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Teacher awareness for the use of games within the High School classroom

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ABSTRACT
Currently, teachers observe as never before the change in the profile of students. This happens due to the speed of change, which has worsened especially after World War II. Recently, enormous transformations have taken place in society as a whole. It can be observed that the changes have become intense, drastic and rapid, especially with the evolution of electronic machines, communication and technology. We live in a reality of increasingly rapid change, where situations and events that took up to years to happen, now occur in a few months or in just a few days. We live in an environment more recently called VUCA which is an acronym for *Volatile, Uncertain, Complex, and Ambiguous*.

Keywords: Social changes, Active participation, Educational games.

INTRODUCTION

Currently, teachers observe as never before the change in the profile of students. This happens due to the speed of change, which has worsened especially after World War II. Recently, enormous transformations have taken place in society as a whole. It can be observed that the changes have become intense, drastic and rapid, especially with the evolution of electronic machines, communication and technology. We live in a reality of increasingly rapid change, where situations and events that took up to years to happen, now occur in a few months or in just a few days. We live in an environment more recently called VUCA which is an acronym for *Volatile, Uncertain, Complex, and Ambiguous*.[3]

OBJECTIVE

These changes directly influence everyone in society, including students, but especially adolescent high school students, because as they are more active participants in the learning processes, they feel this situation more, since they are in an intermediate phase between childhood and adulthood.

A few years ago, the student participated only passively within the traditional learning process, but today this participation only as an observer is no longer enough to keep him active, participating, and motivated in the classroom. In a class that is only expository, he can no longer stay focused and no longer

[1] Vale do Rio Verde University Center – MG
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[3] Term created by the U.S. Army War College to describe a world that is increasingly volatile (with great speed of change), uncertain (where anything can happen), complex (where changes happen in a volatile way, with uncertainties and the great speed of technology) and ambiguous (where volatility, uncertainty and complexity make business decision-making increasingly difficult and with no chance of predictions) (LAWRENCE, 2021).

feels part of the protagonist of the process, and this made him lose part of his motivation. To encourage their participation within the learning process, we need to use other approaches and tools different from the more conservative processes. In view of this, the use of educational games can be an important factor to motivate the interest of adolescents in the learning process.

For this we will reinforce their behavior (behavioral motivation theory), through a cognitivist approach, where the teacher-student relationship happens horizontally, which is a real possibility for our current teaching (MIZUKAMI, 1986).

Although students currently have other interests, there are still many teachers who are resistant to using teaching methodologies different from traditional methodologies. For this reason, this work aims to present the new teaching methodologies to initially make the teacher aware of the importance of these tools in the new context and for the new student profile and thus present the advantages of using new teaching methodologies such as games and the enormous benefits that can be achieved in the learning process within the classroom, especially for high school students, in addition to assisting largely in the management of the classroom by the teacher.

Thus, the proposal in this work is to present educational games as a theme of investigation and as a delimited theme **the importance of change in teaching styles and gamification as a motivational tool in high school**.

As a research question, it is how **the cognitivist teaching methodology can, together with gamification, help to reinforce the learning of high school students**.

Our general objective is **to make teachers aware of the possibilities that exist when using educational games and the cognitivist methodology as a way to assist classroom management and simultaneously encourage student proactivity in the learning process.**

As specific objectives we have:

SPECIFIC OBJECTIVES

- **a.** To present the cognitivist methodology as an alternative to the traditional methodology still widely used today;
- **b.** Present educational games as a tool and thus make traditional and conservative teachers aware of the importance of using educational games within the classroom, and;
- **c.** To present data from quantitative research already carried out with high school students on their perspective regarding the use of games in the classroom.

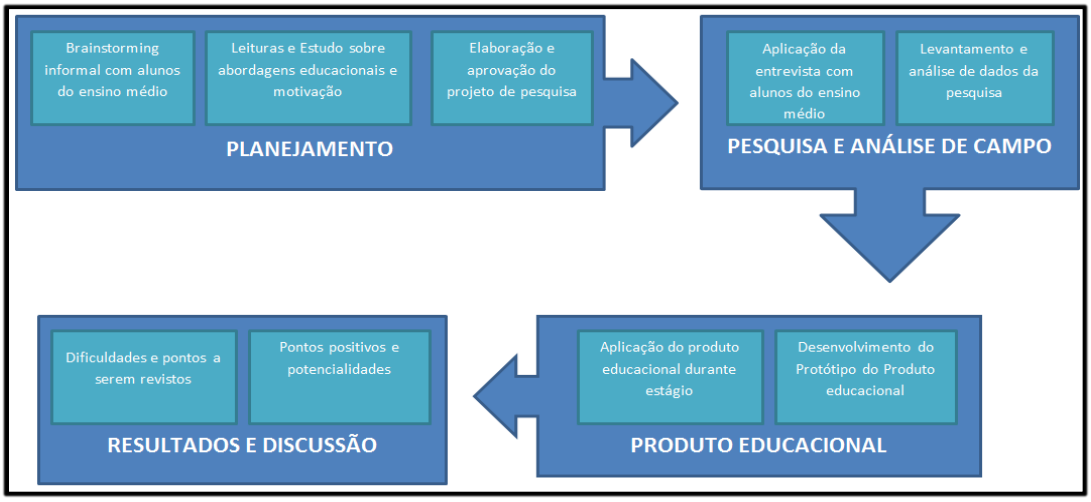
The methodology used in this case would be the bibliographic research with emphasis on subjects related to teaching styles, motivation and games as a tool to maximize the motivation of teaching high

