



Gamification, “I have no idea what it is”: a study in the Physical Education Initial Teacher Training

Gamificación, “No tengo ni idea de lo que es”: un estudio en la Formación Inicial del Profesorado de Educación Física

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Abstract

The implementation of didactic strategies that involve the imbrications of elements and specific languages of digital culture in the context of teacher training is an indispensable condition for the renewal of contemporary pedagogical action. This research aimed to identify relevant elements in a teaching process developed with 24 teachers in initial training (TIT) regarding gamification. This study consolidated a Case Study structured from the pedagogical experiences developed during the “Physical Education Teaching Methodology III.” The empirical data were produced through classroom observations with records in a field diary and digital audio recordings of debates held, which were transcribed. This corpus was submitted to a Content Analysis mediated by the ATLAS.ti software. The results indicated that the learning process about gamification developed from the experience of creating gamified classes. The presence, emphasis, or absence of certain game elements revealed the understanding that the TIT group established concerning thematic. It is also noteworthy that the association of gamified actions to digital technologies boosted education development in digital culture. Finally, the experience is undertaken forged possibilities of meaning and learning by assuming communication and reflection as mediating elements of gamified pedagogical actions.

Keywords: Gamification, teacher, training, teaching, education.

Resumen

La composición de estrategias didácticas que impliquen la imbricación de elementos y lenguajes propios de la cultura digital al contexto de la formación educativa es una condición indispensable para la renovación de la acción pedagógica en la contemporaneidad. En este sentido, esta investigación tuvo como objetivo identificar elementos relevantes en un proceso de enseñanza desarrollado con 24 profesores en formación inicial (PEFI) en relación con la gamificación. De naturaleza cualitativa, este estudio consolidó un Estudio de Caso estructurado a partir de las experiencias pedagógicas desarrolladas en el componente curricular “Metodología de la Enseñanza de la Educación Física III”. Los datos empíricos se produjeron a partir de observaciones de las clases con registros en un diario de campo y grabaciones digitales de audio de los debates, que fueron transcritas. Este corpus fue sometido a un Análisis de Contenido mediado por el software ATLAS.ti. Los resultados indican que el proceso de aprendizaje de la gamificación se desarrolló a partir de la experiencia de crear clases gamificadas. La presencia, el énfasis o la ausencia de ciertos elementos de juego fueron indicadores de la comprensión que el grupo de PEFI estableció respecto al tema. También cabe destacar que la asociación de las acciones gamificadas con las tecnologías digitales ha potenciado el desarrollo de la educación en la cultura digital. Finalmente, la experiencia se realiza forjando posibilidades de significación y aprendizaje al asumir la comunicación y la reflexión como elementos mediadores de las acciones pedagógicas gamificadas.

Descriptores: Gamificación, formación, docente, enseñanza, educación.

1. Introduction

The forms of contemporary sociability have been reshaped through the mediation of Digital Information and Communication Technologies (ICT). New formats of access, use and production of information are diverse with these technologies, expanding mobile communication, ubiquitous computing and social (inter)action in cyberspace.

This socio-technical scenario typifies digital culture (Lemos & Lévy, 2010; De Barros, 2019; Lemos, 2020), which, from the intensive use of digital technologies in network, causes changes in all sectors of human activities. This whole range of transformations is not determined by digital technical devices, but it is conditioned by them; hence, we admit the existence of many challenges involving ethical, socio-economic, digital inclusion, security of personal information, behavioral prediction, etc.

In this field, we understand the urgency of the composition of strategies that involve the imbrication of elements and languages typical of digital culture to the context of educational training with the aim to show these spaces as inclusive and promoters of inclusion in this culture. It is a position that accepts the thought that education is also driven to reconfigurations and needs to be compatible with digital culture, being essential to understand these transformations and to develop other forms of education (Lima, 2013).

Therefore, we focus the attention to initial teacher training, seeking to bring it closer to a strategy derived from the language and design of games called gamification. Initially, we note that "[...] gamification consists of the use of typical elements of games (challenges, collaboration, problem solving, continuous feedback, etc.) in contexts other than games" (Carvalho & Lima, 2019, p. 1204). In this sense, we understand electronic games as expressive cultural products of digital culture, and can contribute to the creation of "[...] spaces of learning mediated by challenge, pleasure and entertainment" (Alves et al., 2014, p. 76).

