# Exploring the impact of gamification and the Flippity tool in teaching Brazilian culture: insights and recommendations

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***Abstract.*** *Gamification in education makes learning engaging, motivating, and interactive, stimulating active participation and skill development through game elements. In this context, this experiential report aims to describe and reflect on the use of games as an aid in the literacy process in the early years of elementary school, and how the use of the digital tool Flippity can contribute to this process. Besides that, we conducted a bibliographic analysis on the topic to enrich the reflection. The study reveals positive outcomes of using games in children's literacy education, fostering enjoyable learning experiences. Based on these findings, we offer six recommendations to enhance gamification in literacy teaching to promote effective learning for students.*

***Resumo.*** *A gamificação na educação torna a aprendizagem envolvente, motivadora e interativa, estimulando a participação ativa e o desenvolvimento de habilidades por meio de elementos de jogos. Nesse contexto, este relatório experiencial tem como objetivo descrever e refletir sobre o uso de jogos como auxílio no processo de alfabetização nos primeiros anos do ensino fundamental, e como o uso da ferramenta digital Flippity pode contribuir para esse processo. Além disso, realizamos uma análise bibliográfica para enriquecer a reflexão. O estudo revela resultados positivos do uso de jogos na educação de alfabetização de crianças, proporcionando experiências de aprendizagem prazerosas. Com base nesses achados, oferecemos seis recomendações para aprimorar a gamificação no ensino da alfabetização para fomentar o ensino efetivo para os estudantes.*

## 1. Introduction

Teaching is always a challenge, whether in face-to-face instruction, distance education (DE), emergency remote teaching (ERT), blended learning (BL), or other educational modalities [Lima and Isotani 2022]. Educators at all levels and from various parts of the world face the task of finding methods and approaches to engage and maintain student engagement. The use of Digital Information and Communication Technologies (DICT) within the classroom has become an increasingly present reality. According to [de Brito Lima et al. 2022], as academic research evolves regarding the use of Information and Communication Technologies (ICT), new questions arise beyond their potential

to promote learning in technology-mediated classrooms.

One of the teachers' challenges is to propose a methodology aimed at building more meaningful learning. Thus, several methodologies have emerged and discussions emerge about the need for new strategies to be adopted so that the teaching-learning process is remodeled. According to [Ahmed et al. 2015] gamification appears as an interesting path. Considering the current relevance of using games, the application of mechanical, strategic, and cognitive elements present in games was considered to promote learning [Fragelli 2018]. This type of strategy in the school context offers a way to create an environment conducive to learning as it approaches this generation known as "gamers" [Fardo 2013].

An experience report in the educational field allows teachers and other interested individuals to gain insights and learn from the experiences of others [Soares et al. 2021]. This experience report, lived in the year 2023 between May and June, aims to demonstrate how the use of ICT within the conventional classroom can contribute to learning moments linked to playful moments. For this, during the development of our activities, we had the intention of making the classes more attractive and relevant, we used games in our educational context, in this report, in particular, we used the digital tool Flippity which is a website linked to the Google platform [Abu-Bakar et al. 2022], with free access and use, it enables the creation of online digital resources by editing data in an online spreadsheet, each available game brings instructions on how to edit, thus enabling educators and users of general way can customize the game according to the objective and need [Bratel et al. 2021].

## 2. Background

In this section, we will address the importance of gamification in education, explore the features and benefits of the Flippity tool, and also discuss some studies and related works that demonstrate the potential of this approach.

### 2.1. Gamification

The use of gamification in the classroom makes the learning moment more dynamic and interactive, creating a more relaxed and pleasant environment [Sendacz et al. 2022]. Gamification allows us to work with activities in a playful way using technological resources within the school environment, so gamification consists of a way of bringing games with an educational purpose in which the student learns the content to be taught [Lima et al. 2017]. Educational games are tools that encourage students to learn with playful resources that aim to complement their academic training [da Silva and Lima 2020] in a fun and pleasant way. Therefore, the use of gamification can stimulate learning and knowledge acquisition through the side effect of [Ecar and da Silva 2020] games.

