# GAMIFICATION ELEMENTS AND ENGAGEMENT: exploring students' perception in an English reading course

# ELEMENTOS DE GAMIFICAÇÃO E ENGAJAMENTO: explorando a percepção dos alunos em um curso de leitura em inglês

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## ABSTRACT

Gamification has been widely employed as a pedagogical tool for fostering interaction and learning in class, including in foreign language teaching contexts. The gamification process may modify the structure or the content of a course with the use of specific strategies, such as the attribution of points and acknowledgements, ranking systems, storytelling, and others. Still, there is a lack of formal methodological procedures on how to design such strategies, as well as how they affect the engagement of students. As an attempt to expand the studies on the use of gamification as a pedagogical tool, this research aims at identifying which elements are likely to promote or limit engagement opportunities in class according to the student's perception. Data was generated through a questionnaire, which was applied on a remote instrumental reading course, and components of quantitative and qualitative research were used to analyze responses to open-ended and Likert-scale questions. The results indicate positive and challenging aspects of certain gamification elements. High importance was attributed to elements that provided task guidance and content feedback, fostered decision-making opportunities towards content, and created moments for interaction with the environment and peers. Elements that appeared to limit engagement were related to individual collaboration in group work, content complexity regarding the target language, introduction of new digital tools and systems, and personal topics of interest; accordingly, these items require careful implementation.

**Keywords**: Gamification; Gamification elements; Language teaching and learning; Engagement.

## RESUMO

A gamificação tem sido amplamente empregada como ferramenta pedagógica para fomentar a interação e o aprendizado em sala de aula, inclusive em contextos de ensino de língua estrangeira. O processo de gamificação pode modificar a estrutura ou o conteúdo de um curso com o uso de estratégias específicas, como atribuição de pontos e reconhecimentos, sistemas de classificação, storytelling, entre outros. Ainda assim, faltam procedimentos metodológicos formais sobre como desenhar tais estratégias, bem como como elas afetam o engajamento dos alunos. Na tentativa de ampliar os estudos sobre o uso da gamificação como ferramenta pedagógica, esta pesquisa tem como objetivo identificar quais elementos são passíveis de promover ou limitar oportunidades de engajamento em sala de aula de acordo com a percepção do aluno. Os dados foram gerados por meio de um questionário, aplicado em um curso de leitura instrumental à distância, e os componentes da pesquisa quantitativa e qualitativa foram utilizados para analisar as respostas às perguntas abertas e em escala Likert. Os resultados indicam aspectos positivos e desafiadores de determinados elementos da gamificação. Atribuiu-se alta importância aos elementos que orientavam as tarefas e feedback do conteúdo, oportunizavam a tomada de decisão sobre o conteúdo e criavam momentos de interação com o ambiente e os pares. Os elementos que pareciam limitar o engajamento estavam relacionados à colaboração individual no trabalho em grupo, complexidade do conteúdo em relação ao idioma de destino, introdução de novas ferramentas e sistemas digitais e tópicos pessoais de interesse; consequentemente, esses itens requerem implementação cuidadosa.

**Palavras-chave:** Gamificação; Elementos de gamificação; Ensino e aprendizagem de línguas, Engajamento.

## INTRODUCTION

Teachers have constantly searched for means of engaging students. As technology advances with the development of digital teaching tools and platforms, schools and other educational institutions face the need for adapting methods and materials. Educational games, technologies and multimodal features have been recurring resources to achieve the goal of creating a welcoming environment. In the last few decades, the gamification of the teaching and learning process has also become an alternative to arouse the students' interest.

Gamification has been used in different areas, from business to, more recently, education. As the name suggests, the concept is related to the use of game elements, such as reward systems, interactive tasks, instant feedback, and other features, in non-game contexts (Kapp, 2012). One reason for this growth is that there is an increasing number of video game players at all ages, and students are getting more and more used to new technologies. The general idea is to instigate learners to overcome challenges and achieve learning objectives.

Studies have shown that the implementation of elements from gamification as pedagogical resources have the potential to promote students' motivation, learning, and engagement (Kapp, 2012; Mello *et al.*2019; Quast, 2020). Teachers may provide badges, create a storyline, include games and ranking systems, but evidence shows that the means of gamifying a project may vary depending on the methodological frameworks that are adopted (Brito, 2017).

In fact, research indicates a lack of methodological procedures regarding what should be gamified. Studies have been developed in Brazil in order to analyze how gamification occurs in English as a Foreign Language contexts (Boaventura, Oliveira, 2018; Quast, 2020; Leffa, 2020), and the results are optimistic about the connection between gamification and engagement. Still, not much has been studied about the impact of gamification in the remote learning contexts (Quadros, 2016; Garcia 2017), and about which elements of the gamification process in education are perceived as motivating

factors according to students (Toda el al, 2019b).

In addition, the COVID-19 pandemic has forced an abrupt change from the face-to-face teaching context to the remote environment. It is possible that remote courses continue to be offered in the academic context due to possible benefits of this modality, such as: schedule flexibility and reduction of costs for materials and transportation. Still, the challenge of keeping students motivated in the virtual environment has led teachers to rethink their classes in several areas; in addition, further investigation on gamification in such contexts is required. In the academic area, educational programs had to readapt their courses in order to continue offering courses to the academic community, which also creates room for research; for instance, instrumental reading courses have been slightly portrayed in research about gamification.

Hence, this study aims at identifying which gamification elements contributed to the promotion of engagement of high school students in a remote English language instrumental reading course. The research seeks to analyze what aspects of each gamification element were helpful, challenging and adaptable according to the participants' answers. After this introductory section, the literature and methodology section presents concepts about gamification and describes the teaching context of the study. Next, the results are presented and discussed and, finally, final remark are presented.

## THEORICAL AND METHODOLOGICAL BASIS FOR GAMIFICATION STUDIES

Gamification can be perceived as the use of logical, aesthetic, and mechanical elements from games in non-game contexts (Kapp, 2012). It is a structure that articulates educational material and content that includes immersive strategies of exploration, collaboration, and overcoming challenges. Kapp (2012) proposes that, in education, the use of such elements are related to the way students think about a topic and can engage them in classroom dynamics, be them context face-to-face, mobile and so on. The author points out that educators aim at supporting learners to achieve their objectives, creating a welcoming and interactive learning atmosphere, and stimulating positive emotions towards content, achievements, and possible mistakes.

In other words, gamification may influence how students act and feel during the class. Palomino *et al.* (2019) highlights the possibility of immersion from student involvement and engagement. That is, the valorization of direct action and participation is perceived as a determining factor in student learning. It is necessary to interact to be able to advance in the story, get badges, achieve high scores and collect experience points, going beyond the idea of only receiving a grade.

