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SEÇÃO: ARTIGOS

Gamification in a textbook for Brazilian learners of English

Gamificação em um livro didático para aprendizes brasileiros de inglês

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Received on: 06 jun. 2021. Approved on: 31 maio 2022. Published on: 13 jul. 2022. Abstract: Gamification, i.e. the use of game design elements in non-game settings, has attracted an increasing academic interest with numerous research papers having been published on the application and evaluation of gamification in education. The strenuous effort to introduce innovation to textbooks and improve student engagement in the classroom has allowed gamification to gain ground in English language teaching. This article aims to present and discuss the strategies implemented to gamify a textbook for young Brazilian learners of English. In addition, it also intends to contribute to materials writing by describing some game design principles. Pedagogic and design implications stemming from the strategies adopted in the examined textbook include providing a variety of game design elements on varying levels of abstraction (game interface design patters, game design patterns and mechanics, game design principles and heuristics, and game models). Finally, the text shares some reflections on the importance of creating a student-centred learning environment based on meaningful gamification.

Keywords: gamification, english language teaching, materials writing

Resumo: A gamificação, ou seja, o uso de elementos de design de jogos em ambientes não relacionados a jogos, atraiu um crescente interesse acadêmico com diversos trabalhos publicados sobre a aplicação e a avaliação da gamificação na educação. O esforço extenuante para introduzir inovação nos livros didáticos e melhorar o engajamento dos alunos em sala de aula permitiu que a gamificação ganhasse terreno no ensino da língua inglesa. Este artigo tem como objetivo apresentar e discutir as estratégias implementadas para gamificar um livro didático para jovens brasileiros aprendizes de inglês. Além disso, pretende-se também contribuir para a criação de materiais didáticos ao descrever alguns princípios de design de jogos. As implicações pedagógicas e de design decorrentes das estratégias adotadas no livro examinado incluem a oferta de uma variedade de elementos de *design* de jogos em vários níveis de abstração (padrões de design de interface de jogos, padrões e mecânicas de design de jogos, princípios e heurísticas de design de jogos, e modelos de jogos). Finalmente, o texto compartilha algumas reflexões sobre a importância de criar um ambiente de aprendizagem centrado no aluno com base em uma gamificação significativa. Palavras-chave: gamificação, ensino da língua inglesa, criação de materiais didáticos

Games have long been used in English Language Teaching (ELT) (Wright, Betteridge, Buckby, 2006), mainly those whose primary purpose is not entertainment, but are designed to convey learning material (grammar, vocabulary, pronunciation) or practicing a skill (reading, writing, listening, speaking) in being played through. Some examples of such games in ELT encourage students to interact with their peers in English by using targeted grammar structures and can include board games, flashcards,



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and quizzes.

Even though the idea of using games in the classroom to increase student engagement is not new, not until 2010 the term *gamification* entered the mainstream vocabulary (Dichev, Dicheva, 2017). Over the last few years, gamification, 'the use of game design elements in non-game contexts' (Deterding et al., 2011, p. 9), has become increasingly popular in educational settings as a way to improve student engagement. For example, the use of badges, prizes, and points to award students for solving exercises or completing tasks is a typical form of gamification. Based on the findings of a study conducted by Hakulinen, Auvinen, and Korhonen (2013), achievement badges can be used to affect students' behaviour even when they do not interfere on their grades.

Games or gamification?

At this point, it is necessary to establish

a distinction between serious games and gamification. The former refers to full-fledged games, whereas the latter refers to game design elements as summarized in the following quote:

Seen from the perspective of the designer, what distinguishes "gamification" from 'regular' entertainment games and serious games is that they are built with the intention of a system that includes *elements* from games, not a full 'game proper'. (Deterding et al., 2011, p. 12)

Moreover, serious games are used with specific intentions (learning), while gamification is used in non-game contexts.

Gamification can incorporate different game design elements (badge, time constraint, clear goals, challenge, playtesting) on varying levels of abstraction. These levels, presented in Table 1 below, are ordered from concrete (game interface design patterns) to abstract (game design methods).