school students, and at the same time to make the teacher aware of its benefits in student learning and for a better management of the classroom.

METHODOLOGY

The work developed took place as shown in figure 1 below:

Figure 1 – Process of elaboration of the educational product



Source: prepared by the author (2022).

The development of the research project took place with the objective of "[...] present the cognitivist approach as an alternative to assist the teacher in reinforcing the student's learning, encouraging him to be the protagonist of his learning and the educational product as a tool to assist the teacher in the management of the classroom.". (OLIVEIRA NETO, 2022a, p. 05), in which the research problem, its hypotheses, its justification, its theoretical framework were presented, including issues related to motivation, educational approaches, the methodology used in the project, the applicability and structure of the educational product, the structure of the master's thesis, and closing with its schedule and necessary resources. Then, the educational product was elaborated, which was a Mini-course presenting to the teacher: concepts and suggestions for actions to be taken in order to develop learning games to help the teacher to manage the classroom and increase the involvement, engagement and motivation of students. This educational product is available at the link https://padlet.com/jmarcilio2015/minicurso-de-capacita-o-profissional-b-sica-para-elabora-o-d-shsdqn2dy8kdyly4.

Finally, after the elaboration of the educational product and application in a mandatory internship, the dissertation was developed where the contents, knowledge and experiences lived throughout the professional master's degree were grouped, including the internship, the classes and the various and deep materials developed. The research sources of these works took place with the collection of data from the

students through research questionnaires, by secondary sources (bibliographic research), and *on-site experiences* with the professors of the internship.

DEVELOPMENT

In the years that followed World War II, we experienced increasingly drastic changes in society. In addition to having a great impact on society, they are occurring in a deep, radical, and very fast way. On a daily basis, the speed of changes in the context has been constantly increasing. When stopped for a moment to think, it took man thousands of years to stop being nomadic and settle in a single place. Then it took centuries to stop performing manual work and tasks and use machines in production. We experience increasingly rapid changes and facts and events that happened in years started to happen in a few months or days.

The changes have directly influenced and continue to influence society and people in all their contexts: family, social, professional and academic. Adolescent students, the focus of this study, are examples of this. They continue to learn by "[...] VAC method (visual, auditory and kinesthetic) that is based on the senses and efficiently responds to the expectations and demands of the school." (SALDANHA; ZAMPRONI; BATISTA, 2016, p. 01), but they need other types of motivation to actively participate in the learning process.

Despite this, these students began to have needs, desires, interests, aspirations and worldviews totally different from the adolescents of the 80s, when the use of technology was not yet so popular and for this reason they were limited to their physical context and place most of the time. Just think that 30 years ago, if the student needed to research a subject, he would need to move from his home to a library, search in one or several books to find a subject. That these books had been written for years and that sometimes they were already outdated due to the time between writing, publication in the original language, translation and new publication in Portuguese. Today, in minutes, the student accesses a search engine and searches for a subject within and among the possible results, the answers from all over the world about the subject will be presented in seconds. Globalization has also helped us to have access to issues, tradition, cultures and information that are available on the internet anywhere and at all times and all these changes and access to information.

MOTIVATION

In the face of so many changes, these high school students also started to have other interests and motivations. And to deal with motivation with adolescents, we will initially address the current of motivational thought called behaviorist or behaviorist motivation.

According to Bergamini (2018, p. 02) "To do anything, you need to be motivated to do so. The origin of the strength to act occurs within each one and leads the human being to fulfill the meaning of his own life.", this is the motivation called intrinsic and has its energy coming from emotions, that is, it is individual and external factors are only conditioning factors of movement, but they are not motivational.

Behaviorism refers to "[...] (part of psychology that studies human and animal behavior), understands behavior as a relationship between the things that the subject performs and the environment where these things are performed." (STAUDT; REGGIORI, 2020, p. 03).

Among its main authors can be highlighted Burrhus Frederic Skinner. According to Skinner (2003), the motivation to learn would occur through a change in behavior that would occur due to the occurrence of positive or negative reinforcements, rewards or feedback from the educational establishment.

