism, that is, he is not a passive being, who only reacts in the face of environmental pressures, but a subject who performs a organizing activity in its interaction with the world.

Paulo Freire (1987) did not agree with pedagogical practices that would transmit to subjects a knowledge already built, which he defends in his theory of “banking education”. He believed that the act of educating must contemplate thinking and concluding, opposing the simple reproduction of imposed ideas.

These authors reinforce the cognitive learning processes and collaborate to the notion of the student as an active agent of the teaching-learning process, and the didactic resources and instruments are in line with this idea, bringing new concepts and ways of teaching into the classroom, making the transposition of subjects much more dynamic and interesting.

In the context of active teaching methodologies, there are the Didactic Games, whose objective is to bring content teaching in a playful way and with the active participation of students. Games enable the development of creativity, teamwork skills, strategy and effective learning. The use of games, when well applied, can have as main highlight that the learning of the contents is highly incorporated throughout the game, the error being considered as an important stage, which is the discussion of the contents in a team (MARQUES, 2017).

Another highlight to the use of Didactic Games can be seen in the work of De Alencar *et al.* (2019), demonstrating that the discussion of the contents took place in a relaxed way, in addition to developing an autonomous and proactive posture in the classroom, making him the protagonist in the construction and sharing of knowledge.

In high school, the contents on diseases are addressed, more specifically, in the discipline of Biology. In the Agronomic Engineering Course, these are included in the disciplines of Plant Pathology and General Zoology.

In the case of teaching degrees, the discussion is about the construction of didactic materials, in the discipline LES0342 - Instrumentation for the teaching of Agrarian Sciences. The activities were part of the development of the Supervised Internship, in the context of the discipline the discipline LES0342 - Instrumentation for the teaching of Agricultural Sciences, of the teaching degree course in Agricultural Sciences at ESALQ/USP. The main objective is to encourage the development of teaching materials, bringing theoretical and practical experience for the future teaching exercise, with the practical activities of the internship.

From this context, the present work presents and discusses the elaboration/application of a Didactic Game for teaching content related to the health area in the third year of high school, in order to consolidate with the students the theme of diseases addressed in the discipline of Biology, in addition to contemplating the importance of teaching practice in the training of agricultural science graduates.

Methodology

• Contextualizing the partner school

The school has been operating since 2010 and has 10 classrooms; 3 computer labs; 1 club room and ATA - Administrative Technical Assistant; 1 physics, chemistry and biology laboratory; 1 library; 1 amphitheater; 6 bathrooms; 2 kitchens with canteen; 1 academic secretary; 1 board of directors; 1 coordination room; 1 administrative secretariat and 1 teachers' room (with kitchen). It currently has 440 students, in 3 shifts, distributed in 6 classes of regular high school; 3 high school classes integrated to the technical (ETIM, Portuguese initials); 1 class of Marketing technician; 1 class of technician in Finance and 1 class of technician in Human Resources. It also has 60 employees in the administrative, educational and outsourced sectors.

Both regular high school and ETIM are organized in 3 annual grades, in which the curricular subjects are distributed. After admission, the student is evaluated in each curricular component, taking into account the analysis of their competences, skills and values, in addition to the relevant technological and scientific bases of each area of knowledge. In this context, diversified practices are well accepted and explored by students who constantly develop projects integrated with curricular subjects.

• Development of the game

The choice of the theme of the game was made based on weekly observations in two high school classes, so that it was possible to understand the class, their behavior, their needs and even interests. In addition, meetings were held with the class biology teacher to understand the challenges faced by the students, then the idea of the game and the content to which it applied was discussed, health for high school, focused on diseases.