TABLE 1 - Levels of game design elements (Source: Deterding et al., 2011, p. 12)

Level	Description	Example
Game interface design patterns	Common, successful interaction design components and design solutions for a known problem in a context, including prototypical implementations	Badge, leaderboard, level
Game design patterns and mechanics	Commonly reoccurring parts of the design of a game that concern gameplay	Time constraint, limited resources, turns
Game design principles and heuristics	Evaluative guidelines to approach a design problem or analyze a given design solution	Enduring play, clear goals, variety of game styles
Game models	Conceptual models of the components of games or game experience	MDA; challenge, fantasy, curiosity; game design atoms; CEGE
Game design methods	Game design-specific practices and processes	Playtesting, playcentric design, value conscious game design

Gamification in education

Seaborn and Fels (2015), who consider gamification as a developing approach, stress that little empirical work has sought to provide evidence of its effectiveness as a tool for motivating and engaging users in non-gaming contexts:

Gamification is a developing approach for encouraging user motivation, engagement and

enjoyment in non-gaming, computer-mediated environments with an early collection of empirical work supporting its potential for beneficial effects in certain contexts. (Seaborn, Fels, 2015, p. 29)

When it comes to studies on gamification in education, more specifically, the use of rewards and competition mechanisms in the classroom, it is well worth highlighting a few of them. Domínguez et al. (2013), for example, designed

and built a gamification plugin for an e-learning platform in order to verify if gamification increased learner motivation and engagement. In a study that employs a systematic mapping design, Dicheva et al. (2015) discussed the effects of using game elements in specific educational contexts. Hanus and Fox (2015) carried out a longitudinal study to assess the effects of gamification in the classroom, more specifically, how two gamification elements, leaderboard and badges, affected student motivation, satisfaction, empowerment to learn, and academic performance. Kyewski and Krämer (2018) carried out an experimental field study, also focused on the influence of badges in an e-learning course in a higher education setting.

This article, however, does not intend to assess the use of reward systems in the ELT context. Rather, as presented in the following section, it explores the game design elements used to gamify a textbook for Brazilian young leaners of English that I have written with Tavares (Franco, Tavares, 2019). Therefore, this paper aims to (1) present and discuss the strategies we implemented to gamify this textbook, and (2) to contribute to the area of materials writing by suggesting some game design principles.

A gamified ELT textbook

The textbook selected for this investigation (Franco, Tavares, 2019)², entitled *English Play 8*, is the third volume in a four-year series for young learners of English. It is an integrated-skills textbook, organized into eight units (Appendix 1), aimed at Brazilian students between ages 12 and 13, in year 8 of Elementary School ('8°)

ano do Ensino Fundamental' in Portuguese). The textbook follows the Brazilian educational norms defining the common core curriculum to be taught from early childhood through upper secondary education in Brazil, the National Common Curricular Base (Brasil, 2018).

The textbook includes some widely known ELT games whose primary purpose is to teach the language, referred to in this paper as serious games, but also employs different design game elements so as to create a gamified learning experience. In the teacher's book of the series, it is stated:

In this series we have adopted the concept of gamification as 'the use of game design elements in non-game contexts' (Deterding et al., 2011, p. 9) such as a reward system, clear goals, levels, trial and error, cooperation, competition, challenges, etc. (Franco, Tavares, 2019)

Game design elements in the textbook

All the game design elements that have been used to gamify the textbook are presented and described in this section. Some of these are stickers available in the last section of the student's book (2019, p. 145).

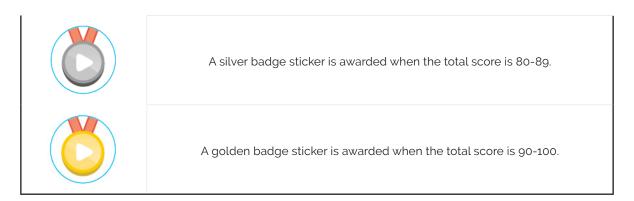
Reward system (badge stickers)

Students are awarded badge stickers for completing five different activities in the textbook. The activities include a get-to-know-the-book quiz and four review tests, which are available at the end of every two units. Three different badge stickers were designed (Table 2).

TABLE 2 – Badge stickers given in bronze, silver and gold

Badge stickers	Description	
	A bronze badge sticker is awarded when the total score is 60-79.	

² Since all the four textbooks of the selected series contain the same structure, the selection of the third volume (*English Play 8*) was made randomly.



After answering all the 12 questions from the get-to-know-you-book quiz (Appendix 2), students are awarded a bronze, silver or golden badge sticker based on the number of correct answers given. Even if a poor score is achieved, students are never left without a badge. In this case, they are awarded a bronze badge sticker. We believe that by giving those students a bronze badge sticker we are telling them that their effort to complete a task matters and, consequently, this might not affect negatively their engagement in the activity. The same game mechanics is applied to the four review tests, but this time the stickers are placed under the 'My Achievements' section (Appendix 3).

