GAMES AND GAMIFICATION IN THE PEDADOGY DEGREE: an alternative to the Distance Education models

Eliane Schlemmer[1], Wagner dos Santos Chagas[2], Claudio Cleverson de Lima[3]

[1] UNISINOS, São Leopoldo, Brazil
elianes@unisinos.br

[2] UNISINOS, São Leopoldo, Brazil
tutorwagnergp@gmail.com

[3] UNISINOS, São Leopoldo, Brazil
claudiodelima@yahoo.com.br

Abstract. The issue that gives rise to this article is to understand the potential of games and gamification for the creation of new designs in the Distance Education (DE) and it is found in the research "GAMING IN HYBRID AND MULTIMODAL COEXISTENCE SPACES context: an Experience in Higher Education", sponsored by CNPq, CAPES and FAPERGS. The objective was to develop pedagogical alternatives to the DE models, so that methodologies and practice are meaningful to the current learning subjects when considering their culture, evidenced in the way they learn in different contexts, in order to provide a more effective engagement in the teaching and learning processes. The research is exploratory and qualitative, inspired by the cartographic intervention-research method. It makes use of the participant observation, logbook and records in texts, audios, pictures and digital video. The data are interpreted from the theoretical framework. As a conclusion, the results indicate that both the process of thinking and creating a game, as the mechanical and dynamic appropriation present in different games in order to develop the teaching and learning processes, constituted themselves as an effective pedagogical alternative in creating new designs in Distance Education (DE).These, when associated with the methodology of learning projects based on problems and cartographic method of intervention research, as an innovative pedagogical practice, have the potential to expand the traditional DE models from the perspective of building hybrid, multimodal and pervasive learning spaces. These spaces were configured as Living Spaces in a process of co-creation from the critical reading of the daily life basic education, where some problems were identified, to which the games and gamification can contribute to the changes. There was a greater engagement of the learning and reframing subjects of the experience experienced in the initial formation for the Elementary Education. The discussion about the need for reconfiguration arises from the pedagogical practices and curricula, as well as how to organize it in time and space from the daily life issues, enabling the construction of learning pathways in order to contribute to an emancipatory and citizen education.

1   CONTEXT

We live in a world marked by hybridism, multimodality, pervasiveness and ubiquity. Hybridism manifests itself in relation to spaces (geographical and digital), presence (physical and digital), technologies (analog and digital) and culture (analog, digital, gamer, maker and others). Multimodality emerges in the coexistence of physical and online presence modalities while pervasiveness and ubiquity enhance the situated learning, providing the subject with "sensitive" information to his/her profile, needs, environment and other elements of the learning context at any time and place. In this environment, location technologies (GPS and navigation and location systems), identification (RFID tags, QR Code and markers) and sensors, among others, may be present in applications, games and gamified processes. It is in this context that the current learning subjects develop themselves, constituting own culture in congruence with this historical-social space-time.

But what has changed? To answer this question, it is necessary to make an analysis from the current daily life, in which children and adolescents develop themselves (considering the way they express themselves, shown below) in the relationship with the daily life that constitutes them and in which they build concepts (pre-digital).

A 5-year-old child says, "Mom, I beat the book", when she finished reading her first physical book (paper). "Look!!! Obsidian to build the portals in Minecraft[1]", says another 10-year-old child while exploring a museum of science and technology. Beat, in a pre-digital context, can mean physical impact or aggression and, obsidian, only a volcanic rock. However, for many of the children of the current generation, beat acquires first the meaning of completing a game and obsidian is known as the element that allows the construction of portals in the Minecraft game. Thus, the first meaning that these children have for these and other concepts result from the interaction in the digital world, which will later be used to mean situations in the analog world.

"Can I go to the computer?", "I'm in Minecraft building a world", "Let's enter into the Unturned?", "Come and meet my family, I'm a cook now but I'm also a gamer and an astronaut" (children's lines when they are playing The Sims 4), and also "Let's go hunting Pokémon?", are expressions found in children and adolescents' daily lives, which allows us to understand that the digital technologies also represent a place to go, where one is and where something is done. These subjects, by "being", "entering", "being able to act" and "interacting" with different Digital Technologies (DT) from a very early age, think with and from the digital, which collaborates to attribute meanings to the analog world from their actions and interactions with and in the digital world. Such actions/interactions constitute perceptions and experiences that become hypotheses used to understand the hybrid world in which they live and coexist.

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[1]   Minecraft is a game created in 2009 by Markus "Notch" Persson; it is a video game sandbox type, independent and open world kind that allows the construction of different worlds from blocks (cubes). It has two basic modes: survival and creative.