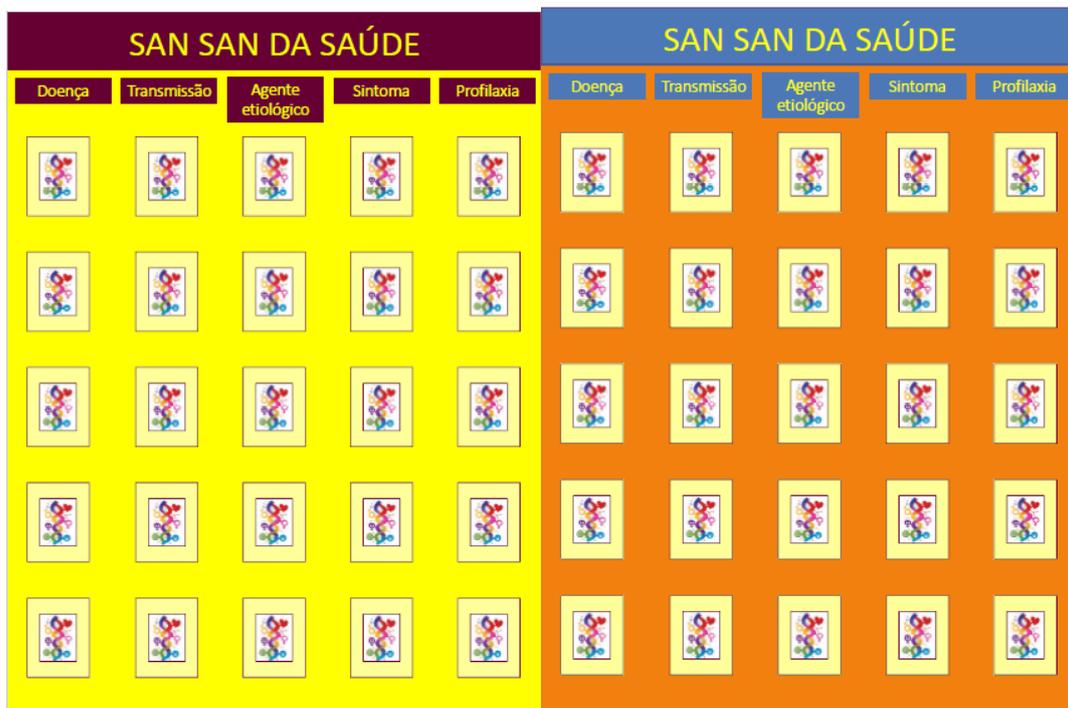
For the development of the game, it was based on the work of Della Antonia *et al.* (2017), where a game “San San” was developed to work on the theme of chemical composition of food, with a focus on regulatory nutrients. In view of the good results observed at work and

the difficulty observed by students with the health theme, due to the many scientific names and technical terms, a game of the same type was developed for diseases, called “San San of Health”, in which the student finds in a summarized and facilitated way the most relevant information about each of the main diseases worked by the teacher, including the main STDs.

The game board and cards were assembled using Microsoft Office PowerPoint. The diseases chosen and the information about them were taken from classes aimed at high school, with the intention of working on the content in the most realistic way possible, getting as close as possible to what is worked on in the classroom.

The board and cards were printed on cardboard in the respective A3 and 4 x 3.11 cm sheet sizes, as can be seen in the images below.