In the gamification process, there is a deviation from the entertainment objective from games to the goal of teaching and learning. In a study about gamification in an English as a Foreign Language teaching context, Leffa (2020) argues that gamified strategies are used not only for engagement and fun, but because the objective is to foster the students' development and learning. This deviation is endorsed by the concept of *repurposing*, which he characterizes as the adaptation of an artifact to operate a function different from the one it was initially designed for. In other words, repurposing traditional activities through the use of gamification elements is a way of gamifying the teaching process.

As the objective of gamification may vary from area to area, there is not one definite framework to gamify educational environments (Brito, 2017;

Agra *et al.*, 2019). The addition of game-specific attributes, such as scores, trophies, and rankings often characterizes how an activity is gamified. In this scenario, implementation of game elements directly to the content presentation. However, other game elements can enhance the teaching and learning experience. In fact, the gamification elements that are selected when designing a project may have a key role in enhancing the students' engagement. In the words of Kapp (2012, p. 50), the elements "work individually and collectively to create the game-playing experience". Some studies intend to describe such elements in terms of design (Kapp, 2012), even though it is common to encounter synonyms in the literature.

Moreover, Mello *et al.* (2020) suggests two general ways of gamifying a course in the education area — Content Gamification and Structure Gamification. The first one refers to the modifications only in the structure of the course. This type of gamification integrates, for instance, the content and feedback to the storytelling, rewards, status and trade systems, and a range of game mechanics. On the other hand, the latter encompasses, such as the addition of avatars, rankings, missions, levels, badges, and other game components, which can be implemented without transforming the content completely in terms of in terms of design, instruction, and materials (Costa, Marchiori, 2017 *apud* Boaventura, Oliveira, 2019).

As suggested, there are different means to plan a gamified project. Quast (2020), for instance, has developed a step guide to the development of gamified projects. She adapted the 6D framework[1] to the education área. The steps include planning the course objectives and content, knowing the context, designing thematic elements regarding the storytelling, adding interactive and creative challenges, besides taking into consideration the feedback, progression and rewards systems. Quast (2020) gamification steps were used to develop the instrumental reading course and will be detailed in the methodology section.

Moreover, after analyzing frameworks and recurrent synonyms in the area, Toda *et al.* (2019b) presents a taxonomy of gamification elements for education[2]. The taxonomy is divided into five major dimensions and minor twenty one elements. According to the authors, students can either be aware of the gamification components, or the elements may be implicit; that is, some elements are explicitly or implicitly presented to students, characterized as extrinsic and intrinsic elements, respectively (Toda *et al.*, 2019b, p. 4). A description for each gamification element is displayed in Table 1.

[1]The original framework was developed by Werbach and Hunter (2012 apud QUAST, 2020, P. 807): "1. DEFINE business objectives 2. DELINEATE target behaviors 3. DESCRIBE your players 4. DEVISE activity cycles 5. DON'T forget the fun! 6. DEPLOY the appropriate tools".

[2]Toda el al. (2019b) developed a diagram that illustrates the gamification elements for education: https://slejournal.springeropen.com/articles/10.1186/s40561-019-0106-1/figures/2

Table 1 - Taxonomy of gamification elements for education.

| Dimension | Element and type | Element description | Also known as |
|---|---|---|---|
| **Measurement or Performance**<br><br>Related to the environment response, used to guide and provide feedback to students | **Acknowledgements** (extrinsic) | Rewards that students receive for their actions, usually in the form of symbols. | Badges, medals, achievements, trophies. |
| | **Level** (extrinsic) | Advantages that are unlocked as students advance in the environment. | Skill level, character level. |
| | **Points** (extrinsic) | A numbered feedback provided after the students' actions. | Skill points, scores, experience points. |
| | **Progression** (extrinsic) | Guidance provided to students so they can advance in the environment. | Bars, steps, maps. |
| | **Stats** (extrinsic) | Visual clues displayed in the environment, usually related to the progression of content and activities. | Information, data, virtual dashboards. |
| **Ecological**<br><br>Related to the gamified environment, indicated as properties | **Chance** (intrinsic) | The random property in the events of the environment. | Randomness, luck, fortune, probability. |
| | **Economy** (extrinsic) | Trades that can happen in the environment, usually related to the content or advantages. | Transactions, market, exchange. |
| | **Imposed choice** (extrinsic) | Decisions that students need to make to advance in the environment. | Choice, judgment, paths. |
| | **Rarity** (extrinsic) | Limited resources in the environment. | Exclusivity, limited items, collection. |
| | **Time pressure** (extrinsic) | Time used to pressure students to act. | Countdown timers, clocks, deadlines. |
| **Social**<br><br>Related to the student interaction fostered in the environment | **Social pressure** (intrinsic) | Social interactions that may put pressure on the students. | Peer pressure, guild missions. |
| | **Competition** (intrinsic) | The act of competing against the environment or opponents to achieve the best accomplishment. | Conflict, player vs player, scoreboards, leaderboards. |
| | **Cooperation** (intrinsic) | Students collaborate with others to achieve a common outcome. | Teamwork, co-op, groups. |
| | **Reputation** (intrinsic) | Social status represented by titles that are collected within the environment. | Classification, status. |
| **Personal**<br><br>Related to the student that uses the environment | **Sensation** (intrinsic) | Use of the senses to improve the student's experience. | Visual and/or sound stimulation. |
| | **Objective** (intrinsic) | Goals that add purpose and focus to perform the tasks. | Missions, quests, milestones. |
| | **Puzzle** (intrinsic) | Activities that are implemented for learning purposes and usually represent a cognitive challenge. | Challenges, quizzes, puzzles, cognitive tasks. |
| | **Renovation** (intrinsic) | Opportunity to re-do tasks and events. | Boosts, extra life, renewal. |
| | **Novelty** (intrinsic) | Updates that add new information, content and game elements. | Update, surprise, changes. |

| | | | |
|---|---|---|---|
| **Fictional**<br><br>Related to the link between the students experience and context | **Narrative**<br><br>(intrinsic) | Order of events that happen through the students' experience. | Karma system, implicit decisions. |
| | **Storytelling** (extrinsic) | How the story presentation happens within the environment (as a script), with plot, characters etc. | Audio queues, text stories. |

Source: adapted from Toda *et al.*(2019b).