Papert [15] stated that the current generation, being used since very early to use the computer at home and at school, felt more comfortable with different DT and became technologically more fluent in their use than most adults. The presence of these technologies could affect values and also cause a gap between the generations [15] with consequences that need to be understood in order to create necessary bridges between the two generations.

Linked to this concern, Schlemmer and Lopes [22] call attention to the cultural aspect when considering that being part of a new culture does not simply mean knowing how to use DT (cognition), but also "why" use them (meaning). It is a question of understanding what these changes may mean for the education context. This refers to both how they are being considered in the political-pedagogical projects and in the degrees' curricular organization at different educational levels, as well as with respect to how teachers are considering these changes in the teaching and learning processes, as well as which methodologies and practices can be used in the implementation of a competent pedagogical mediation in this context. And, fundamentally, understand how universities are considering these changes by training teachers in their undergraduate, masters and doctorate degrees in education. What are the surveys showing? In addition, it is particularly important to understand how these changes have contributed to rethinking the university itself and also the research.

However, when we look at different educational institutions, especially at the higher level, few effective changes are identified, since the ones that exist, for the most part, are reduced to the presence of DT (many of them already considered outdated in the view of current learning subjects) in the teaching and learning processes, however, without these processes being rethought and transformed in a significant way. They continue to replicate teaching models, methodologies and pedagogical practices that are clearly dissonant with the context previously presented. This situation gets worse when these same models/methodologies/practices are used into the DE.

Distance Education (DE) is the modality of teaching in which teachers and students are physically distant during all or part of the educational process time [13]. This educational modality encourages learning throughout life (lifelong learning) and allows updating and professional development for those unable to attend formal educational spaces due physical, geographical, financial and other limitations. The physical and temporal separation between teachers and students of the DE modality presents self-characteristics that require specific knowledge by the part of who plans, develops and evaluates the formations developed in this modality.

Although the term DE is in evidence in the recent years, the modality is not new: mail, radio and TV have already been used to teach in the distance, although the direction was unidirectional without favoring the effective interaction. However, the DE, when linked to DT, can expand the possibilities of training and democratize the access to the information, which can effectively be verified in the growth scenario of the DE modality [6], in which this study is inserted. However, there are criticisms about the currently existing models: focused on the Virtual Learning Environments technology, in the mass content, in education/task, lack of clarity between information and knowledge and the need to overcome the hierarchical model [18].

The criticisms arise precisely because the DT progress can replace the distribution logic (transmission) by the communication logic (interaction). At the confluence of DT, the emission pole release (which promotes the autonomy and authorship of the subjects) and the generalized connection, it is the potential for the practices and institutions reconfiguration [10]. Considering that the social context cannot be understood or represented without its technological tools [3], the contemporary DT and the Internet have enabled the emergence of online education, a cyberculture phenomenon characterized as a "set of teaching-learning actions mediated by digital interfaces that enhance interactive and hypertextual communication practices" [18, p. 5663].

In online education, digital technologies, especially Web 2.0, characterized by ease of authoring, publishing and discussion [24], provide interaction levels that exceed temporal and spatial limits imposed by physical classroom education, enabling the execution of educational projects in hybrid contexts, multimodal and pervasive that permeate the current historical-social space-time. But care should be taken because a course project is not based only on the set of technologies and information, but on learning effectively constructed, since "[...] communication is sharing sense" [11]. In addition to the content transmission, there must be the knowledge building through effective interaction between the actors in the educational process.

The challenge is to follow the technological transformations, as well as to understand how they are modifying the way of living, co-exist and learning of the current learning subjects, in order to have elements that allow the construction of different designs, methodologies and practices consistent with the changes that are taking place, surpassing, as well as the standardization and, why not say pasteurization, currently found in the DE, which is limited to follow certain models. A nowadays project design must overcome the dichotomy between physical presence modalities and distance education, considering mainly the culture of the learning subjects, who were already born immersed in a world marked by hybridism, multimodality, pervasiveness and ubiquity` context. Thus, justification, problem and objectives are now presented.

2   JUSTIFICATION, PROBLEM AND OBJECTIVES

The justification for this research arises from: a) anxiety with the daily teaching in the Higher Education degree (physical face-to-face, DE and online modalities), especially with regard to educational design; b) perception of the distance between the pedagogical practices developed in the context of higher education and how these subjects (students of higher education) learn (considering the ways in which they interact), in relation to the pedagogical practices developed in basic education and how children learn (considering the ways in which they interact) and; c) need to understand the potential of games/gamification (in the perspective of the "Games for Change movement") in a hybrid, multimodality, pervasiveness and ubiquity context, considering BYOD[2] and Flipped Classroom propositions, as enablers of knowledge experiences.