Based on the levels of game design elements (Table 1), the use of a reward system by means of badge stickers is an example of game interface

design patterns.

Level (emoji stickers)

After every two units, it is proposed a self-assessment activity in which students reflect on their development of the four skills (reading, writing, listening and speaking). They must choose one out of four emoji stickers (Figure 1) to describe how they feel about their degree of commitment and participation in classes. The sticker obtained must be placed above a progress bar under the 'My Achievements' section (Appendix 3). We decided to use emoji stickers in the self-assessment activity because young learners often make heavy use of text-messaging apps. Bringing these fun elements to the self-assessment might allow them to comfortably express their feelings.









Figure 1. Emoji stickers

Based on the levels of game design elements (Table 1), the direct reference to different levels (progress bar) is an example of game interface design patterns.

Challenge, curiosity (boxes 'Challenge!' and 'Extra Challenge!')

Another example of gamification in the textbook is the proposing a challenge and

encouraging curiosity by using boxes named 'Challenge!' and 'Extra Challenge!' (Figure 2). As authors, our main objective with the inclusion of these boxes in the textbook is to foster learner autonomy since students are expected to make their own decisions and choose their own path to learning. The boxes contain tasks that arouse learners' curiosity and/or challenge them to solve riddles, infer meaning, look up words/expressions in the dictionary, answer questions on specific

topics, search for specific information on the web, complete activities based on scanning QR

codes, etc.



Figure 2. Tasks that challenge students' knowledge on The Amazon rainforest

Each volume in the four-year series contains 32 'Challenge!' and 'Extra Challenge!' boxes, four boxes for each unit. Students must choose an

appropriate sticker (Figure 3) to indicate whether each task was completed or not.



Figure 3. Stickers for the boxes 'Challenge!' and 'Extra Challenge!'

Based on the levels of game design elements (Table 1), challenge and curiosity are examples of game models. In addition to challenge and curiosity, the tasks proposed in the 'Extra Challenge!' boxes are more demanding than the ones in the 'Challenge!' boxes. The increasing difficulty is an example of game interface design patterns.

Clear goals, enduring play (stickers to customize

a themed A4 poster)

One of our main concerns when proposing gamified learning activities is to write simple and straight-to-the-point guidelines and instructions so that students can identify and achieve clear goals. After every two units, under a section called 'My Achievements' (Appendix 3), students must count the number of tasks from the 'Challenge!' and 'Extra Challenge!' boxes they have completed.

Based on their score, they are awarded specific sticker(s) (Figure 4) that will be used to customize a themed A4 poster (Appendix 4). The more tasks learners complete, the more stickers they get to decorate the poster. However, even if a poor score is achieved, students are never left without

a sticker. In this case, they are awarded one sticker (out of three). We believe that by giving those students one sticker we are telling them that we value their effort to complete a task and, thus, this might not affect negatively their engagement.

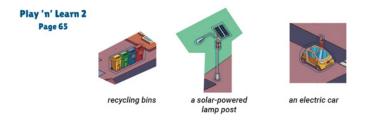


Figure 4. Some stickers that can be used to customize a themed A4 poster

Each volume in the four-year series contains a different themed A4 poster, which reflects the topics presented in it, and, in the case of volume 3, the theme is 'My neighborhood'. In order to ensure that learners understand the game mechanics

(Figure 5) by identifying all the steps involved to achieve a clear goal, we placed guidelines in different parts of the book. This repetition throughout the volume provides the students with an enduring game situation.



Figure 5. Game mechanics to achieve a final goal - the customization of a themed A4 poster

Based on the levels of game design elements (Table 1), clear goals and enduring play are

examples of game design principles and heuristics.

'My Achievements' section (turns)

As previously described, after every two units, the 'My Achievements' section (Appendix 3) offers learners an opportunity to self-assess their learning and to be awarded specific sticker(s) based on the number of tasks completed in the 'Challenge!' and 'Extra Challenge!' boxes. Since each volume in the four-year series contains eight units, students have four turns before they achieve the final goal: to customize a themed A4 poster. Turns are common characteristics of games and allow users to attain goals.

Based on the levels of game design elements (Table 1), turns are examples of game design patterns and mechanics.

The game design elements presented and described in this section, in addition to the levels of abstraction and strategies adopted in

the textbook under examination, will be further discussed in the following section.