Because of the latter, a group of teachers in initial training (TIT) was proposed a pedagogical experience to bring them closer to gamification. This experience occurred in 2019, from a curriculum component of the undergraduate course in physical education at the Federal University of São João del-Rei (UFSJ). TITs were proposed to produce and analyze collectively a didactic unit focused on high school students, which were subsidized by the foundations of gamification as a teaching strategy. Our research problem was to investigate: What elements were relevant in a teaching process developed with teachers in initial training in relation to gamification?

1.1. Gamification and teacher training

The term gamification was first used in 2003 by the British computer programmer and inventor Nick Pelling, with the aim of applying game design concepts to "[...] make electronic transactions fast and enjoyable" (Nanodome, 2011). However, only in 2011, the concept begins to stand out in order to add value to various categories of business and learning (Alves, 2015).

Although there are different concepts for gamification (Apostol et al., 2013; Kim, 2011; Deterding et al., 2011), we assume its concept as the "use of mechanics, esthetics and the concept of games with the aim of providing commitment among people, motivating actions, encouraging learning and promoting problem solving" in non-playful scenarios (Kapp, 2012, p. 336, own translation).

For this purpose, elements present in games are systematically incorporated into non-recreational situations. There are many definitions of game elements that are explicit in the characterization of the gamification process (McGonigal, 2011; Zichermann & Cunningham, 2011; Werbach & Hunter, 2012; Kapp, 2012). These include goals, objectives, characters, rules, feedback systems, levels and stages, achievements, badges, etc. In this study, we considered the definition of game



elements by Werbach and Hunter (2012), who organize them into three general types: dynamics, mechanics and components. Dynamics refer to the more general and abstract elements, which are not directly part of the game but create the environment. Mechanics are objectives and guide the players' actions in the desired direction, delimiting what the player can or cannot do in the game. The components are specific apps visualized and used in the game interface.

Gamification in education involves the development of didactic strategies that promote transformations in the teacher and student. For teachers, gamification interferes with the way teaching content and dynamics are organized and is planned in a way that encourages the incorporation of interactive and stimulating learning resources, which may involve the enhancement of the technologies and languages of digital culture. By designing more evocative learning spaces for students, they are expected to engage in problem-solving, making sense of what they do and learn.

In particular, a gamified action extrapolates the posture of passivity/receptivity, requiring participants to move toward the achievement of learning objectives. In this sense, the collaborative and cooperative aspects of games can integrate gamified planning and promote the formation of collective intelligence (Lévy, 2007). As explained by Alves et al. (2014, p. 81) in "[...] gamified actions that require collaborative practices, Lévy's concept of collective intelligence is reinforced since players need to interact, exchange experiences and knowledge to perform a particular task."

Gamification in an educational context is not based on prescriptive and/or conditioning formats, leading to the overvaluation of a system of rewards against stimuli. On the contrary, we argue that gamified strategies can foster reflective processes that allow participants to take a critical stance on what they learn and even on their own intervention in the teaching process. In addition, we also understand that:

Characteristics such as the distribution of activity scores, the provision of feedback and the promotion of project collaboration are the objectives of many pedagogical plans. The difference is that gamification focuses more to achieve similarity with games. (Fardo, 2013 p. 63)

In this sense, according to Alves et al. (2014), a gamified activity should include the following aspects in its planning: (i) teachers know, experience and use the games; (ii) adapt the actions to the participants; (iii) define the scope of the referential contents, the skills to be developed, as well as the attitudes to be promoted; (iv) understand problems that can be explored as narrative and/or gamified contents; (v) define the objective of the gamified strategy by considering its adherence to the defined scope; (vi) construct a narrative, considering its compatibility with the topic and context; (vii) define the platform(s) and resources (physical/virtual rooms, electronic messengers, equipment, etc.) suitable for the development of the topic and the actions; (viii) design tasks and dynamics for their achievement.