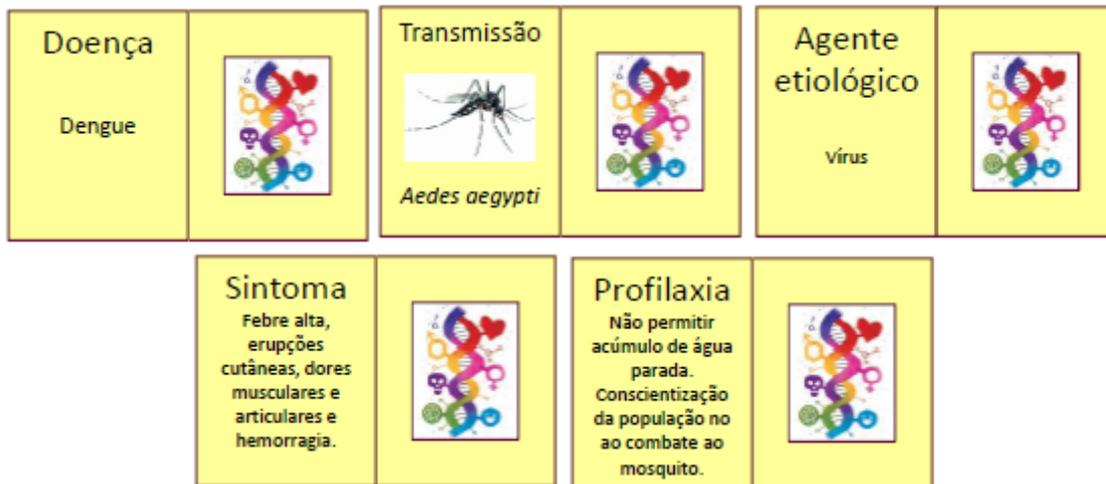
Figure 1 - Boards of the game “San San of Health”



Source: devised by the authors⁵.

⁵ We read on the figure: Titles – San San of Health. Playing card designations: Diseases; Transmission; Etiological agent; Symptoms; Prophylaxis.

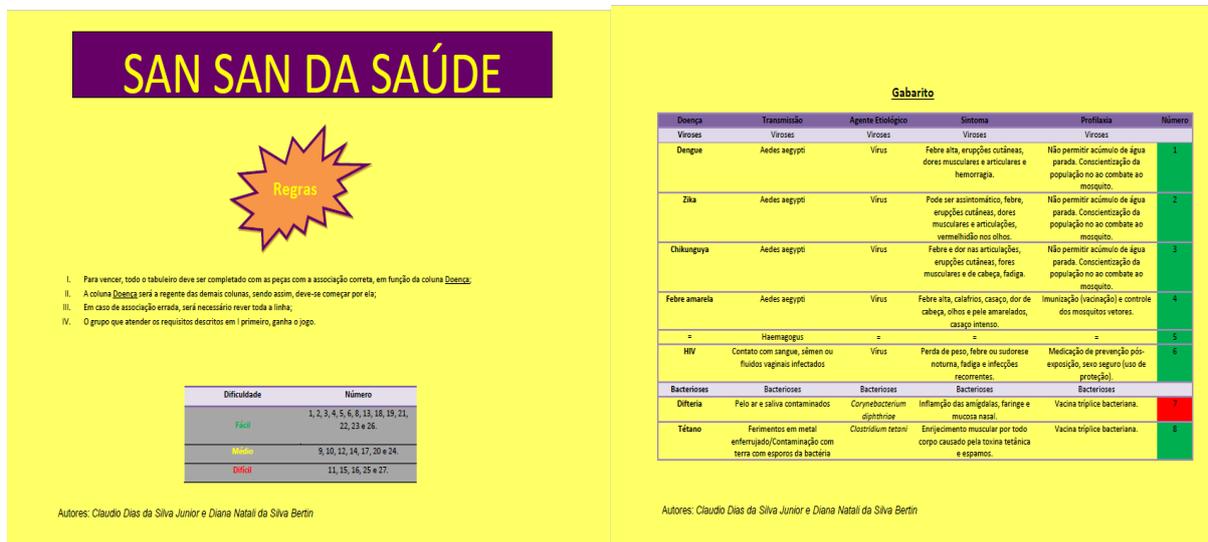
Figure 2 - Set of dengue disease cards exemplifying the game pieces



Source: Devised by the authors.⁶

The board was printed in two different color scales, so a game consists of two boards, each containing 27 diseases, that is, 135 cards and a rules manual with a template, showing all diseases and their respective combinations.

Figure 3 - Image of the rule book and template, showing how it is made up



Source: Devised by the authors.