The way the gamification process is designed can have a direct impact on how students engage in the classroom. Toda *et al.* (2019b) suggests that the lack or the ineffective implementation of gamification elements arouse students to feel more or less motivated, and this also occurs depending on the interests of each individual. There is a wide range of researches that focus on concepts of gamification as a motivational resource for engagement in the learning process (Busarello et al, 2014; Ulbricht and Fadel, 2014, Alsawaier, 2018, Sailer et al, 2018).

The Measurement dimension, which encompasses the reward system and the environmental feedback, include the most implemented features in gamification projects (Dignan, 2011; Leffa, 2020; Quast, 2020). Kapp (2012) informs that gamified rewards (as in the **Acknowledgement** and **Point** elements) can be motivating tools in the classroom, especially due to the feeling of achievement and the competitiveness. On this issue, Leffa (2020) verifies the influence of the rewards in form of points and badges after completing tasks of different complexity, and the results suggest that the attribution of rewards contributed to the engagement of the group, but focusing only on rewards can make students lose interest in the learning process. In fact, the participants appeared to value the pedagogical purposes of the activities, the design and multimodal features of the environment, and the interactiveness of the tasks in terms of group work and platform resources.

**Level** and **Progression** elements can indicate how much students have advanced. Once the further steps of a task are clear to students, they may feel more confident about their performances and even aim at achieving higher levels (Toda *et al.,* 2019b). Dignan (2011) also points out that the lack of these dimensions may cause students to feel stagnated or frustrated with their skills. According to the author, insufficient information about the content and activities (**Stats**) may also disorient students.

The Ecological dimension refers to "concepts that act as properties of the environment that can be implemented in a subtle way to engage the users to follow the desired behavior" (Toda *et al.,* 2019b, p. 10). Here, the elements relate to features that give the sensation of playing a game. The use of **Time Pressure**, for instance, contributes to keeping tasks dynamic, and avoids making the environment feel dull (Dignan, 2011). At the same time, some students may feel excessively and negatively pressured when timers and deadlines are too strict.

The outcomes that came from the element **Chance** are varied, since students have to rely on their good or bad luck. Limited items and events (**Rarity**) can be a motivating factor and create a sense of freshness in the environment (DIGNAN, 2011). However, Dignan (2011) and Toda *et al.* (2019b) point out that both features require careful implementation, because students may feel disappointed for not achieving a specific outcome, or even feel that their actions are unimportant.

The **Imposed choice** feature might lead students to feel their actions are meaningful, once they can impact the storyline, the rewards, and so on (Dignan, 2011). When students feel their choices matter, they tend to make conscient, content-focused choices rather than focusing only on gamified features (Quast, 2020). Then, it is imperative to plan which choices are obligatory, otherwise excessive freedom may decrease the groups' focus (Toda *et al*., 2019b). Also, although the **Economy** element is not directly related to content-instruction, the authors suggest that giving students the power of choosing what to buy or trade can be entertaining.

Features related to how individuals interact and behave with each other in tasks encompass the Social dimension. **Cooperation** works as an element that provides potential room for knowledge share and peer support (Quast, 2020). According to Papadopoulos (2016), students benefit from working collaboratively; still, it is necessary to be cautious with feelings of demotivation derived from excessive challenges and isolation. At the same time, the author suggests that a healthy competitive environment (**Competition**) motivates learners to achieve good outcomes. A negative side is that poor communication and lack of encouragement from one anothers (**Social pressure**) can also disengage students (Toda *et al.,* 2019b). In fact, the way learners may feel and be represented can be associated with the **Reputation** element. The attribution of social statuses can either make students feel important and participate more to acquire a title, or demotivate them due to not acquiring a title (Toda *et al.*, 2019b).

The Personal dimension relates to the students' perception and experience in the environment. Quast (2020) dialogues with Leffa (2020) when reflecting upon gamification as a pedagogical resource in language teaching. Both studies indicate that teachers should consider the creation of immersive gamified projects in terms of narrative and assessment. According to Quast (2020), it is interesting to contemplate contextual interests (**Objectives**) and multimodal features for the interface (**Sensation**) and pedagogical tasks (**Puzzles**), so students can experience the pleasure of playing, the desire to overcome challenges, and the possibility of improving their performance.

These aspects can make the environment less static. In practical terms, the addition of different features and new information promotes a dynamic learning environment (**Novelty**), although they may be quite time consuming for teachers (Mustafa *et al*., 2019). The idea of redoing tasks (**Renovation**) is commonly used in education, especially when students fail a task. In gamification, Renovation corroborates to balancing the sensation of difficulty towards learning (Toda *et al.*, 2019b).

The Fictional dimension relates to how students' experience the context, especially considering the relation between Storytelling and Narrative elements. According to Toda *et al.* (2019b), **Narrative** refers to how learners interact and are affected by the story system. It may create a sense of immersion towards the content as well (Quast, 2020). **Storytelling** is how the narrative is materialized, and themes can be used to contextualize activities (Palomino *et al.,* 2019)

It is interesting to bear in mind that each element may reflect on the students' engagement, interaction, and motivation. For this reason, gamification requires careful planning and awareness of the context.

In terms of methodology, this study data was produced in an English language instrumental reading course which was held in 2021[3]. Due to

[3]The course was entirely designed by two undergraduated student (future English teachers) participating in the project: Pre-service Teaching Workshops: focus on de-encapsulating the initial training of foreign language teachers, approved by the ethics comittee. https://sites.google.com/uel.br/oficinasiniciacaodocencia/p%C3%A1gina-inicial

the COVID-19 pandemic, all the ten classes were held remotely through the video platform Zoom. Besides the synchronous classes, other materials and extra activities were uploaded weekly on Google Classroom.

The target audience was composed of high schoolers from private and public educational institutions in Brazil. This provided a heterogeneous classroom environment in terms of proficiency and learning objectives. Of the 26 students who participated in the course, 16 were from public schools and 10 from private ones. They were between 15 and 17 years old.