Another idea defended by Skinner (1974, p. 37) deals with behaviors, which according to him are divided into two types: responding behavior, which are those involuntary behaviors that are responses to external stimuli, from the environment. Ex. yawning after someone else yawns or even the one where "[...] the individual acquires behavior appropriate to a new environment during his or her lifetime." and operant behavior, which is voluntary behavior, that is, that which happens through reinforcement, reward or feedback.

EDUCATIONAL APPROACHES

Mizukami (1986) in his work Teaching: The approaches to the process; It presents us with five educational approaches, which are divided into: traditional approach, behaviorist approach, humanistic approach, cognitivist approach and socio-cultural approach (SIC). Although all of them are important, in this study we will address only two: the traditional and the traditional cognitivist approach is a usual form of teaching for teachers to this day. In this type of approach, teaching "It is, therefore, the transmission of ideas selected and logically organized." (MIZUKAMI, 1986, p. 11), where the teacher is the center of the learning process and the student is a mere spectator in the class, that is, the teacher is the active transmitter and the student is the passive receiver (ABREU; MOSQUE; ANCHIETA, 2020). The teacher is the authority in the classroom and has the power in decisions and according to Mizukami (1986, p. 13), "Emphasis is given to classroom situations, where students are 'instructed' by the teacher".

The teacher elaborates all the material and presents it in an expository class and evaluates his students through tests, exams, repetitive exercises and oral calls, which, according to Mizukami (1986, p. 15), "The teacher already brings the content ready and the student limits himself, passively, to listening to it [...]" and where "[...] the contents and information have to be acquired, the models imitated." (MIZUKAMI, 1986, p. 13). In this type of approach, the student learns the reality of the world through

formal education, in places such as school, family and church (MIZUKAMI, 1986). According to Mizukami (1986, p. 10), this type of approach would be similar to what Paulo Freire calls banking education, that is, "an education that is characterized by "depositing" knowledge, information, data, facts, etc., in the student". It is also important to mention that in this type of approach "the elements of emotional life are repressed; All students are treated equally and must follow the same pace of work." (ABREU; MOSQUE; ANCHIETA, 2020, p. 81).

On the other hand, in the cognitivist approach, the teacher plays a role more as a facilitator, an investigator, researcher and advisor of student learning. The objective of learning in this approach "[...] does not consist in the transmission of knowledge, information, demonstrations or models, among others, but rather in what the student appropriates autonomously, with the intervention of the teacher." (ABREU; MOSQUE; ANCHIETA, 2020, p. 83). Teaching in this approach, according to Mizukami (1986), is compatible with Piagetian theory "[...] based on trial and error, on research, on investigation, on the student's solution of problems, and not on learning formulas, nomenclatures, definitions, etc." (MIZUKAMI, 1986, p. 76). This is important, because it is through this way that the student learns through teamwork.

This type of approach is predominantly interactionist (MIZUKAMI, 1986), and through the "[...] discovery will guarantee the subject an understanding of the fundamental structure of knowledge." (MIZUKAMI, 1986, p. 76).

The relationship between the teacher and the student, unlike the traditional top-down approach, in this case is horizontal, and according to Abreu, Mesquita and Anchieta (2020, p. 84), the teacher has the role of:

> [...] create learning situations, providing conditions to establish intellectual reciprocity and cooperation, at the same time moral and intellectual; avoid routine and the fixation of answers and habits; proposing problems to students, without teaching them the solutions; provoking imbalances and proposing challenges; mediate the learning process, providing students with a wide margin of self-control and autonomy; to put oneself in the role of investigator, mediator, researcher, advisor and coordinator, leading the student to work as independently as possible.

According to Mizukami (1986, p. 59), the cognitivist approach would take place in:

> [...] ways in which people deal with environmental stimuli, organize data, feel and solve problems, acquire concepts and employ verbal symbols. Although there is a concern with social relationships, the emphasis given is on the student's ability to integrate information and process it.

INTRODUCTION TO LEARNING GAMES AND GAMIFICATION

High school students are currently unable and unwilling to experience the situation of the simple expository class widely used by a large portion of teachers to this day. It can be noted that there is a big difference between the perception recognized by students and the perception understood by schools about

this reality and current world and this ends up generating a lack of interest on the part of students (TOLOMEI, 2021). That is why active teaching methodologies have become so discussed in order to make the teacher's action something more meaningful, making the student more central and autonomous in the learning process.

The use of learning games is intended to help teachers get attention, motivate actions in students for effective and voluntary participation, promote knowledge, solve problems and encourage interest in discovery through a tool that is already used and known by students. According to Dick-mann (2021, p. 30) "We have to understand that the game is not the problem, it can be a solution. Now, we have to have intelligence, humility, ask these player-students what kind of games they are playing." Think of it this way: Game is not a problem and can become the solution to the student's motivation in class participation and learning (DICK-MANN, 2021).