⁶ We read on the cards: Disease – Dengue; Transmission – Aedes Aegypti; Etiological agent – Virus; Symptoms - High fever, rashes, muscle and joint pain and bleeding; Prophylaxis - Do not allow accumulation of still water. Awareness of the population in the fight against mosquitoes.

Table 1 - Materials and game preparation time

Materials	Preparation	Time
Platicizer	Content studies Adequation to the game's	2 weeks
Paper cards	content	2 weeks
Sulfite sheet	Preparation of the board	2 weeks
Printer	Cuts	1 weeks
Computer	Lamination	1 weeks
Software Microsoft Office PowerPoint or equal	Test application	4 weeks
Guillotine	Total	12 weeks

Source: devised by the authors.

In the template, it is possible to observe the different colors assigned in all diseases, which define the level of difficulty for students to make the correct association of that disease, considering the popularity of the disease and also the similarity with other diseases in terms of symptoms and prophylaxis.

• **Game application**

For the application of the game, the same procedure was followed in both rooms. The room was divided into four groups with equal numbers of students. After the division the rules of the game were explained, as well as its operation. In each room we had four boards with different combinations of cards and diseases. Four rounds were held, at the end of each round the boards moved from one group to the next to change diseases.

In the first round, students were left free to use reference material and ask their questions about the game. After this first round, the following three were made in competition format, the winning group would be the one that finished first and with the correct combination of cards. For the four rounds, 50 minutes of class (standard class) were spent, considering game and correction of the boards at the end of each round.

• **Data collection**

The data were obtained in two stages, the first being the weekly diagnostic observation and the second, the diagnostic questionnaire answered by the students and also by the teacher.

The students' questionnaire was composed of four questions, aiming to understand how the game was perceived by the students, being composed by the questions "Did you like the game? What was your impression of it?", "Do you suggest any changes to the rules or the way

to play?", "Do you think you learned the topic better by playing? What is your opinion about using games in class?" and "Do you have any suggestions for its improvement?".

The questionnaire for the teacher aimed to understand, from the teacher's point of view, how the game can contribute to teaching and to the class, as well as his interest in this didactic instrument, was composed of five questions, namely: "Have you used this type of instrument before? If so, could you comment on?", "What were your observations regarding the students? Do you believe that the game was beneficial?", "Based on your observation, how was the students' participation in the activity? Would you develop more activities like that with them?", "Do you believe that this type of activity is important? Could you explain why?", "Do you have any suggestions for improving the game or its application? Is there a theme which you would like to adapt it for?".

Results

• Diagnostic observation

It was observed that with the application of the game "San San of Health" the students demonstrated better acceptance of the content. Even before putting the idea of competition between groups, part of the students were already very interested in the game, even though it was simple, probably because it was an idea of a different class. It was noticeable that when the competition factor was placed, the students' interest in winning was great, further increasing the acceptance of the game.

As a result of the diagnostic observations, it was noted that the classrooms observed were quite different, this was also reflected in the application of the game. In the 3^oC room, the application was very quiet, the students really liked to participate in the game and even gave feedback on what they found at the end of the activity. During the application everyone followed the rules and clarified many doubts at the time of correction. In return, they said that the game is very intuitive and interesting, they felt some confusion in terms of symptoms due to the similarity between some diseases.

In the 3^oA class room, a more energetic one, we had problems initially with students who tried to observe the responses of another group and even hide letters to prevent other groups from completing the board. In this room, the feedback we received was that the groups should be smaller, as large groups like those formed (between 7 and 8 students) were not good at organizing the team and completing the game board, as a student ended up meddling in what the other did and causing confusion.

Regarding the teacher, she loved the game, even wanting to use it as an evaluation of this part of the discipline. She was surprised at how the students became interested in solving the game, showing an interest in the subject that did not arise during the class.

- **Students' diagnostic questionnaire**

The diagnostic questionnaire was applied in both rooms, 42 responses were obtained from the students.