As already mentioned in this section, there are no definite instructions on how to gamify a course. Therefore, it is important to illustrate the framework of our English language instrumental reading course. We followed the twelve steps proposed by Quast (2020) and the elements from the gamification taxonomy (Toda *et al.*, 2019b) to plan a Content gamified course (Mello *et al.*, 2019):

Table 2 - Elements from gamification taxonomy.

| Steps proposed by Quast (2020) | The Intrumental Reading course produced |
|---|---|
| 1. Course objectives; didactic content and learning objectives; competencies; attitudes | Improving reading skills in English considering university entrance exams. Reading strategies, such as skimming, scanning, use of keywords etc, were introduced. |
| 2. Knowing the participants | As the reading course was related to English for Specific Purposes, students were oriented to indicate their objectives and genres of interest in a needs analysis questionnaire. |
| 3. Theme, narrative, and aesthetics | The background story was based on the game Genshin Impact, an adventure RPG, and the theme was exploration. Scenarios and dialogues were displayed on slides presentations, via Google Slides (**Storytelling**), Sound effects, cutscenes, songs and pictures were added to enhance the learner experience (**Sensation**).  |
| 4. Final purpose of the gamification// storytelling | The Genshin Impact protagonist joined the guild, and students helped her find her missing brother as they explored new locations. In the end, their choices led them to discover a mysterious land which was under a dictatorship. Their interactions in the environment led them to help the citizens from the area (**Narrative**). |
| 5. Characters/roles and groups; how they interact; cooperation | Due to time limitations, there was no explicit role division nor levels among the students; they were all travelers from a guild. Most of the missions had pedagogical purposes (**Puzzles**). Students were usually separated into groups to discuss possible answers (**Social Pressure**), play games (**Competition**), and do collaborative tasks (**Cooperation).** |

| | |
|---|---|
| 6. Rules and objectives of the gamified system | Students had to accomplish missions to advance in the story. Students received an amount of experience points - or simply XP - (**Points**) according to the complexity of the task. In competitive missions, students were divided into groups, and the winners received double the XP.<br>  |
| 7. Phases or levels; progression; achievements and accomplishments | The narrative progressed in each lesson. The mission-based structure was adopted to indicate title promotions in a weekly ranking (**Reputation**), as students collected XP and badges (**Acknowledgements**) and items of different availability (**Rarity** and **Chance**).<br>  |
| 8. Quests and challenges, puzzles or battles; obstacles, barriers, conflicts, tension; risks. Involved exploration, discovery, sharing, discussion, collaboration, creation | Some missions were fragmented into shorter quests, as puzzle pieces they had to find to advance to other locations. Discovery missions were less tense, but in boss battles they risked losing their badges or XP, besides timed activities (**Time pressure**). For instance, in one lesson, groups had to win a tic tac toe match from a character to collect a piece of information; in another, they needed to cross an ocean storm - represented as a board game - to find the mysterious land.<br>  |
| 9. Feedback system, scoring, rewards, medals (involve assessment of learning) and feedback intervals and reward scheduling | Instant feedback was provided in class, especially with the use of bars and visual clues to indicate instructions (**Progression**). Visual clues were used to display information in slides and in their profiles (**Stats**). Every three lessons, students received detailed feedback according to the assessment criteria, besides being graded and receiving badges. In case they wanted to practice, review and/or receive rewards, they had extra missions in the format of quizzes (**Objective**). |
| 10. Surprise elements | Students had to make decisions that affected the plot and led to different consequences (**Imposed chance**), such as the regions they would explore next and the fate of enemies and characters. Also, we tried to use a range of digital tools[4], besides introducing new gamified features (**Novelty**), such as the XP store (**Economy**) and profile personalisation. The XP was used as a coin instead of points to level up. |
| 11. How to use the knowledge produced to advance the journey, that is, how to generate retroactive purpose | To integrate different types of knowledge, students had to use strategies from previous lessons to accomplish their missions. |

[4]*Quizizz were* used for quizzes; *Genially*, for games, board games and user profiles; Jamboard, for collaborative whiteboards and economical transactions; Canva, for mind maps and poster creation; Google Sheets, for collaborative glossaries and weekly ranking, and other tools.

| | |
|---|---|
| 12. Room for creativity; freedom of action | Several missions aimed at consolidating reading skills through applying strategies. However, after the reading strategies were introduced and the group arrived in the mysterious land, a final mission was proposed. In groups, the travelers should develop a campaign to raise awareness about social issues. The product could be a folder, an infographic or a campaign poster. The themes varied among some local issues of the land — hunger, climate change or gender equality. |

Source: adapted from Toda *et al.*, 2019b and Mello *et al.*, 2019.

The data collection instrument was a questionnaire. Elements of quantitative and qualitative research were used to analyze the responses for three questions. The first one refered to the importance of the course gamification elements to their participation and interest in the course considering a Likert scale[5]. The most apparent aspects of each gamification element of the course were included as one item in the question and the items were grouped into tables, one for each gamification dimension, and the weighted average of the elements was calculated, similarly to Quadros (2016).

The second and third questions were: "Which elements of the course promoted your participation and interest the most?" and "Which elements of the course limited your participation and interest the most?". We adopted an interpretivist approach to analyze these open-ended questions, perceiving data as non-statistical procedures of analysis (Dörnyei, 2007), and considering meaning as part of a particular perception of the researcher towards a phenomena.

Due to the possibility to investigate specific groups and obtain data on characteristics and opinions (Pinsonneault and Kraemer, 1993), eleven students volunteered for data generation. Before answering the questionnaire, the details of the informed consent[6] were explained, which was shared with them via Google Forms to facilitate the collection of terms. Alongside their parents/caretakers, the students digitally agreed to participate in the research.

For ethical reasons, the identity of the participants was kept confidential and different acronyms were adopted, from A1 to A11. In the following section, we conduct the analysis and discuss the results found based on the theoretical framework of the study.

## RESULTS: STUDENTS' PERCEPTION ON GAMI-FICATION

In this section, the relevance of the gamification elements that were implemented in an English reading course for high school students is analysed. The participants' responses indicated which elements were rather interesting, challenging, and even changeable. As mentioned in the methodology, each part of this section follows a structure. First, we present a table with the responses for the question in Likert model "How important were the elements below to your participation and interest in the gamified course?". Then, we discuss the responses for the open-ended question "Which elements of the course promoted your participation and interest the most?", followed by "Which elements of the course limited your participation and interest the most?".

[5]The numerical rating scale went from 1.0 to 5.0. Item 1.0 refers to "Not important", 2.0 for "Slightly important", 3.0 for "Moderately important", 4.0 for "Important", and 5.0 for "Very important".

[6]The document was created according to the guidelines of the Ethics Committee on Research Involving Human Beings (CEP-UEL).

**Relevance of the gamification elements from the Measurement dimension**

The aspects of the Measurement dimension contributed to the students' engagement is presented in Table 03. The **Progression** element, represented by the feedback on missions using resources on the slides, was highly evaluated, with a weighted average of 4.91. XP acquisition (**Points**) was also indicated as highly relevant, even though three of the eleven responses were not so positive. The **Stats** element had 72,72% of positive answers, but they were varied, which may highlight a range of different student experiences. Finally, the achievement of items and badges (**Acknowledgements**) was the least important item; 63.63% of the answers were positive, but the same number of students that considered it as "important" also perceived it as "moderately important".