Therefore, we understand that the typical elements of game design, when incorporated into educational dynamics, can help structure the teacher's work and improve student's performance, making learning more effective. The use of gamification in education does not guarantee a change in behavior in terms of learning and commitment. We also know that gamification is not a single and definitive solution to educational problems, which involve infrastructure, the assessment of the teaching career and the reconfiguration of training processes, among other aspects.

2. Methodology

The research carried out was qualitative (Bogdan & Biklen, 1994; Minayo, 2012), with a case study (Yin, 2015; André, 2005). The study involved 24 teachers in initial training (9 women and 15 men). The subjects collaborated spontaneously with the



research, having been informed from the beginning about their procedures and objectives.

The experience was carried out in the curriculum component of Methodology of Physical Education III teaching and included the development of ten sequential classes, called pedagogical interlocations (PI). Prior to the development of the workshops, there was a first phase of the study — Phase 1 — consisting of a Preparation Period, in which the theoretical studies were collectively developed and a script with the theme and objective of each of the 10 PIs, allowing the work to culminate in the sequential planning of ten (10) coherently articulated classes. Stage I lasted a month, with twice-weekly meetings of 50 minutes each.

Phase 2 dealt with the organization of the workshops. At this stage, PI was based on gamification aimed at high school students, and was

presented in written work plans. The curriculum content chosen for the experiment was Parkour¹, and TITs collectively organized ten class plans. TIT was organized into five working groups, each of which presented a seminar. The second stage had the same duration and temporary organization as the first.

The third phase dealt with the application and analysis of PI. PI was presented and discussed in five consecutive weeks, with two-hour weekly classes. The established dynamic provided that each group would act in three roles throughout the seminars 1) Instructors: responsible for the implementation of two sequential PIs in a single day; 2) Evaluators: analyzed the PI performed by the group of teachers of the week; 3) Participants: acted as high school students of the implemented PI. Table 1 shows how the work was organized:

Table 1. Organization of the work of the groups in the discipline

Week Group	Week 1	Week 2	Week 3	Week 4	Week 5
Group 1	Instructors	Participants	Participants	Participants	Evaluators
Group 2	Evaluators	Instructors	Participants	Participants	Participants
Group 3	Participants	Evaluators	Instructors	Participants	Participants
Group 4	Participants	Participants	Evaluators	Instructors	Participants
Group 5	Participants	Participants	Participants	Evaluators	Instructors

Own elaboration.

The discipline meetings were organized so that, in the first class of the week, the group of instructors would conduct their PI, and in the second class of the week, there would be a collective discussion coordinated by the group of evaluators.

The data were collected between September and November 2019, considering the stages of "Preparation, Organization, Implementation and Analysis of PIs" developed by the TIT. Data collection was carried out through classroom observations, field journal records and digital

audio recordings of the discussions held, which were subsequently transcribed.

Data analysis was performed using Bardin's Content Analysis (CA) (2016), with a Thematic Categorical organization, with the support of ATLAS.ti software, version 7.5.7.

Content analysis (CA) is organized methodologically in three stages according to Bardin (2016): (i) Pre-analysis; (ii) Material exploration; and (iii) Treatment of results, inference, and interpretation. In our study, a careful reading of the field journals and transcripts of the discus-



sions were carried out during the pre-analysis phase to identify the main issues raised. Each section of the journals and transcripts of the discussions was organized by date and incorporated into the ATLAS.ti software. The software hosts the primary sources in a file called Hermeneutic Unit, and the sections of this corpus were identified with an acronym: D1 to D6. Transcripts were identified by T1 to T6.

The exploration phase of the material allowed references by means of index registration or codes as mentioned in ATLAS.ti. These are key words that indicate the nuclei of significance relevant to the study and that are produced

from the corpus, avoiding a priori perspective. The indexing job added 32 codes.

Subsequently, the context in which each code was used was verified, which in the CA is called context units. In ATLAS.ti, context units are referred to as quotation, which allowed to verify the semantic context in which codes were used.