Discussion

Based on the levels of game design elements proposed by Deterding et al. (2011) (Table 1), volume 3 covers all levels except for the fifth and most abstract one – game design methods. Considering the limitations of a print textbook, this level of abstraction would make it difficult for us to implement game design-specific practices and processes such as playtesting, playcentric design, and value conscious game design.

As summarized in Table 3 below, the textbook uses seven game design elements on four levels of abstraction.

TABLE 3 - Levels, game design elements, and strategies adopted in the volume under examination

Levels	Game design elements	Strategies adopted
(1) Game interface design	badge	badge stickers
patterns	level	emoji stickers
(2) Game design patterns and mechanics	turns	'My Achievements' section
(3) Game design principles and heuristics	clear goals, enduring play	stickers to customize a themed A4 poster
(4) Game models	challenge, curiosity	'Challenge!' and 'Extra Challenge!' boxes

Seen from the designer's perspective, providing a variety of game design elements by means of different activities is necessary to appeal to different users (Nicholson, 2012, p. 6). Seen from the learner's perspective, such variety of gamebased activities can cater for different learners' needs and learning styles.

A careful selection of different game design elements rather than focusing solely on shortterm, reward-based game elements (badges, points, leaderboards) is in line with the concept of meaningful gamification, which is viewed as

> the use of gameful and playful layers to help a user find personal connections that motivate engagement with a specific context for long--term change. (Nicholson, 2015, p. 1)

Nicholson (2015) sees both reward-based gamification and meaningful gamification as starting points to get someone engaged in a context. Considering the ELT materials writing scenario, gamification in textbooks can be viewed as a facilitating tool to promote learner engagement in a non-gaming context.

In the teacher's book of the series, we refer to the incorporation of possible extra game design elements into the material:

teachers can add new game design elements to the activities, e.g. competitions among different groups/classes in which points can be awarded not only for individual performance, but also for the promotion of collaborative learning through actions that encourage peer engagement. (Franco, Tavares, 2019)

The use of a variety of game design elements is a conscious decision and desired characteristic in the four-year series intended to contribute to a learning experience based on meaningful gamification. However, from our perspective as authors, the exclusion of some game design elements in order to avoid negative effects on learners is also a conscious decision (Toda, Valle, Isotani, 2018). For instance, leaderboards have not been used despite their popularity in games because some language learners might not perform successfully and feel frustrated at having their names associated with a low score. Another concern, as we previously described, is to always award learners a sticker. If their score is poor, they are awarded a sticker to keep their engagement and value their effort to complete a task.

Future research

Although this study does not intend to assess the use of game design elements in the textbook we have written, corroboration for the use of gamification in ELT textbooks for the use of young learners could be a possibility for future research. A researcher might investigate how gamification influences learner engagement. Further, based on the strategies adopted in our textbook and described in this article, identifying which game-based activities affected student motivation, empowerment to learn, and academic performance are possible areas to be investigated.

Conclusion

This article presented a gamification scheme in the third volume in a four-year series we have written for young Brazilian learners of English. The seven design game elements we used in the selected volume are badges, levels, turns, clear goals, enduring play, challenge, and curiosity. In addition, the strategies we adopted in the textbook include, respectively, the use of badge stickers, emoji stickers, the inclusion of the 'My Achievements' section, stickers to customize a themed A4 poster, and the boxes 'Challenge!' and 'Extra Challenge!' This paper also highlights

that the examined textbook not only provides a variety of game design elements, but also varying levels of abstraction (game interface design patters, game design patterns and mechanics, game design principles and heuristics, and game models).

From both designer and learner's perspectives, this study intends to contribute to materials writing by highlighting the importance of creating a student-centred learning environment based on meaningful gamification. A key guideline to achieve this scenario is to design the gamification system as journey so that it facilitates a true long-term change (Nicholson, 2015).

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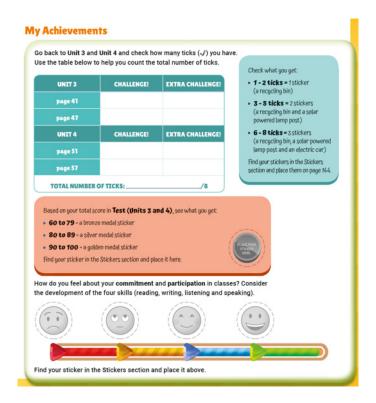
Appendix 1 - Textbook contents



Appendix 2 - Get-to-know-your-book quiz



Appendix 3 - 'My Achievements' section



Appendix 4 – 'My neighborhood' A4 poster