In addition to positive points such as increased motivation and engagement of participants, some studies show that gamification has some disadvantages, such as indifference, loss of performance, and unwanted behavior [Valle et al. 2020]. But, despite the negative points presented above, many studies have shown positive results with the use of gamification in the classroom, as we can see in [Silva 2022]; [Tenório et al. 2020] e [Toda et al. 2020b].

## 2.2. Flippity

The Flippity tool [Abu-Bakar et al. 2022] is a Google Sheets [Lima and Isotani 2022] extension that allows you to create games and personalized interactive activities for teaching as shown in Figure 1. It is a tool that offers different models of ready-made games and
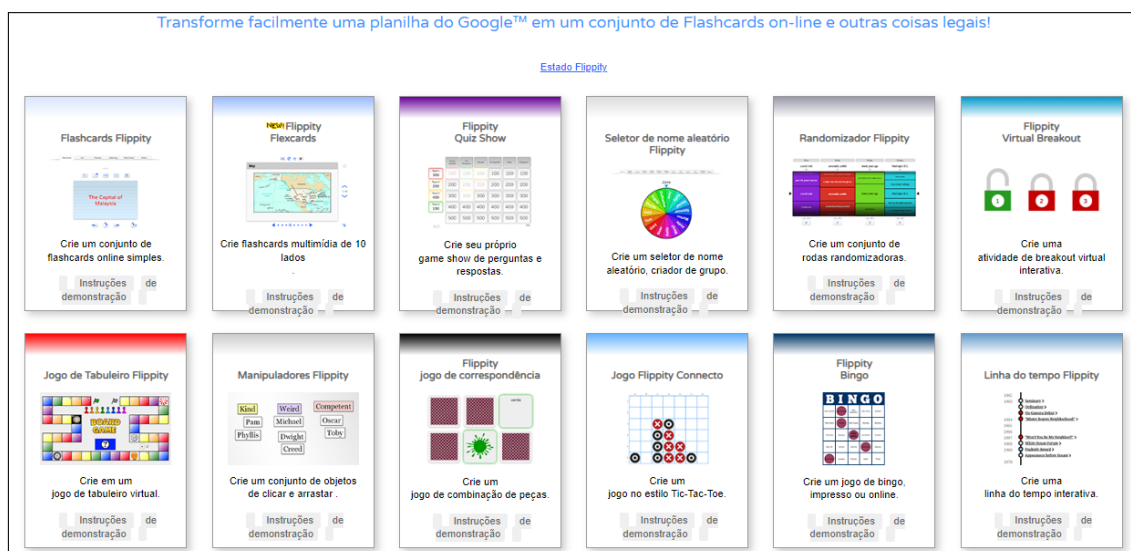


**Figure 1. Examples of some activities that can be developed using Flippity with thumbnails and links for instruction and demonstration.**

also the possibility of personalization, allowing teachers to adapt to their specific teaching needs [Bratel et al. 2021]. the applications of Flippity in teaching are diverse, and can be used to create learning activities review, board games, quizzes, sweepstakes, and even generate working groups random.

The tool allows its use in both face-to-face and online classes, making it a great alternative for in-person, hybrid, and distance learning. Flippity can help engage students in online activities, providing a playful and dynamic environment for learning, which enhances the quality of teaching and learning. The use of the Flippity tool in conjunction with other digital tools tends to bring benefits to activities within the traditional or online classroom, enabling teachers to create interactive and personalized activities for their students, contributing to a more dynamic and engaging education.

## 2.3. Related works

The study of [Silva 2022] brings us the relevance of the use of gamification in the development of foreign language communication skills, since students had the chance to develop their own games. [Toda et al. 2020b] reflects on the importance of taking into account students' prior knowledge about gamification, the use of gamified applications and gaming habits that may be important when educators decide to gamify their learning environments. In [Tenório et al. 2020] they present the perception and acceptance of teachers in relation to the tool *GamAnalytics* which allows teachers to monitor student interaction with learning resources and game elements, the authors evaluated positively the feedback they received from teachers who participated in the study.