It was then possible to organize codes into groups with a common core of meaning. According to the CA, in the software these groups are called Family and constitute the empirical categories of analysis. In total, three empirical categories were formed to encompass the meanings of the TIT:

Table 2. Empirical categories

	Category title	Contents
Category 1	Learning to understand the elements of gamification.	Presents the TIT's understanding of the elements of gamification
Category 2	Interfaces between gamification, ICT and digital culture	Refers to the interface of gamification with digital culture and the presence of digital technologies in action
Category 3	Theoretical-practical relationship under debate	The tension between theory and practice from a critical and creative exercise

Own elaboration.

3. Results and discussion

We identified that TITs initially did not know what gamification was, expressing phrases such as: "I have no idea what it is," "I don't know," "I think it is something related to the use of video games in class. But how would this be?" (D1, 09/28/2019). Their association with the use of video games in classes was also evident, indicating the importance of giving visibility to the understanding of gamification in the initial training of teachers, as already noted by Martins and Giraffa (2015), explaining their theoretical-methodological concepts, as well as their distinc-

tion of the act of playing, creating educational games or even the inclusion of electronic games in routine and educational processes.

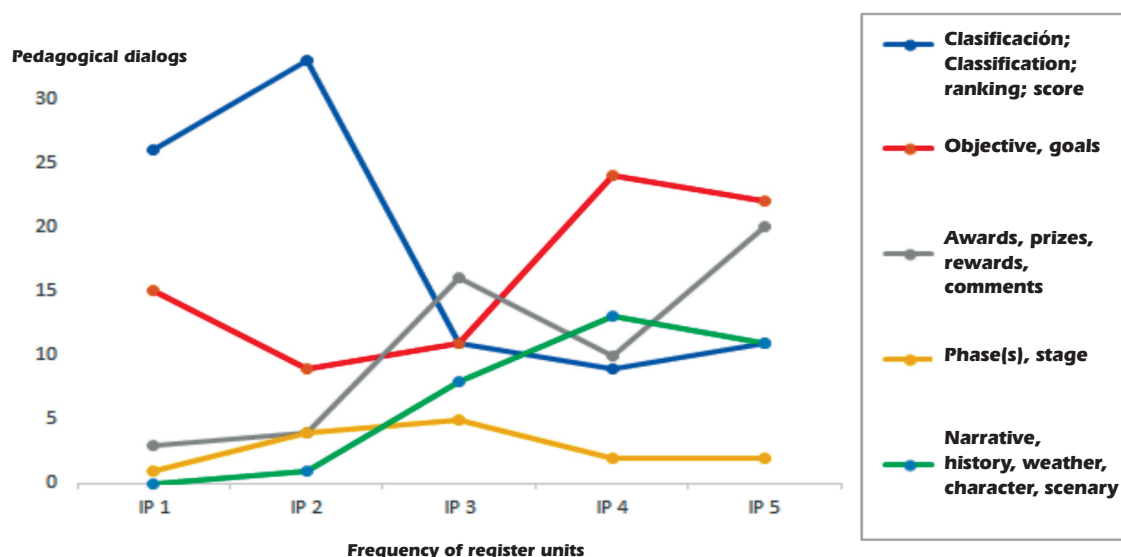
Despite an initially limited understanding of gamification, our records indicate progress in the actions and manifestations of those investigated, who were aware of the term no longer as synonym of "use of electronic games" in the context of school actions, but as a possibility of creative transposition of game design elements into various situations, especially for the organization of school educational devices. The elements that support this re-significance were constituted from the following categories.



3.1. Learning from understanding the elements of gamification

We observed a gradual appropriation of certain game elements by TITs that characterize gamification in PI, as shown in Figure 1.

Figure 1. Frequency of gamification elements in pedagogical dialog



Own elaboration.

The graph shows that TITs overvalued the scoring systems compared to other potential gamification elements at the beginning of the interlocutions. Throughout the seminars, the establishment of clear and cohesive objectives in classes was improved. The presence of narratives as driving axes of teaching experience and as symbolic elements responsible for provoking commitment in students was not initially used by TITs. However, it was one of the elements of games that was most used at the end of the experience, which seems to indicate that this component made sense, was better understood and mobilized in the context of the gamified classes, as indicated by the highlighted passages:

TIT11: I liked the story with lava in the class... It is present in many games and is a different way to be more dynamic. (T4, 11/27/2019)