It is important to use the games, because as soon as "[...] Your students will learn from this new didactic experience, which is the use of games in the classroom. The class is much more dynamic, the class is much more participatory, the class is much more engaging, the class is much more captivating than an expository class." (DICK-MANN, 2021, p. 31).

The use of games is also essential for the development of creativity. "It is in play, and only in play, that the individual, child or adult, can be creative and use his integral personality: and it is only by being creative that the individual discovers the self." (WINNICOTT, 1975, p. 89).

According to Alves (2006, p. 143),

> The game is an element of culture that contributes to the social, cognitive and affective development of the subjects, thus constituting a universal activity, with unique characteristics that allow the resignification of different concepts. Therefore, the different games, and especially electronic games, can be called intellectual technologies.

The use of games in the learning process can be very enriching since, according to Calsa andFaeti (2019, p. 13) "The competitor gives the best of himself and his victory can represent the achievement of benefits for himself and his group. In this case, losing may imply the need for improvement and exploration of skills by the player and, therefore, other ways of thinking and building plays.", so the student ends up dedicating himself more to be the winner and in the case of defeat the student ends up striving to learn and to be the victor at the next opportunity.

In addition, according to Winnicott (1975, p. 70), "In other words, it is play that is universal and that is proper to health: play facilitates growth and, therefore, health; play leads to group relationships; playing can be a form of communication [...]".

The use of games will serve as a reinforcement and stimulus in learning, since the simple possibility of natural competition of every human being, when used in a coherent way, ends up helping in the creation of necessary and already mentioned skills. Skinner (2003. p. 443) emphasizes that

> When educational reinforcements become contingent on the topographical or intensive properties of behavior, they are called the result of *skill.* Differentiation [...] is characteristic of training in painting, music, calligraphy, speaking, sports, and crafts. The educational reinforcements that eventually take control are the special consequences of skillful behavior. When teaching someone to play tennis, some of the educational reinforcers with the verbal stimulus 'Good!' or 'Well done', is contingent on the proper way of holding the racket, the proper way of hitting the ball, temporal coordination, etc. Eventually the resulting 'good form' is maintained by the natural consequences of the direction of the ball.

According to Barcellos, Bodevan, and Coelho (2021, p. 854), "[...] researchdefends the game as an attractive alternative for students, and describes potentialities related to engagement in certain aspects of scientific knowledge, in addition to signaling the positive relationship between the use of games and an improvement in the teaching-learning process".

The use of games as a substitute for traditional classes is also important since it greatly helps the learning of non-academic students (those who have a deficiency in reading habits and who have difficulty in abstract ability) and who, in addition, are after-work students (those who work during the day and go to study in night courses) achieve a better performance when active methodologies are used. Also according to Barcellos, Bodevan, and Coelho (2021, p. 855),

> Different empirical research has pointed in this direction. Ludovico (2017) used a card game, developed by her, to work on particle physics concepts with first-grade high school students. The author concluded that the use of this resource enhanced the acquisition of conceptual, procedural and attitudinal knowledge by the students.

Another justification for the use of games is that with them it is possible to reinforce the students' engagement within the classrooms, because to achieve this change in behavior it would be enough to make the use of positive or negative reinforcements in a conditioning process (SMITH, 2010).

Games achieve greater engagement, which is one of the main keys to the motivational success of any student in the learning process. Games can serve to help the student to have the learning behavior we want, because according to Gadotti (1993, p. 289) he recalls that according to Skinner, behavior can be achieved and "Therefore, reinforcement contingencies are organized, that is, when we want an organism to have a behavior that is not peculiar to it, we start by reinforcing performance that is close to what is expected." and the games can be considered as being "The reinforcers he uses are artificial, as expressions such as 'training', 'exercise' and 'practice' suggest." (SKINNER, 2003, p. 437).

The games also work as simulators of real situations that help to "[...] prepare the individual for situations that have not yet arisen, the discriminative operants are placed under the control of stimuli that

are likely to occur in these situations." (SKINNER, 2003, p. 437-438) and provide "[...] especially favorable circumstances for the execution of the behavior to be controlled by the educational institution:" (SKINNER, 2003, p. 442).

Another interesting idea is that the use of learning games can make students not interpret the time used as study time, but leisure time, making learning something pleasant, fun and so they will be able to study inserted in network structures, typical of Games, and which are usually seen as leisure time (DI BARTOLOMEO *et al*, 2015).