I. Did you like the game? What was your impression of it?

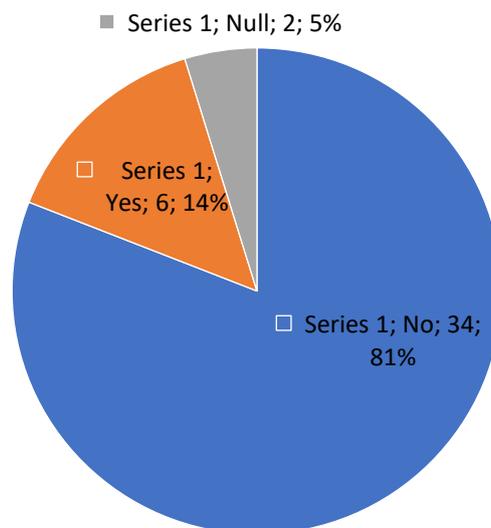
To this question, the 42 students answered yes, demonstrating the great acceptance of the game by them. Among the answers, the impressions that stood out the most were that the game is quite simple, but the fact that it is played in a group and in the competition format makes it very interesting, which shows us that the competition factor was essential for the acceptance of the game. Some students even pointed out that because it is an association game, it helped them to remember the characteristics of the diseases later more easily.

II. Do you suggest any changes to the rules or the way you play?

In this question, most of the students answered that no, that the game was good in the way it was applied. However, some students raised points to improve gameplay.

Three points were raised, in order of citation, the separation into groups with fewer students, to improve the group's interaction and facilitate its organization during the game, in the room four groups of 7 to 8 students were separated, the suggestion was for groups of 3 to 4 students. Another point was the control of time, the students suggested that it be timed during the game, during the application the time was not controlled, allowing the first to finish to win, but in the students' suggestion the time should be controlled, and if it ended before a group completed the board, the one with the most complete won, but this item is at the discretion of the teacher, as it does not bring big differences, it only allows better control of class time. The last suggestion raised was the tiebreaker criterion, during the application of the game it was considered in the case of groups that ended up together, the one that did not make any association error, in case of both being correct, both won the point, in the case of both making mistakes, nobody won, even if a group had made fewer mistakes.

Graph 1 - Students' answers to question II



Source: devised by the authors.

III. Do you think you learned the topic better by playing? What is your opinion about using games in class?

In this question, the 42 answers obtained were yes, showing that all students believe they have learned better through the use of the game within the didactic sequence developed by the teacher to deal with the health theme. Among the students' opinions, most of them mentioned having fixed the content better, as well as understanding it better after making the associations during the rounds, observing each disease in isolation, associating the prophylaxis, the etiological agent, the vector and the symptoms to every disease available. Some students commented on the importance of group work proposed by the game as well, allowing better interaction between them and how the competition between groups motivated them to better understand the theme to win during the rounds, showing once again the great importance of competition for the dynamics of the game.

Some opinions stood out among the answers, such as that of a student who mentioned that he could understand some questions, during the game, which he hadn't understood before, showing that the game can be used as a review at the end of a didactic sequence, seeking to make up for any difficulties that have remained throughout the presentation of the content.

Another opinion that stood out was that the game helped a lot in the content, but that it should be something that is used frequently and not just once, because it is an activity that if applied only once with a revision nature will be less effective. Still on the question of repetition, a student raised the question of using the game as an assessment, something that would be quite