TIT15: This last class, of the groups catching the critical parts along the way, that you collect and form the keys to open a chest and find in that history the zombie virus, was very good. [...]. (T4, 27/11/2019)

The use of consistent goals and objectives that guide actions and various feedback systems that are not focused on mere competency or score/point quantification, but on the use of badges, awards, rewards, were also gamification elements that were virtually non-existent in the first classes, but were associated with Parkour teaching situations in a creative and increasingly frequent way. According to one of the included TIT's:



TIT 10: Whether we like it or not, we were working in all classes with the approach that was the ranking, the score, [...] now I liked the feedback of the activities made... [...] What we see in gamification is that each game is a problem, a challenge to overcome, to conquer, a goal. [...] I think they cleared the idea of rescuing the flag. [...] Another mechanic that seemed great to me, the one you used, is to divide lives, right? [...] Scattered bonuses. (Q4, 11/27/2019)

Finally, the resource of the learning phases or sections was also present from the beginning of the seminars; however, in a more stable and subtle way, without much emphasis, each of the lessons created by TIT constituted the acquisition of a further level of complexity of the theme developed.

During the practical seminars, students understood more broadly the gamification process with debates between individuals and teams that advance stages and were rewarded with gifts and points. These components can be imposed in gamification processes, but they do not assure them. On the contrary, they can reaffirm conventional didactic forms and strategies of traditional teaching systems, such as the emphasis on contextualized non-educational activities; the overassessment of the linear progression system (phase or series, school years, cycles, etc.), and the objective of actions through strictly quantified feedback—final ratings (in any sense that the word uses—either as a circumstance that ends with another or even as a synonym of reason, reason for being; objective; intention).

In this sense, Santaella et al. (2020) point out that gamification processes sometimes limit the notion of gambling to a behavioral approach: as a strategy to motivate individuals and increase productivity, whether in business or educational relationships.

Therefore, the learning process was driven centrally by experience (Bondia, 2002; Schell, 2011) with the creation and gamified experience, in which the presence, emphasis or absence of

certain elements of the game acted as revealer of the understanding established by TITs regarding gamification. The experience helped TITs to learn, becoming an element to elucidate ideas, making the concepts observable in their materiality, circumventing the abstraction that sometimes results from textual learning only in teacher training.

3.2. Interfaces of gamification, ICT and digital culture

Another core of significance found relates the presence of Digital Information and Communication Technologies (ICT) in experience. In four of the five classes of the workshop, TIT's teacher groups used mobile phones, digital applications, geolocation, digital maps, filming and photographic recording of activities and classes, establishing a consistent interface between the gamification process and the devices of digital culture.

For TITs, the use of ICT was essential to achieving gamified practices and actions, because these resources helped to build an environment, a game esthetic, referring to the symbolic construction of what Huizinga (1996) called the magic circle. Thus, as specific resources were used, the feeling of being immersed in a gaming environment was amplified. In this sense, speeches such as:

TIT 08: **With this mobile music** [emphasis added], this even looks like one of those video games that my daughter likes. (T5, 11/12/2019)

TIT 02: Actually, **the use of mobile phones and QR codes** [emphasis added] was great. (T1, 05/11/2019)

TIT 03: My assessment regarding your class yesterday, [...] there are very interesting items that you used, gamification resources... the theme of **Google Earth maps** [...] **the feature of cameras** [emphasis added] it was very good! We could see people repeating the



moves, [...] everyone had the feeling of playing a real game. (T1, 05/11/2019).

These conversations show that the presence and use of ICT in workshops were in most cases related with value contexts of these technologies in gamified actions. It does not mean that gamified situations can only promote more immersion and commitment in their participants if they rely on the use and presence of ICT. As noted in the study by Pimentel et al. (2020), we recognize that making a gamified proposal does not mean using digital games or Digital Technology (DT) in learning contexts. As the authors say, "gamification can be done without using digital devices" (Pimentel et al., 2020, p. 8). However, in our study, such resources provided the setting, meaning, and creative association beyond their most instrumental dimension, promoting what Brown and Cairns (2004) called a gradation of immersive gaming experience, in which players gradually move from a situation of little dedication of the game to the engagement, the total immersion.