Despite the various benefits of using learning or gamification games, some authors such as Cherry (2012) claim that the use of games can end up causing psychological damage when the "losers" are subjected to exposure and non-assertive feedback processes occur on the part of those who organize the games, being a point of weakness and attention to gamification. In the view of Calsa and Faeti (2019, p. 16),

> [...], the game promotes the encounter between individuals, enabling them to clash with each other, to group together, to organize themselves based on the rules. Thus, each member of the group must think about the game taking into account, in addition to their point of view, the point of view of their group and their opponents. We call the reader's attention to think of the game as a process that maintains already existing collective organizations that reproduce and resignify themselves through the playful environment.

Games are seen by many as a natural activity for people as a way to relate, have fun and prepare for more complex activities that will happen in the future. According to Huizinga (1980), most games are marked and composed of the following main characteristics:

- Voluntary participation;
- Distraction (the game is not mandatory);
- Outside reality (the game is the escape from real life);
- Spatial and temporal boundaries;
- Goals and rules;
- Feedback system (moderated by results), and;
- Ending (the game always ends).

These characteristics are very important and should be considered in the development of educational games. Despite these characteristics mentioned above, the student's participation in educational games in the classroom will occur in a mandatory way through the teacher's conviction and awareness of the students and the distraction will happen naturally when starting the activity, even though the participation of the students is mandatory as mentioned.

According to Viana *et al.* (2013), the games can be divided into three major categories as shown in Table 1:

Table 1 – The main categories of games

TYPES OF GAMES	DESCRIPTION
Analog games	They are technology-independent and are played manually, usually with the aid of boards and dice. The rules are laid out in manuals.
Digital games	They are aided by technology and offer a diverse range of platforms and graphic resources.
Persuasive games	They are developed to meet the desires of demanding consumers and provide an excessive relationship between the user and the devices.

Source: Prepared by the author. Adapted from Viana *et al* (2013).

Kapp *et al* (2013), on the other hand, presents a different classification of games. In this case, based on its main activities, which stand out: the capture or collection of objects, the use or choice of strategies in various environments, constructions or destructions, crosswords, based on exploration and Role Playing Game, or RPG (widely used today, where the participant assumes the role of a person in the game, with defined characteristics or missions).

According to Tolomei (2021, p. 148, emphasis added), "It can be said that the gamification process is relatively new, derived from the popularity of *Games* and all the inherent possibilities of solving and enhancing learning in different areas of knowledge."

The use of games ends up turning boring and demotivating activities into moments of learning and fun. This happens because for the student the activity of completing tasks, to pass stages (meet goals), get rewards and reach a goal is something stimulating (TOLOMEI, 2021).

The games, in addition to helping to encourage the interest of students, can help in the development of their identity, in learning to carry out group work, socialization (since they need to learn to make decisions together, planning actions and strategies), to take risks, to experiment, to explore, to understand the notion of trial and error, to face problems and develop solutions to solve them, in addition to stimulating the challenge through problematizations that help to apply the knowledge already acquired. According to Mattar (2010, p. XIV):

> Knowing how to learn (and quickly), work in groups, collaborate, share, have initiative, innovation, creativity, critical thinking, know how to solve problems, make decisions (quick and based on usually incomplete information), deal with technology, be able to filter information, etc. are skills that, in general, are not taught in schools. On the contrary: today's schools seem designed to kill creativity.

And in this context, gamification plays an important role, acting as a mechanism for the motivational engagement process. Based on this idea of gamification, student involvement would happen

mainly through reward structures, reinforcement and feedback (SKINNER, 2003), supported by game mechanics and systems that enhance user involvement (BUSARELLO *et al*, 2014). The concept of games in learning meets the opportunity to transform tasks into fun and pleasurable activities and allows students to be creative in solving problems and situations presented to them.

But to understand learning games or gamification, it is necessary to initially understand what this teaching methodology is made of. It can then be understood that gamification is nothing more than the use of game mechanics, style, thinking and/or design techniques to help students engage and solve a problem or delve deeper into a certain subject. Gamification comes to increase student engagement, especially to end tedious and repetitive classes, as each activity with games will be different even if the same games are used since the participants (students) will always be different, in addition to motivating, increasing activity and retaining students' attention during classes.

When you take advantage of the principles of games in other activities, you are doing what Marczewski (2013) called gamification, *game thinking design* or even gamified systems, with emphasis on *game thinking design,* which is the application of mechanisms, philosophies and rules of games in the most diverse contexts, which can be considered as the common matrix of these concepts, which would be the incorporation of game mechanisms in these activities (MARCZEWSKI, 2013).