Table 3. Importance of the game elements - Measurement dimension.

| Measurement dimension | | | | | | | |
|---|---|---|---|---|---|---|---|
| Response option | Corresponds to the gamification element | Regular or low level of importance | | | High level of importance | | Weighted Average |
| | | Not important 1.0 | Slightly important 2.0 | Moderately important 3.0 | Important 4.0 | Very important 5.0 | |
| Feedback on missions using resources on the slides | **Progression** | 0.0% 0 | 0.0% 0 | 0.0% 0 | 9,09 1 | 90,91% 10 | 4,91 |
| XP acquisition | **Points** | 0.0% 0 | 9,09% 1 | 18,18% 2 | 9,09% 1 | 63,64% 7 | 4,27 |
| Disposition of information in the profile and on the slides | **Stats** | 0.0% 0 | 9,09% 1 | 18,18% 2 | 27,27% 3 | 45,45% 5 | 4,09 |
| Items and badges achievement | **Acknowledgements** | 0.0% 0 | 9,09% 1 | 27,27% 3 | 27,27% 3 | 36,36% 4 | 3,91 |
| Total | | Average of 22,73% | | | Average of 77,27% | | 4,30 |

Source: the authors.

Overall, the elements of the Measurement dimension were considered important to engagement. Still, it is interesting to notice that the element responsible for guiding students about tasks and content — that is, used mainly for pedagogical purposes — ranked higher than elements linked to receiving and visualizing points and rewards. In the following question, the students outlined some of the positive aspects of this dimension:

**A1:** The achievements were important, because it was essential to get the badges and XP after the activities. I found it interesting because it encouraged us to continue the course, knowing that we would always have a bonus.

**A9:** The feedback from the teachers with the pictures and bars during the explanations and games was important, because it made me understand my mistakes, where I need to have more focus, and the next steps.

Although the achievement of rewards was considered the least relevant aspect in Table 2, **Acknowledgements** seem to be an essential aspect of the course to A1. The attribution of experience points (**Point**) and badges became an expectation after specific missions of the course, and the participant considered it meaningful to keep studying. This perception is in agreement with the study of Kapp (2012), who indicates that gamified rewards have a motivational potential, especially when they prompt competitiveness and a sense of recognition.

A9's response highlights how visual aids in the environment (**Stats**), once aligned with the pedagogical and instructional purposes (**Progression**), contributed to the understanding of activities and feedback. In this sense, Dignan (2011) points out that a lack of the **Progression** element can cause frustration in students and develop a sense of anxiety, as the next steps of the task would not be clear. The author also suggests that **Stats** are a useful tool to guide students when information is sufficiently provided. Thus, a careful design of the Progression and Stats elements may promote a sense of reliability on the content.

When participants were asked about aspects of the course that challenged their engagement, one student mentioned a possible limitation on how the information about acknowledgements was displayed in the students' profile (**Stats**):

> **A8:** I got a little lost with the badges and XP. I only remembered that I could see them in the profile by the end of the course.

The information for badges, items, and XP was displayed in the profile, but its visualization may not have been clear to A8. Due to this limitation, it is possible to infer that A8 did not benefit as much from the implementation of the **Acknowledgment** element in the course. In contrast to A9's answer, in which a guiding facet of **Stats** was perceived (DIGNAN, 2011), A8's response illustrates that incomplete information can be disorienting,

Considering the responses of A1, A8 and A9, it is possible to establish a relationship between the teaching process and acknowledgements. Leffa (2020) points out that, in gamified projects, it is common to prioritize rewards rather than trying to motivate students through design and content. However, rewards alone do not guarantee that students would feel inclined to participate and learn. Accordingly, Quast (2020) discusses that gamification is enriched when it goes beyond providing external rewards, such as badges and points. Thus, it might be interesting to design the Measurement dimension alongside pedagogical purposes, so that students feel more secure about the environment and content. Then, rewards could add to the learning process instead of sustaining the role of motivating learners.

**Relevance of the gamification elements from the Ecological dimension**

Concerning the Ecological dimension, the results in Table 4 point to a moderate relevance as average percentages were quite close. The exchange and purchase of items and benefits (**Economy**) appeared to be the most relevant item for engagement, with a weighted average of 4.18, whereas the **Rarity** element in limited items and badges was the least important, with a value of 3.27.

Table 4 - Importance of the game elements - Ecological dimension.

| Ecological dimension | | | | | | | |
|---|---|---|---|---|---|---|---|
| Response option | Corresponds to the gamification element | Regular or low level of importance | | | High level of importance | | Weighted Average |
| | | Not important 1.0 | Slightly important 2.0 | Moderately important 3.0 | Important 4.0 | Very important 5.0 | |
| Exchange and purchase of items and benefits | **Economy** | 0.0% 0 | 0.0% 0 | 18,18% 2 | 45,45% 5 | 36,36% 4 | 4,18 |
| Need for decision- making in the story and missions | **Imposed choice** | 0.0% 0 | 0.0% 0 | 27,27% 3 | 45,45% 5 | 27,27% 3 | 4,0 |
| Missions against time | **Time pressure** | 0.0% 0 | 9,09% 1 | 36,36% 4 | 45,45% 5 | 9,09% 1 | 3,55 |
| Luck-related results in missions | **Chance** | 0.0% 0 | 18,18% 2 | 36,36% 4 | 36,36% 4 | 9,09% 1 | 3,36 |
| Limited/rare items and badges | **Rarity** | 0.0% 0 | 9,09% 1 | 63,64% 7 | 18,18% 2 | 9,09% 1 | 3,27 |
| Total | | Average of 43,64% | | | Average of 56,36% | | 3,67 |

Source: the authors.

Elements that limited the students' power of choice ranked lower in the Likert question. The possibility to exchange XP for benefits or items (**Economy**) was optional, since students could keep the XP to themselves. On the other hand, elements that were beyond the control of the group, such as **Chance**, **Rarity**, **Imposed Choice**, and **Time Pressure**, appeared to be less important. Moreover, the students' answers about which items contributed most to their engagement point to motivating aspects of this dimension:

> **A2:** I liked the overall plot of the story, it was different to see the characters interacting in the scenes, and that we were also able to decide things in the narrative.
> **A5**: It was really cool to be able to exchange my points for other things in the store, like grades and delete absences.