From an experiment with the use of gamification in activities carried out at home, it was possible to verify a significant increase in the performance of activities as well as the

involvement and engagement of students in gamified activities during the [Silveira 2020] course. In their study [Rodrigues and Isotani 2023] they tell us about the importance of personalizing gamification according to users and content to be addressed within the school context, so that there is better engagement and students feel more motivated to carry out the proposed activities. It is worth mentioning that [Toda et al. 2020a] in their study recommends that to achieve positive effects it is necessary to follow good design practices, with a broad focus on the characteristics of users and their cultural context to avoid demotivation and unwanted behavior.

## 3. Methodology

This work is a descriptive study, of the [Severino 2017] experience report type, carried out from the experience of the teacher of the discipline of Religious Education. The work was carried out in a city with just over 700,000 inhabitants located in the southeastern region of Brazil, in a small municipal elementary school, attended by 243 students, divided into two morning and afternoon shifts. The school has a mobile computer lab containing 38 tablets for use in the classroom, in addition to each room having a 50-inch Smart TV with internet access (Wi-fi). From a brief survey, it was noticed that they use cell phones and tablets with a certain regularity, but access to computers and other ICT tools at home is limited. Although such devices are part of their school routine, their effective use faces specific challenges.

For this report, we worked with two groups of students from the 5th year of elementary school, one group containing 29 students and the other with 30 students, for a total of 59 students. The activities took place in the year 2023, for three weeks, between the months of May and June. In this work, we used a bibliographic survey, based on material already prepared, composed of books and scientific articles [Gil 2008, Wazlawick 2009]. Items were used about Blended Learning, Active Methodologies, and Gamification.

## 4. Experience report

The activity was carried out for three consecutive weeks, focusing on the cross-cutting theme "The history of June festivals", aiming to explore the culture and religiousness of the Brazilian people. For this content, three 50-minute classes were provided, and two games were developed using the Flippity tool: 1) Snowman Game and 2) Board Game. All games were played in the classroom.

In our initial class, we addressed the topic "The history of June festivals". We discussed the history of June festivals in Brazil, highlighting how they have evolved and their variations in the five regions of Brazil. The focus of the class was to demonstrate the cultural and religious importance of our country. Based on these insights, students were proposed to conduct group research on how the June festival is celebrated in each region, including their particularities in gastronomy, music, dance, and attire.

In our second class, we conducted an activity using the game called Snowman Game available on the Flippity platform. This game is similar to a hangman game where the player(s) have to guess the proposed word, with the hint being the number of letters and the theme related to the word. For each incorrect letter, a part of the snowman melts, as shown in the Figure 2.

In the beginning, the rules of the game were explained to the students. To make it easier, we decided to divide the teams according to the number of rows, resulting in
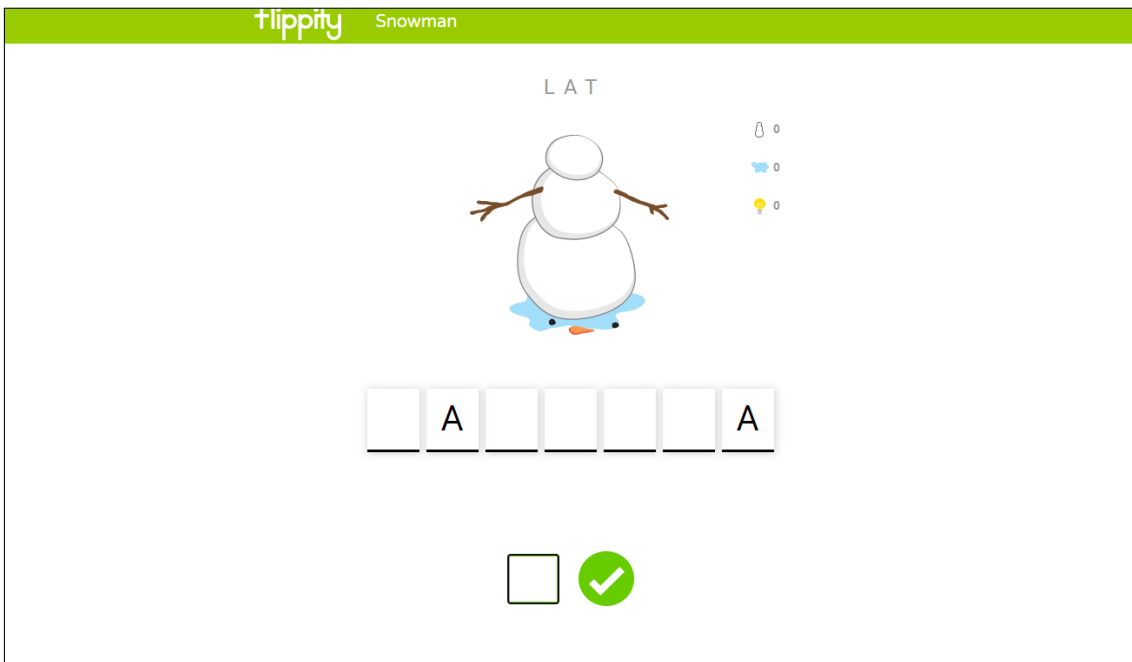
**Figure 2. Snowman Game developed in Flippity tool.**