The educational product in this work is a Mini-Training Course aimed at basic education professionals, focusing on high school students. It consists of a workbook for the course multiplier (teacher), a workbook for the participant of the short course (student), five support videos and a PowerPoint presentation to serve as an aid for the multiplier of the short course. In it we use the methodology of *serious games,* which form a group that includes a complete gaming experience, but does not aim at pure entertainment. And it should be borne in mind that "Gamified systems take advantage not only of the thoughts, elements and experiences of games, but also of the intrinsic foundations of games, fun, joy and entertainment" (DI BARTOLOMEO, 2015, p. 80) to help motivate the student on the learning path. With the use of gamification, it is expected to get from the student what is presented in Chart 2:

Chart 2 - Engagement Indicators.

INDICATORS	DESCRIPTION
Autonomy	It corresponds to the student's ability to study at home autonomously and make decisions without the continuous intervention of the teacher.
Execution	It is identified when the student performs the activities proposed by the teacher in the classroom.
Social	It is identified when the student has a good relationship with classmates and the teacher.
Delivery	The student not only carries out the activities, but these always occur within the deadlines established by the teacher.
Participation	During classroom discussions or explanation of the content, the student always contributes.

Collaboration	The student has the habit of helping other classmates, even though it is not a team effort.
Cooperation	During teamwork, the student has initiative and contributes to his group.
Questioning	The student does not feel intimidated or embarrassed to question the teacher about the contents studied.
Organization of the Environment	The student keeps the classroom always clean and organized.
Fun	The student performs the activities not only because of the obligation, but because he considers them fun.

Source: Prepared by the author. Adapted from Seixas (2014).

It is important to emphasize that the use of games in learning must be followed by close monitoring by the teacher in order to evaluate all the progress of the students during the interaction with the games. This becomes a critical success factor for the methodology of using educational games since, although it is a more playful methodology, one cannot lose focus on its main function, which is to help enhance and reinforce learning and not just serve as a source of entertainment for the student.

DESCRIPTION OF THE RESEARCH

In order to also verify the students' view on the subject related to the use of games by teachers within the classroom, a survey was carried out from June 13 to 28, 2021. Initially, the research was applied to students from the cities of Poços de Caldas and Varginha - MG, to identify what would be the factors that, according to them, would be reasons for them to feel discouraged from learning, and what motivations would lead them to change this behavior, in order to improve their enthusiasm for teaching and thus motivate them to become protagonists in learning. Due to the very few responses in the period from June 13 to 19 (only 6 responses) we opened the opportunity for students from the cities of Três Corações and Senador Amaral, also located in Minas Gerais, having thus reached between June 20 and 28 of that year a total of 56 responses to the questionnaire that initially provided for an approximate quantity of 50 responses, according to the project sent and approved by the Ethics Committee, via Plataforma Brasil at that time.

The research questionnaire was composed of 15 questions, of which 14 were objective and only one was subjective. The number of questions was limited to 15 so that the students did not feel bored when answering the questionnaire, because, otherwise, they could give up during the reading, before completing the answers, or even answer only to complete the activity, without proper attention. It is known that a characteristic of the students, young people in this age group, is that they are immediatists and a long activity could be considered boring and this would harm the intention of the research project of this work.

The intention was to map with high school students, regardless of the type of educational institution where they studied (private or public), their stimulating factors and preferences and thus understand how they would understand the factors about motivation and games within the classroom.

The questionnaire was created in text format and transcribed to the internet through the *Google Forms interface* for free. They were applied with the due authorization of the respondents or their legal guardians through the Informed Consent Form, safeguarding the confidentiality of the respondents and the confidentiality in the treatment of the data collected. For this, two questions were included, and in the first question, the respondent student claimed that he wished to participate in the research and that, if he was under 18 years old, he had the proper authorization from his parents or legal guardians to participate. In the second question, the respondent students had to say in which school they were enrolled in the high school grades.

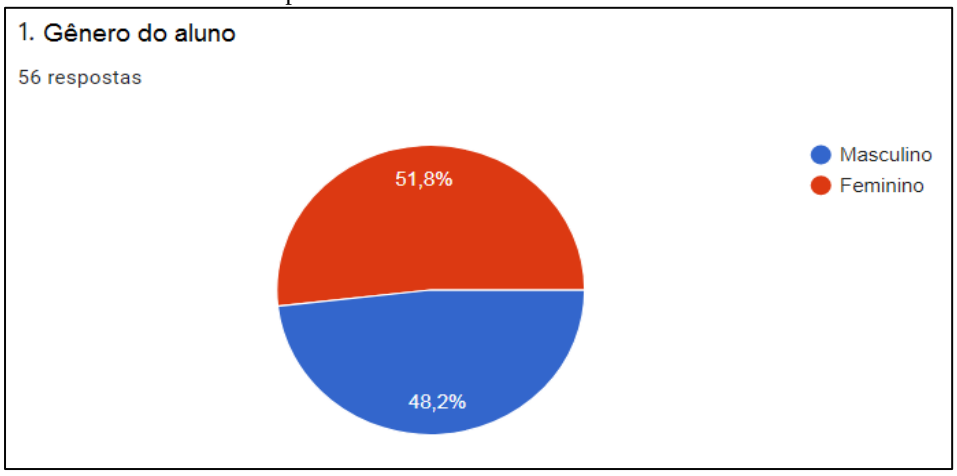
The application, as already mentioned, took place between June 13 and 28, 2021 and took place through the sending of questionnaires through the messaging application called *Whastapp*. Through this application, a message was sent to present the survey and the *link* to access the form for survey responses.