A5 seemed to have enjoyed the benefits related to the XP Store (**Economy**). Even though the benefits the students highlighted were not directly related to the content, but to pedagogical factors like grades and absences, students can be entertained by the transaction system (TODA *et al*., 2016). On the other hand, A2 mentions the impact of his choices on the course of the story. The need to make decisions to proceed to the next level was present both in the narrative and tasks (**Imposed choice**). According to Dignan (2011), these choices motivate the student to think that their actions are meaningful in the learning environment. Also, Quast (2020) indicates that this feeling of importance corroborates for students to make more conscious choices regarding content. Further on, the participants pointed out aspects from the Ecological dimension that limited their engagement:

**A5**: What discouraged me a little was that depending on the outcome of the mission only a few people got the prizes and there were badges that the ones who were absent could not recover.

**A11**: One of my difficulties is when the activities were timed. I am not very good at working under pressure.

A5's contribution shows that both the **Rarity** and **Chance** elements decreased the will to participate in the course, since the student could not receive some acknowledgements and points. Dignan (2011) indicates that both elements, when not implemented effectively, can imply limitations to the learning process. Toda *et al.* (2019b) also argues that students tend to feel bored or disappointed when rewards are unachievable or their decision power is limited.

Furthermore, A11 highlighted the difficulty in performing tasks against time. Some tasks in the course were non-gamified collaborative practices, but others involved quizzes and games, such as tic tac toe, board game, jeopardy, escape room etc. Evidence shows that the lack of **Time Pressure** can cause boredom and limit the sense of challenge in the classroom (DIGNAN, 2011), but timed activities may cause discomfort and impair performance as well. An alternative to this issue could be stipulating flexible response times (TODA *et al.*, 2019b).

When effectively implemented, the Ecological dimension can potentially engage students by making the teaching-learning environment dynamic (e.g. with transactions, surprise elements, and rare items). Otherwise, these elements might have the opposite effect and demotivate students.

**Relevance of the gamification elements from the Social dimension**

The participants attributed a high degree of importance to the elements of the Social dimension. with a total weighted average of 4.24 and 90.91% of positive responses in Table 4. **Cooperation** leads the section with an average weight of 4,64, represented by the missions students collaborated in groups. **Competition** appears in second, with average weight of 4,45 and similar responses to the previous item. **Reputation** was represented by a weekly ranking, in which the students' position was displayed based on how much XP and badges they had, and 81,81% of the answers indicate it as a relevant aspect as well. The fourth item, **Social pressure,** refers to the peer influence during missions, and six of the eleven answers indicate it an important item, even though two answers pointed to a rather regular relevance.

Table 5 - Importance of the game elements - Social dimension.

| Social dimension | | | | | | | |
|---|---|---|---|---|---|---|---|
| Response option | Corresponds to the gamification element | Regular or low level of importance | | | High level of importance | | Weighted Average |
| | | Not important<br>1.0 | Slightly important<br>2.0 | Moderately important<br>3.0 | Important<br>4.0 | Very important<br>5.0 | |
| Collaborative missions | **Cooperation** | 0.0%<br>0 | 0.0%<br>0 | 0.0%<br>0 | 36,36%<br>4 | 63,64%<br>7 | 4,64 |
| Competitive missions | **Competition** | 0.0%<br>0 | 0.0%<br>0 | 0.0%<br>0 | 54,55%<br>6 | 45,45%<br>5 | 4,45 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Weekly ranking | **Reputation** | 0.0%<br>0 | 9,09%<br>1 | 9,09%<br>1 | 36,36%<br>4 | 45,45%<br>5 | 4,18 |
| Influence of teammates during group missions | **Social pressure** | 0.0%<br>0 | 0.0%<br>0 | 18,18%<br>2 | 54,55%<br>6 | 27,27%<br>3 | 4,09 |
| Total | | Average of 9,09% | | | Average of 90,91% | | 4,34 |

Source: the authors.

Table 4 disposes highly positive answers to the elements of the Social dimension. It is worth mentioning that **Cooperation**, **Competition** (if done in teams) and **Social Pressure** are connected to activities that require human interaction, whereas Reputation is rather related to a social status. Still, Social pressure contrasted positions with the first and second elements. Regarding the interactive nature of the tasks, the participants emphasized a key role of the group activities:

> **A4:** It was good to do some activities against other teams, because everyone helped each other, encouraged each other, had fun, and we got positive results. Even when we lost, it was fun.
> **A7:** The group missions and "Extra Mission" activities were important. Because it was an additional interaction during and after class.
> **A10:** Collaborative assignments (in readings, in final production, etc) helped me interpret the English language in a better way after talking with other people.

A4, A7 and A10 argued how group tasks fostered interaction and learning. A10 specifies that peer talk was helpful to promote learning, especially considering texts in English. **Cooperation** is perceived as a tool for sharing and building knowledge, supporting other students, and developing new skills in the classroom (TODA *et al.*, 2019b; QUAST, 2020), including developing reading skills in a foreign language. Similarly, A7 emphasizes how group missions create a space for interpersonal and content interactions on reading. Although it is not possible to affirm whether the task was more collaborative or competitive in A7's response, it is possible to notice that, as Kapp (2012) points out, gamification can foster communication and discussion between students.

On the other hand, A4 suggests positive aspects of competitive group activities and how mistakes were perceived. As Toda (2019b) points out, **Competition** may be a tool for encouraging students to achieve better performances and surpass their classmates. Competing in tasks — especially in games — contributes to the creation of a relaxed learning environment, in which mistakes are seen in a more positive way (KAPP, 2012). In the sense that mistakes are part of the learning process, gamified activities might help students to deal with possible failures.

In addition to this aspect, A4 talks about the influence of peers in encouraging classmates. The **Social Pressure** element relates to how peers encourage others to achieve the goals of the activity. Healthy competitive environments help students to overcome difficulties, but they may have the opposite effect when developed in an ineffective way (PAPADOPOULOS, 2016). One participant highlighted this challenging aspects of group activities:

**A3:** I believe the factor that challenged me the most was the collaborative work, because not everyone contributed and there was nothing to do about it, which made it difficult for me to do the activities.

A3 points to the lack of collaboration in group activities as a demotivating factor. In line with previous studies, students may feel isolated when they have to overcome challenges by themselves, whereas other classmates may feel excessively challenged by the pressure of doing well (TODA *et al.*, 2019b; PAPADOPOULOS, 2016).

Thus, the elements from the Social dimension appear to have a potential impact regarding how learners engage in a gamified project. It is worth mentioning that the weekly ranking (**Reputation**) that displayed the students' position according to their amount of badges and XP was considered a relevant element for engagement in Table 4, but none of the responses explicitly mentioned it.