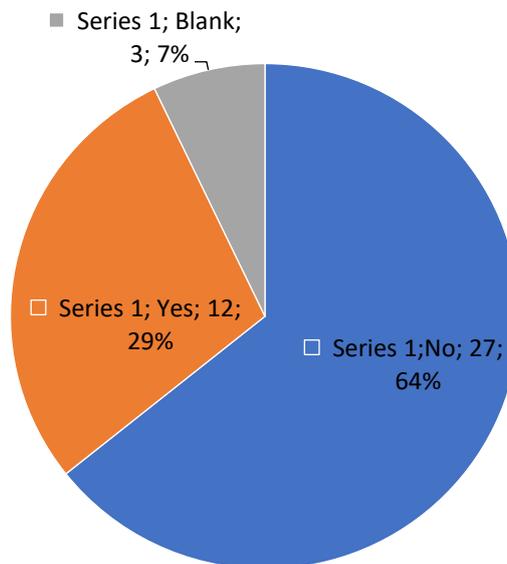
applicable in the case of just one application, however, the way of applying it should be different, perhaps forcing all groups to complete the board and evaluating according to the number of errors.

A negative point that can be observed in the opinions, is that many students used words like "memorize", which would not be the objective of the game, the intention was to motivate them to learn in order to play better, being necessary to rethink the moment to apply the game, to motivate them, maybe if the game was applied before the didactic sequence and at the end, with an evaluative nature, the impact would be better, leading them to study the content and not just to try to memorize it.

IV. Do you have any suggestions for improvement?

For this question we got many suggestions from the students, which was very interesting from the point of view of improving the game, the division of the answers obtained can be seen in the graph below.

Graph 2 - Students' answers to question IV



Source: Devised by the authors.

The main suggestion obtained from the students' responses was, again, the formation of groups with fewer students, I believe that this has been the main problem during the application of the game from the students' point of view. As the second most common suggestion, time control appeared, however, within this suggestion we have two different requests, some

students think that there should be a pre-stipulated time for the game to develop, others believe that timing how long they take to solving as a form of competition would be enough.

Punctual suggestions were also observed, as a way of fixing the pieces on the board, to prevent the associations already made from being lost, changing the color of the pieces of each column, making it easier to identify which column each card refers to more easily, the increase in the number of game applications, using it in more than one class, and finally, greater interdisciplinarity in the game, something that can be achieved with creativity when creating cards or even with the expansion of the board, adding new columns.

• **Teacher diagnostic questionnaire**

Observing the responses obtained from the teacher, it is noted that, from his point of view, the use of the game added a lot to the class and to the students, for example, when asked about the participation of students in the activity, his response was: “They felt challenged. It was interesting that they had to discuss with colleagues to reach a consensus to propose the solution for the game”. In addition, the teacher said she believes that games are very important in the educational process, especially cooperatives, which enable students to develop teamwork skills.

When asked if she had used this type of instrument before, the teacher said yes, that she applied existing games and even tried to create a Super Trump on human tissues with 8th grade students, showing her acceptance of this type of material. The interest of the teacher in using educational games was once again demonstrated when asked if she would develop more activities of the type with the students, and she answered that she would like it very much and would be very interesting, however, in her words “the overload of classes and schools ends up making it difficult this work”, an answer that highlights a bitter reality faced by educators today.

As for the teacher's suggestions, again the question of smaller groups arises, she emphasized that some students are withdrawn amid large groups, which does not allow them to take advantage of the dynamics. When asked if she believes in the possibility of adapting the game to other themes, the teacher believes that there is a possibility of adapting the game to other content, such as ecology and living beings.

Final considerations

It is observed that for the students, the competition factor was what captured the attention and caused the best acceptance of the game, even in view of its simplicity. The

students felt involved by the idea of group work, but they had problems with large groups, which makes it clear that for the game to flow better, in future applications, smaller groups should be used. Another point to be aware of in relation to students is an attention so they do not understand it as a game to memorize the content, but as a game to test their knowledge on the subject, leading them to study in advance.

It is also noted that, even though it is a very enriching activity, there is a difficulty in the elaboration and preparation of a game because of the time factor, which is limiting for Brazilian educators, which highlights the importance of works in which games are developed that allow the educator to just read and be able to prepare and apply them to students.

The developed methodology facilitated the teaching and learning process and was well accepted by students and the teacher, in addition to contributing to the training of undergraduate students actively involved in the process.

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