five teams with four to six participants each, depending on the number of students in each row. Thus, we started the game with the row of students who were seated near the entrance door of the classroom and followed the sequence until we reached the row next to the windows.

The objective of the game was to work with the teams so that each team member could contribute to the discovery of the words. For this, each team member, according to pre-established rules, had to say a letter that could be part of the word. Every time they guessed a correct letter, it was written in the corresponding space, and they could also guess the word they believed to be correct, as Figure 3(a). If the letter did not exist in that



(a) Word found.



(b) Word not found.

**Figure 3. Game Snowman, some examples of game stages.**

word, the snowman's body starts to melt, as we can see in Figure 3(b) . In this sense, if they did not guess the word, the missing letters to complete the word appears in red, as we saw in Figure 3(b).

In this specific class, issues related to cooking, dances, games, and symbols present in the June festivals were addressed, pipoca doce (sweet corn pudding), pamonha

(sweet corn tamale), pé de moleque (peanut brittle), pescaria (fishing game), quadrilha (square dance), bonfire, balloon, among others. The activity lasted for about 40 minutes in each class, and with each word that the teams guessed correctly, it was evident the satisfaction of the children in having written, even collectively, a new word.

During the development of the class, we were able to perceive the interest and interaction of the students in trying to guess as many words as possible. With each word they got right, the students from each team celebrated and became excited. The student's interest in the proposed activities, as well as their progress and difficulties, became evident. By working with the students in teams, we provided moments of exchange, collaboration, empathy, and a sense of collectivity. Furthermore, teamwork requires the division of responsibilities and learning to respect others.

In our third class we created a board game using the Flippity tool as shown in Figure 4, the objective of the game was to work once again in teams, stimulating cooperation and empathy between them. This time the students were able to divide into 8 teams according to the colors of the board game (red, orange, yellow, green, light blue, dark blue, purple, and lilac), each room had teams of 3 to 4 members. The game was edited with the Festa Junina theme, all the questions hidden throughout the houses, as well as the questions contained in the Magic Box, were about the theme. The game still has advanced "x" spaces, stay a game without playing, roll the dice again, return "x" spaces, and return to the beginning of the game. At the beginning of the class, we present the rules of the game. Rules for the board game "The Story of the June Festivals":

1. There can be up to eight teams depending on the colors of the pins in the game.
2. The team that rolls the highest number on the dice starts the game.
3. The teacher is the coordinator of the game, she is the one who throws the dice and walks with the pins for each team.
4. The coordinator will roll the dice so that the first team can roll the number drawn on it.
5. Upon arriving at the house, the coordinator should click on the information button ("i") and read the command, curiosity, or question present in it, if it is a house that contains the June drawing or a question mark, click on the magic box in the center of the board and read the corresponding question or curiosity.
6. For each correct answer, the team advances two spaces, otherwise it will go back two spaces.
7. In some houses the teams will be able to come across curiosities, this information about the history that enriches their knowledge, however, it does not offer the opportunity to advance houses.
8. The team that reaches the end of the timeline first wins.