**Relevance of the gamification elements from the Personal dimension**

Data from Table 6 shows that the extra missions (**Objective**), the possibility of redoing activities (**Renovation**), and the range of missions dedicated to consolidating knowledge (**Puzzles**) were evaluated as highly important. The addition of different types of activities (**Novelty**) and multimodal resources (**Sensation**) displayed similar and positive results as well, with weight averages of 4,36 and 4,18, respectively.

Table 6 - Importance of the game elements - Personal dimension.

| Personal dimension | | | | | | | |
|---|---|---|---|---|---|---|---|
| Response option | Corresponds to the gamification element | Regular or low level of importance | | | High level of importance | | Weighted Average |
| | | Not important 1.0 | Slightly important 2.0 | Moderately important 3.0 | Important 4.0 | Very important 5.0 | |
| Doing extra missions | **Objective** | 0.0% 0 | 0.0% 0 | 0.0% 0 | 18,18% 2 | 81,82% 9 | 4,82 |
| Possibility of redoing extra missions | **Renovation** | 0.0% 0 | 0.0% 0 | 0.0% 0 | 27,27% 3 | 72,73% 8 | 4,73 |
| Missions aimed at consolidating knowledge | **Puzzles** | 0.0% 0 | 0.0% 0 | 0.0% 0 | 45,45% 5 | 54,55% 6 | 4,55 |
| Introduction of new missions and dynamics during the course | **Novelty** | 0.0% 0 | 9,09% 1 | 0.0% 0 | 36,36% 4 | 54,55% 6 | 4,36 |
| Use of pictures, videos, songs and sound effects in missions | **Sensation** | 0.0% 0 | 0.0% 0 | 18,18% 2 | 45,45% 5 | 36,36% 4 | 4,18 |
| Total | | Average of 5,45% | | | Average of 94,55% | | 4,53 |

Source: the authors.

Although the Personal dimension focuses on how students experienced the course, it is interesting to mention that the response options of the questionnaire are related learning objectives and teaching materials. For instance, a common aspect among the **Objective**, **Renovation** and **Sensations** elements in the course was that they included activities in quiz format. The extra missions allowed students to practice the content outside of class, considering their own learning objectives (**Objective**) and they displayed leaderboards, visual clues, icons and sound effects to enhance the learner experience (**Sensation**). Extra missions also guaranteed extra XP and could be redone (**Renovation**).

Moreover, activities that had a pedagogical purpose (**Puzzles**) were listed with a high degree of importance, which adds to the hypothesis that learning and practicing reading in English was a major motivation of the students. The participants indicated which Personal elements increased their engagement:

> **A3:** The creative and didactic teaching, the class with games instead of only written activities like in school.
> **A7:** The group missions and "Extra Mission" activities were important. Because it was an additional interaction during and after class.
> **A8:** I especially liked the quizzes, as they are a way to test our knowledge of the subject in a dynamic and practical way, which encourages the appropriation of the content in a simple and very practical way.
> **A11:** The use of quizzes and various types of activities was good, as they facilitated a better understanding of the content and made the classes more interesting.

A3 mentions how the presence of games in class contributed to make the teaching-learning environment more dynamic and interesting. Most of the time, the games had pedagogical purposes (**Puzzles**), such as practicing reading strategies. The idea of adapting rather traditional writing and reading activities with the use of gamified strategies is related to the concept of repurposing, indicated by Leffa (2020) as the transposition of an artifact, such as the characteristics of games, to a different context. Also, A11 highlights the use of varied types of activities as positive for comprehension. The initiative of introducing tasks in different formats throughout the course (**Novelty**) seemed to make the environment feel dynamic instead of static, which Mustafa *et al.* (2019) highlights as a motivating factor for learning.

A7, A8 and A9 have a positive approach towards activities aimed at content consolidation. The answers relate to Toda *et al.* (2019b), who argues that a good implementation of the **Puzzle** element can motivate students in the learning process, because they would benefit from the fun of the gamified environment. The use of gamification as a pedagogical resource for language teaching, as mentioned by Quast (2020), may enhance the learning experience once the goals of students correlate to the learning goals of the project (**Objective**).

Below, some students pointed out challenging aspects and possible gaps in the course about the **Puzzle**, **Objective** and **Novelty** elements. **Sensation** and **Renovation** were not mentioned in the students' responses, in spite of the high evaluation in Table 6.

> **A2:** I would like to do more quizzes during class, because we could practice more and develop our interpretation skills.

**A4:** I would like an external game besides the Extra Mission that would further enhance the content of the course. Because I think that would be a rather fun way to learn what I need.

**A7:** The quizzes in class were more difficult. Because most of them were in English and were aimed at reading and interpreting text.

**A9:** I would only suggest having fewer new activities, because sometimes I got confused, especially at the beginning of the course, but soon after a few mistakes I got the hang of it.

On the one hand, A2 and A7 make considerations regarding quizzes, which were mainly used for pedagogical purposes (**Puzzle**). A2 implies that more quizzes would help to develop reading skills in English, whereas A7 emphasizes the difficulty of the quizzes, even though the importance of Extra Mission was highlighted in the participant's previous question. A challenging aspect of the quizzes in the course was that they usually contained texts fully in English. Low proficient students were instructed to make use of reading strategies to comprehend general ideas and specific information, but the whole reading process might have been easier for high proficient students. This situation specifies not only the need for knowing the students' interests and background before designing a gamified project (QUAST, 2020), but also their linguistic skills in the target language.

On the other hand, A4 and A9 mention how adding or removing specific features could contribute to their engagement and learning. A4 mentions that the introduction of an extra game would approach the goal of learning (**Objective**), but in a fun way. As an alternative view on the issue of adding new elements, A9 points out that the introduction of several types of activity (**Novelty**) was confusing — even though it is not possible to affirm whether the content, material or instruction was confusing. To some extent, Mustafa *et al.* (2019) argues that the lack of updates may develop a sense of boredom in class, which compromises learning. Still, it is possible to infer from the responses that constraints related to content, instruction and digital tools disfavors engagement as well. Besides considering the students' interests and goals, it may be necessary to esteem their skills regarding language and technology to contemplate contextual needs in the Personal dimension; otherwise, they may feel overly challenged, confused or unmotivated.

**Relevance of the gamification elements from the Fictional dimension**

From the data in Table 7, it is possible to note that 81.82% of the students considered the Fictional dimension as positive for their engagement in the course. The way narrative was presented in class (**Storytelling**) seems to have been a factor of high importance for 45.45% of the students. In addition, 54.55% of the responses indicated plot progression and relation the storyline (**Narrative**) as "important".