For this work we will present only the issues related to the educational games and the profile of the students, without mentioning the issues related to their motivation and their impressions about the school they study and the teachers who taught them.

Question 1

The students were asked with what gender they identified themselves and of the 56 respondents, 29 identified themselves as female (51.8%) and 27 identified themselves as male (48.2%), as shown in Graph 1:

Graph 1 – Gender Identification of students



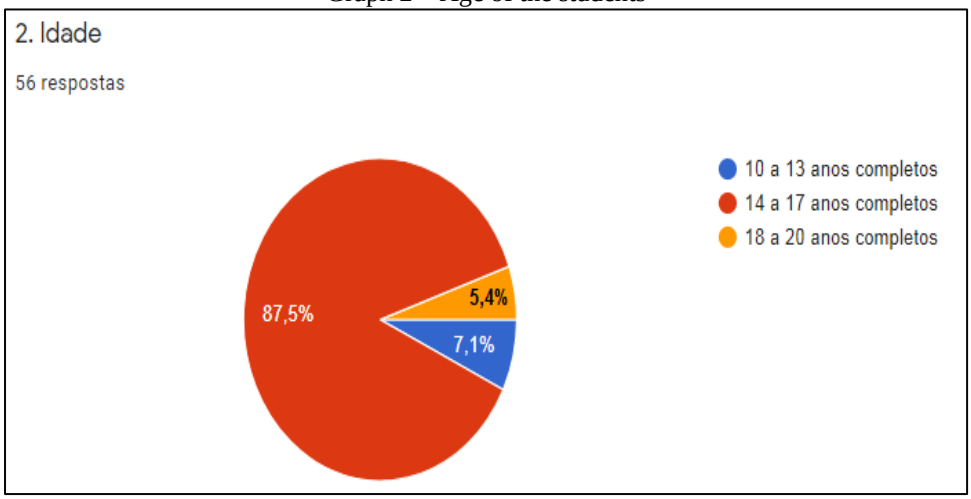
Source: prepared by the author from *Google Forms* (2021).

The result presents a proportionality in the identification of the participating genders.

Question 2

The students were asked about their age and of the total of 56 respondents, 4 are in the 10 to 13 age group (7.1%), 49 are in the 14 to 17 age group (87.5%), and 3 are between 18 and 20 years old (5.4%), as shown in Graph 2:

Graph 2 – Age of the students



Source: prepared by the author from *Google Forms* (2021).

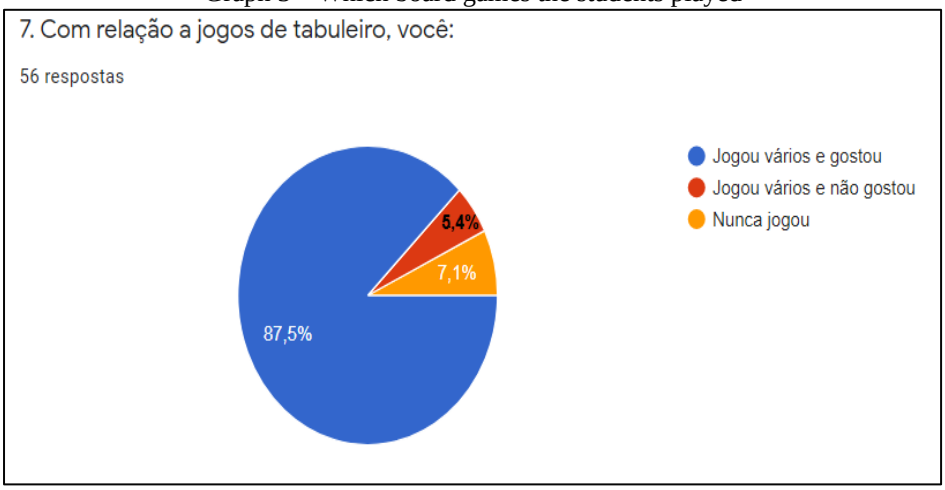
The result presented in the previous graph shows us that the respondent students actually belonged to an adolescent audience, especially those aged between 14 and 17 years old, who are the majority in regular high school

Next, let's jump directly to question number 7, since questions 3 to 6 are not related to the interest of this work.