After instructing the students about the rules of the board game, we started to play, during the development of this activity we had the opportunity to work with the students on the importance of overcoming obstacles and that anything can happen in the development of the game. In class B, one of the teams went back to the beginning of the game twice and the students of this team wanted to give up, after we talked and resumed the game they ended up coming second on the board, a fact that allowed us to illustrate the importance of persistence to the students. When working with this game, with each question, we could notice how the students had understood the content and what subjects we should return to in our next class, the houses with curiosities throughout the game
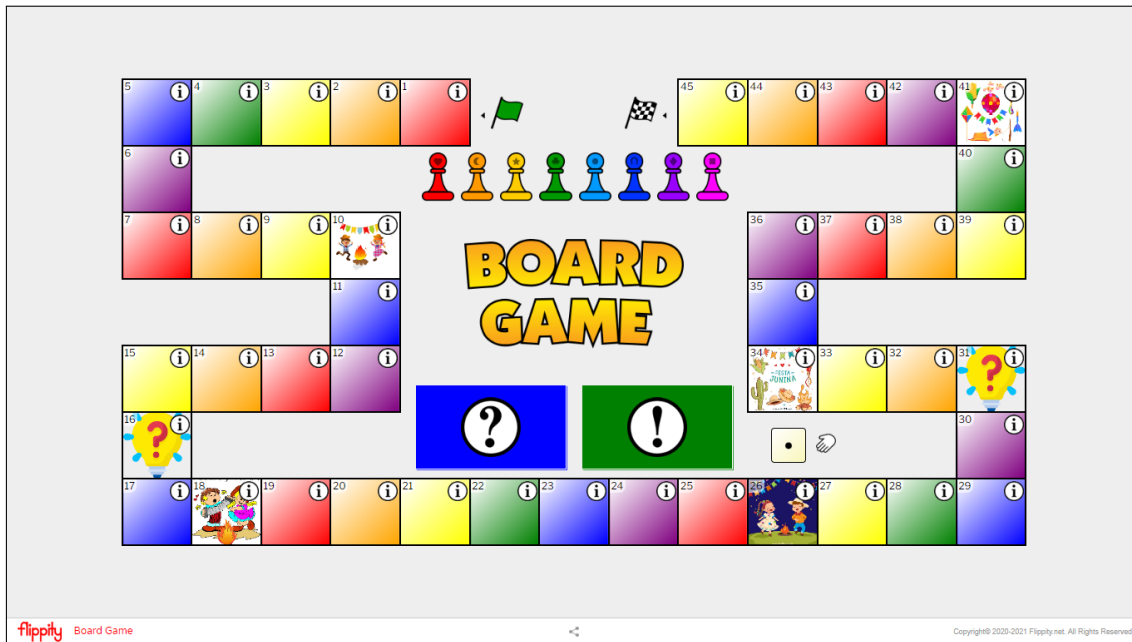
**Figure 4. Board Game developed in Flippity tool.**

were also of great help for those who did not remember some subjects worked in the classroom.

At each conclusion of the weekly activities we noticed small advances in solving them, as well as the excitement of the students waiting for the new class. All the activities developed were aimed not only at the individual learning needs but also at the groups. Therefore, the use of the active methodology sought to contribute to the learning process, using games and games at all stages, providing playful moments and interaction with all participants.

## 5. Recommendations for Engaging and Productive Gamified Lessons with Flippity

In this section, based on our experience report, we will provide six flexible recommendations that can be tailored to the specific context and objectives of the lesson. Figure 5 visually depicts the recommendations for teachers to achieve a productive, captivating, and engaging learning experience using the Flippity tool. We aim to ensure a productive, captivating, and engaging experience for students while utilizing the Flippity tool.

1. Introduce an intriguing narrative or story that connects gamified activities, capturing students' interest and keeping them engaged throughout the lesson.
2. Establish challenging goals and tangible rewards for students, creating a sense of progress and achievement. This motivates students to actively participate in activities and strive to reach the set objectives.
3. Add competitive elements to gamified activities, such as rankings or scores, to create a stimulating environment and promote student engagement. Healthy competition can drive participation and a desire for improvement.
4. Offer continuous and immediate feedback on students' performance during gamified activities. This allows them to track their progress, identify areas for improvement, and feel encouraged to keep striving.