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[2] Bring Your Own Device (BYOD) is a trend that emerges from the mobile world and in the Education filed, proposes to give freedom to students in order to bring and use their own mobile devices in the educational context.

From this anxiety, from this perception and from the identification of this need is that the research problem originates, which consists of understanding the potential of games and gamification for the creation of new designs in Distance Education (DE).

The objective was to develop pedagogical alternatives to DE models, so that methodologies and practices are meaningful to the current learning subjects and to consider their culture, evidenced in the way that they learn in different contexts in order to provide an engagement more effective in teaching and learning processes. They constitute themselves even as objectives:

- using games and the concept of gamification (in the perspective of the "Games for Change" movement) in a context of hybridism, multimodality, pervasiveness and ubiquity, considering the propositions of BYOD and Flipped Classroom as facilitators of knowledge experiences;
- understand this proposition's potential to provide the articulation between the initial formation and the pedagogical practice developed in Basic Education.

The desire was that the subjects felt incited, provoked, curious, engaged in learning, and that this could happen in a fun way. Thus, in a growth scenario of the DE mode [1], it becomes imperative the interest in understanding, problematizing and presenting alternatives to the current models. The confluence of subjects immersed in hybrid and multimodal coexistence spaces with the search for meaning in their learning pathways, which can occur in any context and in multiple scenarios, justify investigating/creating pedagogical alternatives that make it possible to overcome the current DE models. In this sense, it is understood that both games and gamification can contribute significantly to think about the creation of new educational designs, in this case, more specifically, related to DE. The research methodology is following presented.

3   METHODOLOGY

The research is exploratory and descriptive, with a quantitative and qualitative approach, inspired by the cartographic intervention research method [8, 9, 16, 17] and it makes use of the participant observation, logbook and records in text, audio, photography and digital videos` format left as traces in different interaction spaces.

In the context of researches which are developed at GPe-dU UNISINOS/CNPq, we have explored research methodologies and intervention that can inspire new practices that are aligned to the need to understand the learning phenomenon in all its complexity. Thus, the research and intervention cartographic method began to be studied. Cartography is a method that aims to follow a process and not represent an object [8]. In general terms, it is always a question of investigating a production process without seeking to establish a linear path to an end. "Cartography seeks to ensure the accuracy of the method without giving up the unpredictability of the knowledge production process, which is a positive requirement of the ad hoc investigation process" [8, p. 19]. Its construction on a case-by-case basis does not prevent the attempt to establish some clues that are intended to describe, discuss and, above all, to collect the cartographer's experience. Cartographic attention is defined as concentrated and open,

characterized by four varieties: tracking, touch, landing and attentive recognition. Because it is intervention research, the analysis occurs in the process, that is, in the cartographic movement, which makes it possible to carry out the intervention.

The data generated in cartography were organized, categorized and stored in the dynamic database using NVivo. The data interpretation was based on the theoretical framework that underlies the research, which made it possible to re-signify the learning spaces as well as the educational designs in a learning context that currently consists of hybrid, multimodal, pervasive and ubiquitous spaces of coexistence.

Following is the empiria, as well as the developed creative process.

4   EMPIRIA

The empirical field that composes the research and that gives rise to this article refers to the Academic Activity Teaching and Learning in the Digital World (AA-EAMD), linked to the Bachelor's Degree in Education from Sinos Valley University (Universidade do Vale do Rio dos Sinos) – UNISINOS. AA-EAMD is an obligatory academic activity, offered in the online modality, with a 60-hour class course (six face-to-face meetings and 14 online meetings). The physical face-to-face meetings take place in the classroom/computer lab and in different geographical spaces in the University. The online meetings take place through the Moodle Virtual Learning Environment, social media, digital notebooks, metaverses - 3D Virtual Digital Worlds, simulators, games, instant communicators, web conferencing software, Google tools, and others.

AA-EAMD aims to create learning and digital emancipation spaces capable of fostering the development of theoretical and methodological approach and technological knowledge that promote the integration of different digital technologies in the construction of knowledge. It also seeks to reflect about the use of these technologies for human and social development within the Early Childhood Education framework, early years and Teenagers and Adults Education.

The Empiria refers to the first and second semesters of the years 2014, 2015 and 2016, totaling 166 students, with ages between 17 and 60 years, predominantly women. In this process over the three years in different semesters/year, four female students of the Doctorate in Education and a female student of the Bachelor's Degree in Pedagogy, which is a monitor at AA, participated in this process.