Our data prove that the association of actions dedicated to the use of ICT has improved the perspective of education in the digital culture during the training of teachers. After all, as Pimentel states (2018, p. 78), gamification can "involve and motivate people with the aim of learning through interactions between people, with technologies [emphasis added] and with the environment". Adopting, therefore, what Pimentel et al. (2020, p.10) consider an articulation between gamification and "the concept of technology in a critical vision of the man-technology relationship".

An example can be drawn from the first thematic seminar, which explored gamification and its relationship with digital culture through mobile phones and QR codes². Initially, the aim of the class was to introduce the Parkour modality. To do this, in the surroundings of a multi-sports track, several QR codes created by the TIT group of instructors were scattered and placed

in areas where players had to move using some basic skills required sports, such as climbing, jumping obstacles, etc. to access them in a certain time. To get the QR codes, participants had to explore and interact with the space, overcoming obstacles with body movements in a creative, agile and safe way.

QR codes contained information such as curiosities, rules, historical facts and descriptions of specific movements about Parkour. This activity with the ICT was associated with gamification, as it required group formation. There was a challenge to meet (collect as much information as possible in less time). Its result involved a prize and a classification, as well as being a first phase (of a previous game-phase of Parkour modality recognition) that would be extended during the next four subsequent classes.

However, the pedagogical action revealed the opportunity promoted between gamification and ICT in terms of training for and with digital culture. This fact showed that many TITs, despite using smartphones, did not know how to apply QR codes or their potential for creative or pedagogical use. Thus, it was an action that encouraged pedagogical creation, knowledge of the characteristics and history of that application, and, above all, opened the possibility of authorship with that ICT for a more creative teaching of the curriculum component, Physical Education, and its association with gamified strategies.

3.3. Theoretical-practical relationship under discussion

In our last category, we group the records related to the evaluation discussions held at each thematic seminar. An intersubjective experience that was relevant in the understanding of gamification to the meanings produced (Lima & Andrade, 2018) at the time of pedagogical dialogs.

As Mendes (2016) suggests, the practical seminars were conceived in a pedagogical attitude centered on interlocution. This word means "a multiple sharing, a communication,



a conversation, a dialog, and presupposes the existence of subjects who communicate from specific situations in which they are found” (Mendes, 2016, p. 184). In this sense, many debates, permeated by the revision of the theoretical foundations of gamification as well as by the essential texts studied in the subject, allowed to reflect on points that were difficult for TITs or even theoretical-practical contradictions, as seen in some of the passages:

TIT 04: I wanted to speak [...] The part where they made a circuit...oh, you couldn't even see or feel that we were in a game. I don't know; it wasn't even related to the previous lesson.

TIT 05: But it was a circuit. **This part should not be gamified** [emphasis added], only at the time of the challenge. **It didn't even have points** [emphasis added].

TIT 08: But that is the meaning. Gamification is not just about doing an activity with points, with the competition. That is already done in the traditional classroom. What we want to tell your group is that you have to think about the process, you know? [...] How will you make the student learn, but with a goal, that has to be a goal, and [...] then you will take him to a goal, but through everything, what is a game... is the character, taking life, you know? (T2, 11/08/2019)

In the previous dialog, the understanding of TIT 05 on gamification was not yet clear in terms of procedure. For her, some activities could be gamified, others could not. Their understanding seemed to reduce gamification to the presence of an activity in the pedagogical scene. Through the counter arguments of other TIT and the teacher, this understanding could be discussed, opening up spaces for the elaboration of new associations in relation to the procedure involved in gamified actions.

In another debate, some TITs questioned the emphasis of the literature on predicting that gamification can promote or foster the commit-

ment and motivation of participants. During the evaluative debate of the third thematic seminar, TIT 14 questions the class about the motivation of other participants. The academic points out that, despite the fact that until that moment that was the class that was best characterized in terms of the assumptions of gamification, many participants had not committed.