5. Foster collaboration among students by encouraging the formation of teams or partnerships. This enables them to work together to overcome challenges and share knowledge, developing teamwork skills and strengthening collective learning.

6. Adapt gamified activities according to students' interests and needs. Allow them some autonomy in choosing paths or strategies, providing a personalized experience that keeps them engaged and motivated.



**Figure 5. Six recommendations to engaging and productive gamified lessons with Flippity.**

By following these guidelines, educators can create an interactive and dynamic classroom environment that promotes active participation, collaboration, and personalized learning opportunities. Implementing these strategies can enhance student motivation, foster a sense of achievement, and support the attainment of learning objectives.

## 6. Analysis and Discussion of the Report

Developing activities with games in the classroom is not always an easy task, it requires prior planning and those agreed with the class are fundamental for the good development of the proposed activity. However, despite the mishaps encountered before, during, and after this type of work in the classroom, we were able to notice the students' interest in

this type of activity, which is a little out of the ordinary, from dialogued classes, blackboard, and activities in the notebook.

As we saw in related works [Toda et al. 2020a]; [Rodrigues and Isotani 2023] e [Toda et al. 2020b] the teacher must take into account the reality of the students, their habits, and previous knowledge. In this report, we seek to meet all these needs, so that there is a better use and engagement of the students.

An important point to be highlighted concerns the students' behavior following the rules during the game and their great interest in overcoming the proposed challenges. In this sense, games and play are important sources of development and learning that enable students to acquire knowledge and skills in the field of language, cognition, values, and sociability [Vieira and Oliveira 2010].

A perceived negative point was that some students had difficulties working in teams, especially in the first Snowman game, when they could not choose team members. This makes us reflect on the importance of working on other moments of group collaboration. Despite all the difficulties and challenges, we could see that ITC, when well applied in the school environment, with well-structured planning taking into account the context, objectives to be achieved, and the reality of the students, can have good results in the process of teaching and learning.

## 7. Final considerations

Based on the observations made during the development of activities with games in the classroom, we can draw some important conclusions. First, we emphasize that the work carried out with our students using games contributed significantly to the knowledge appropriation process, since, during the activities proposed to the children, synchronous and asynchronous activities were presented, in which they were introduced to respect rules, have visual perception, practice self-control, pay attention to observation and memorization. In this sense, we can see that the games were pedagogical tools for the cognitive, affective, and social development of the children involved in the classes.

In addition, we noted the interest of students in this type of activity, which is a little different from the traditional routine of lectures and activities in the notebook. Games provided a more dynamic and engaging environment for students. We also observed that games and games are important sources of development and learning for students. They allow the acquisition of knowledge and skills in aspects of language, cognition, values, and sociability.

However, we also identified a negative point about teamwork. Some students struggled when working in groups, especially when they couldn't choose team members. This leads us to reflect on the importance of providing other moments of group collaboration, seeking to develop teamwork skills and respect for the rules.

Given these conclusions, some future work can be explored. It is important to seek strategies and methodologies that promote the development of teamwork skills, such as promoting collaborative activities and establishing clear agreements. In addition, it is necessary to investigate and develop games and activities that are more inclusive and adaptable, taking into account the needs and individual characteristics of students. Additionally, we intend to explore other games available in the Flippity digital tool and how they can contribute to the teaching and learning process, seeking to understand their advantages and disadvantages during their use.

The research can also go deeper into the study of the impacts of gamification in education, analyzing the results obtained in terms of academic performance, motivation and student engagement. In addition, it is worth exploring other tools and digital resources that can complement and enrich gamified activities in the classroom.

Finally, it is extremely important to highlight that games play a significant role in the educational process, providing a more attractive and stimulating learning experience. However, it is necessary to consider and address the challenges encountered, such as teamwork, to continuously improve teaching practices and provide a more effective and inclusive learning environment. Furthermore, it is extremely important that teachers are prepared to deal with new methodological approaches and new ICT in the classroom.

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