Question 3

In this case, the students were asked if they had ever played any type of board game and if they liked it or not. Of the total of 56 respondents, 49 answered that they had played several and liked it (87.5%), 4 answered that they had never played it (7.1%) and only 3 had played several and did not like it (5.4%), as shown in Graph 7:

Graph 3 – Which board games the students played



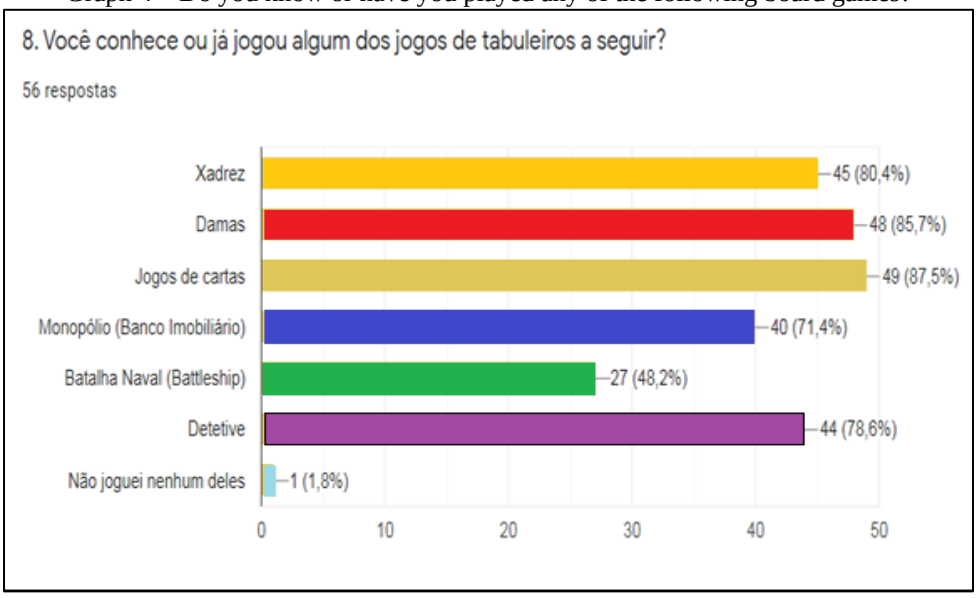
Source: prepared by the author from *Google Forms* (2021).

This question was designed to map whether students know games beyond digital games, since many schools do not have electronic equipment and teachers do not have digital knowledge to develop digital games. However, with regard to physical games, such as board games, it is already easier for teachers to create. It was identified that from the answers the students like this type of game. That is, despite being highly technological, they demonstrate that they have already played and enjoy this type of activity, probably because they are challenging and competitive activities.

Question 4

For this question, they were asked if they knew or had played any of the board games, the most popular in Brazil. Of the total of 56 respondents, only 1 answered that he had not played any of them (1.8%) according to the results shown in Graph 8:

Graph 4 – Do you know or have you played any of the following board games?



Source: prepared by the author from *Google Forms* (2021).

In this case, the question aimed to verify whether the students have already used the board games and with which one(s) they identify and, from the results, we were able to assess that they know and have played more than one game, which agrees with the proposal of using the games to motivate the student's learning.

Regarding the other questions (9 to 15) they will not be presented in this paper because they are specifically a subject that is not relevant to the context presented here.

In view of the above and the results of the questions presented, we can notice that the students, in addition to knowing about games, are interested in the subject, which makes the use of games by the teacher really important and is able to motivate the students' interest for learning.

RESULTS AND DISCUSSION

Throughout the development of the work We were able to prove that the positive reinforcement defended by the Behaviorist Theory from the use of educational games was really a more appropriate way to stimulate the students' desire for learning compared to the simple use of the traditional approach. It was also noticed that when learning about behavioral motivation, about the cognitivist approach and about gamification – through the educational product (mini-course applied in the internship), the teachers (participants of the mini-course) started to present an initiative aimed at the application of educational games within the classroom to improve the management of the classroom environment, which was proven by the use of games and by the teachers' search for the multiplier of the course after the realization of the mini-course for the implementation of educational games in the classes where they were teaching at that time.

FINAL CONSIDERATIONS

In this work we defend a more adequate, more motivating and more stimulating learning for the high school student is supported by the use of educational games planned and developed in a rational and didactic way as presented in the educational product "Mini-course for training basic education professionals: elaboration of games for high school students" is something challenging for the teacher, but much more appropriate for the current reality. At the end of the dissertation, the master's student leaves the following reflection: "Is the class that you teacher prepares for your high school class a class that you would like to attend after a tiring week of work on a Friday night? If your answer is yes, you are on the right track. But if the answer is different, it's time to use the cognitivist approach based on educational games and change the reality of your classroom." OLIVEIRA NETO, 2022, p. 103).

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