TIT 14: They [the group] used gamification well. I think it was the group that used gamification the most. [...] But I think...[...] that students lacked a little motivation. I didn't feel they were so motivated. Because I think that is one of the elements that gamification is trying to enhance. I wanted to know from the group what they thought. (D2, 11/13/2019)

The debate revealed a critical questioning by TITs to investigate the conceptual propositions studied. This action appears to be essential in the formation of teachers, as already recommended by different authors aligned with the concept of reflective teacher training (Nóvoa, 1989; Zeichner, 1993; Pimenta & Ghedin, 2003). TITs argued that gamified actions may or may not promote motivation and commitment of students to desired actions, although it recognized that the presence of game design elements has a very attractive potential when it is well structured.

The following hypotheses were raised to understand why students were not motivated by gamified experience: (i) it was considered that this could be an occasional event, or even external issues outside gamification planning, such as after-meal class hours, the temporary heat of the day and, ultimately, not an inherent issue of gamification; (ii) some elements of gamification were also considered to contradict school culture, for example, freedom of action. In this context, it was argued that games are developed by players freely, voluntarily and deliberately and players choose the games they want to play, the time of day, the number of times they repeat, etc. However, the typical actions present in school and curricula do not permit or even lack the con-



ditions for freedom of action and voluntariness to be fully experienced.

Finally, we note that the evaluative-reflexive exercises gained more conceptual consistency throughout the practical seminars, passing from an almost total absence of interlocutions with the readings suggested in the previous period of the course or even in the TIT surveys on the subject studied, to a more significant presence of theoretical and practical analysis at the end of the experience. As an example, we present an evaluation made by a TIT in the last practical seminar, which presents these argumentative characteristics:

TIT 16: I read the texts [...] I reread it, [the text] by Mauro Berimbau, which is: "Gamification: A development proposal based on game design, with a focus on communication". [...] He speaks of the pyramid structure of the game, which is the setting of rules, the freedom of action and the condition of the experience for the player. And then the theme of Zombie was the construction of the experience.... [...] there was the establishment of rules. [...] [...] There was a small map, there was a route you could take... If you wanted to go to the RU [university restaurant] you could go. It is freedom. [Laughter]. About the [teams] division: he divided them into runners, support and screenwriter. [...] I remember the text; Barklei speaks of the behavior generation matrix, which will be divided into runners, murderers, socializers and explorers. I could understand that the runners were a bit conquerors and murderers. [...] [...] Then there's the support, which was filming, right? [...] Then there was the one who filmed, who had to pay attention to the other of his team [...]. And the screenwriter who had the map, right? I saw it as an explorer. Because the characteristic of the explorer is [TIT does the reading]: "desire with the interaction of the game and its possibilities, seeking the surprise of novelty, through the discovery of new places, creatures, objects". (T5, 04/12/2019)

We note that reflection was addressed to a more teleological and epistemic field at the end

of the process. In this sense, we could observe that experience forged new possibilities of significance and learning by taking communication and reflection as mediators of the actions. Therefore, if we consider that the game is always a dialogic act that is sometimes collective and collaborative, learning about the dynamics of the games and their transposition into other non-playful contexts also seems to be one.

4. Conclusions

The results demonstrate the importance of gamification training in teacher training. The results revealed the presence of three relevant elements for teachers to use gamification: understanding the gamification process more broadly, beyond competition systems between individuals and teams; the association between gamification and ICT can promote training for and with digital culture; the presence of evaluative-reflexive exercises, since they enabled TITs to reevaluate the pedagogical process, making them understand the potential of the use of gamification in teaching.

Thus, the conclusions corroborate other studies already carried out in the area and indicate the potential of gamification in teacher training (Alves et al., 2014; Carvalho & Lima, 2019; Martins, & Giraffa, 2015).

We consider it relevant that the actions of teacher training for and with gamification relate, whenever possible, theoretical-methodological exercises of creation and practical experience of gamified situations, centered on teaching practice, since they helped to develop a greater conceptual consistency and the ability to justify the didactic actions and pedagogical planning related to gamification in a more cohesive and scientific way.

Note

- 1 Parkour is a contemporary sport of bodily practice, of French origin, whose objective is to travel a path, overcoming any obstacle quickly, safely and efficiently, only using the skills and abilities of the human body



2 The QR code is a two-dimensional bar code, or barometric code, that can be easily scanned with most camera-equipped mobile phones and that is able to retain and allow access to different information.

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