Table 7 - Importance of the game elements - Fictional dimension

| Fictional dimension | | | | | | | |
|---|---|---|---|---|---|---|---|
| Response option | Corresponds to the gamification element | Regular or low level of importance | | | High level of importance | | Weighted Average |
| | | Not important 1.0 | Slightly important 2.0 | Moderately important 3.0 | Important 4.0 | Very important 5.0 | |
| Presentation of the story through dialogues, pictures, and cinematics | **Storytelling** | 0.0% 0 | 0.0% 0 | 18,18% 2 | 36,36% 4 | 45,45% 5 | 4,27 |
| Plot progression and personal relation to the storyline | **Narrative** | 0.0% 0 | 0.0% 0 | 18,18% 2 | 54,55% 6 | 27,27% 3 | 4,09 |
| Total | | Average of 18,18% | | | Average of 81,82% | | 4,18 |

Source: the authors.

Responses to the question in the Likert model ranged from 3.0, 4.0, and 5.0 scales, which may suggest varied and subjective perceptions on fictional elements. In the first open-ended question, students outlined aspects that encouraged their participation:

> **A2:** I liked the overall plot of the story, it was different to see the characters interacting in the scenes, and that we were also able to decide things in the narrative.
> **A6:** The fact that the course is based on a game makes it more fun. The teachers' idea of using the story of a game was great and I think they taught the content more than we expected, because everything was connected.

The way the characters interacted (**Storytelling**) and the development of the story considering the student's experience (**Narrative**) were positive and innovative aspects for A2. As discussed in section 4.2, the participant was interested in the decision-making feature of the story. A6 also highlights positive feelings towards the story, and mentions the connection between content and narrative. The participants' perceptions are in line with Toda (2019b), who states that the **Storytelling** and **Narrative** elements can contribute to contextualizing the student in the activities with themes. That is, the story enables the creation of an immersive environment, in which the focus of the students encompasses both content and gamification elements (PALOMINO *et al.*, 2019; QUAST, 2020). Participants were also asked about which elements challenged their participation, and they made suggestions about the theme of the story and the arrangement of the dialogues:

> **A1**: I just didn't really like the context of the narrative, as it wasn't a subject of interest to me. It could have been something more appealing.
> **A6**: I would just suggest that the narrative be in English with the Portuguese translation underneath, so we can learn the meaning of the words we don't know yet. I think it would get closer to the goal of reading English.

The story was not a subject of interest to A1; therefore it is possible to infer that this element did

not contribute to the engagement of the participant. Although Toda (2019b) points out that the lack of the **Narrative** element can decrease the students' interest, the affinity with the topic seems to be key in the fictional dimension. In other words, a confusing or boring narrative may cause students to see no reason to perform gamified tasks.

As emphasized by A6, an alternative to consolidate learning objectives — in this case, to introduce and practice reading strategies — could be to explore other means of narrative transposition (**Storytelling**). The participant suggested that the dialogues of the characters were displayed both in Portuguese and in English, so it could be used as vocabulary expansion and develop reading skills in the target language. Even though the lack of narrative in gamification might hinder engagement (TODA *et al.,* 2019b; QUAST, 2020), teachers should look carefully at the students' interests and pedagogical needs to prevent dullness and unexpected outcomes in the Fictional dimension.

## DISCUSSION AND FINAL REMARKS

Gamification has been attached to the idea of engaging students in the classroom, and studies from education areas have perceived the potential of the concept as a tool for motivating students to achieve their goals, collaborate and solve problems. It is possible to design gamified projects through different frameworks, and prioritize specific gamification elements; still, such decisions affect the students' interaction and learning goals. In this research, participants considered their own engagement, and indicated positive and challenging aspects of the gamification elements (TODA *et al.*, 2019b) implemented in the English language instrumental reading course.

Elements that are used as guiding tools in tasks and content instruction seem to be engaging to students. The reward system (**Acknowledgements** and **Points**) was seen as intrinsic to the course progression, as the acquisition of rewards after tasks promoted a sense of motivation in some learners. Also, since **Progression** and **Stats** are connected to instruction and task display, they can create a sense of certainty towards the content, in which students feel safe to interact and complete quests.

The opportunities for interacting with other classmates and with the digital tools was pointed as an engaging feature of gamification as well. Elements such as **Cooperation** and **Competition** provided room for knowledge construction with peers as students engaged in discussions and task conclusions, and felt inclined to perform better. Interaction with digital tools also promoted their engagement. Different sorts of tools were introduced throughout the course to add the sense of **Novelty**, and most of them represented **Puzzles** that displayed cognitive tasks that challenged students to achieve goals (**Objectives**), be them related to learning or collecting **Points**.

The decision-making power provided in elements appeared to engage students in the course. The option of trading XP for items and benefits (**Economy**) was an entertaining dynamic, especially for the ones who considered **Acknowledgments** and **Points** as important. The means of developing, displaying and interacting with the story portrayed the **Narrative** and Storytelling **elements**, which aroused the students' interest in participating and doing tasks. In fact, the potential to contextualize activities with themes was pointed out as a relevant aspect.

As each individual has particular interests and preferences, challenging features of the

gamification elements were highlighted in the data. It may be interesting to reflect about the necessities of the teaching context to design possible upgrades. For instance, cognitive tasks (**Puzzles**) that were portrayed in the target language were difficult for low-proficient students, and the frequent introduction of new digital tools (**Novelty**) confused some learners. Also, the theme of the story was not kind to everyone (**Narrative**) and, as a consequence, carrying out gamified activities could be seen as unreasonable. For such occurrences, an alternative could be rethinking the learning objectives (e.g. the exposition of the target language) alongside the means of gamification (e.g. games, digital tools, themes, and so on).

Moreover, collaborative tasks that involve **Competition** and **Cooperation** need to be carefully designed to provide possibilities of action to every student. Otherwise, some would participate disparately more than others. In this sense, elements that stimulate a sense of constraint should be carefully designed and, if feasible, adapted throughout the gamified project, be it related to time (**Time pressure**), peer influence (**Social Pressure**), lack of information (**Stats** and **Progression**), limited paths or features (e.g. **Chance**, **Rarity**, **Acknowledgements**), and other intersections.

Given that the present study focused on identifying and relating gamification elements to engagement through the students' perspectives, the results were limited to particular experiences towards one gamified project. Future research on different contexts might extend the potentialities of engagement related to the gamification elements. In fact, apart from looking at each gamification dimension separately, it might prove important to examine the interconnections among the elements and how they influence learning a foreign language as well. This could encourage teachers to look into gamification as a tool for creating an enjoyable and immersive learning environment.

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