It was in this context, and considering the justification, problem and objectives previously explained, that originated the methodological design of AA-EAMD, which was inspired by the cartographic method of intervention research developed by [8, 9, 16, 17] while an interventionist pedagogical practice. This methodological design consisted in experiment the cartographic movements associated with the learning projects methodology based on problems adapted to the Higher Education[3], in the connection with the gamification concepts, flipped classroom and BYOD, within the construction perspective of a hybrid and multimodal coexistence space. In this case,

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[3]   SCHLEMMER, 2001; TREIN & SCHLEMMER, 2009.

the clue and tracing metaphor[4] served as inspiration to design the missions' composition and monitor the progression in the gamification.

Tracking (field scans), touch (triggers the selection's process), landing (stop-zoom) and attentive recognition (perception of the missions overall context) were considered achievements[5], at the same time that they could be understood as skills for their own gameplay and sociability. The evaluation took place while monitoring the learning process of each subject when carrying out his/her course, allowing conquering powers - XP or EXP (knowledge/experience).

Based on [5, 7, 25, 26], Schlemmer [20, 21] addresses the gamification in education considering that gamification, when related to education, consists basically in using the way of thinking, styles and game strategies as well as elements of games design, such as mechanical and dynamic (M&D), the educational context as a means of providing agency, dumping, transformation [14] and fun [1, 2]. In this way, gamification involves subjects in the teaching and learning processes that encompass discovery, invention and problem solving. Gamification is concerned, then, to analyze the elements that are present in the game design and make it fun, adapting them to situations that normally are not considered games, thereby creating a game layer on a situation, process or product, instead of being, originally a game.

The concept of gamification, although created in 2002 by Nick Pelling, expands in 2008 with the growth of the gaming industry and spreads from 2010 by the wide use in diverse contexts. Linked to gamification, the perspective is explicit, for example, by "Games for Change" movement, which aims using games for social development. According to McGonigal [12], people prefer cooperative games. In games, the most of people do not want to compete, but rather work with their friends to achieve a common goal, being together. If the players are willing to perform challenges involving obstacles, often unnecessary, the games have the ability to mobilize. Thus, they can be used as instrument for social transformation. In this experience, this transformation is linked to the educational institutions daily life (Higher/Basic Education).

In education field, gamification can be considered from at least two perspectives: while persuasion - stimulating competition and having a scoring system, reward, awards, etc., which from education's point of view, reinforces an empiricist and epistemological perspective and; while collaborative construction and while cooperation and empowerment - instigated by challenges, missions, discoveries, group empowerment, which leads to interactional-constructivist-systemic epistemological perspective (inspired, for example, by elements present in Massively Multiplayer Online Role Play Games – MMORPG) [20].

Thus, at the origin of a process gamification is the understanding of the problem and the context, which involves understanding the subjects' culture, environment, subjects' objectives and the institution. From these elements, it is possible to think about the M&D's set, which will be used to develop the gamification, which will

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[4] In this case online clues - using QR Codes and live tracks - experts, according to the problematic addressed by each Clan.

[5] In the world games language, achievements are objectives that a subject can achieve during the game, which can be explicit or secret, that is, that the subject discovers during the process of playing a game.

allow to identify in which perspective it is situated, being able, in the same gamified process, to have the combination of both.

For the empiria, we opted for a gamification's perspective while cooperation and empowerment, starting the cartography that implies, initially, to make the daily life reading to identify the problem, as well as the context mapping, recognizing the different cultures which intersect within the AA-EAMD scope, to then have elements to develop learning situations, involving M&D and initiate interventionist practice.

At the first AA-EAMD's face-to-face meeting, a dialogue was held with the purpose of getting to know the students, as well as their needs, goals and expectations[6]. After this, it was presented to AA the objectives, the gamification proposal and in the sequence it was opened to discussion. Both the research was presented and the Free and Informed Consent Form was completed at the same meeting.

After these initial steps is that we began to think about the types of elements, strategies, M&D that could help ensure that students feel the way they want and can achieve the goals they want as well as by what AA-EAMD want. One of the defined elements was that gamification would be developed in a hybrid and multimodal context, involving the mechanics of tracks, live tracks[7], tracks in QR Code, tracks in Augmented Reality (AR[8]) and in the gaining of powers (knowledge). In one of the physical face-to-face meetings, students, using their mobile devices, hunt the clues in texts, audios, videos, live clues, QRCode and in the RA, which would support the development of learning projects. Another element of the learning project could involve the development of any situation that may be analogical, digital or even hybrid.

In order to begin the gamification process in the second face-to-face meeting, the interactive narrative[9] was presented with the aim of enriching the students in the gamification's logic that served as the guiding thread for the Clans' creation[10], as well as the tracks and missions that would be built and traveled by the students. After the presentation of the initial narrative, the students were challenged to perform the reading of the schools' daily life that exerted teaching activity or had access to develop the AA's proposal. This activity had the objective of finding a problem in the school context for which the games and gamification could contribute to the solution.

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[6] It was also made available in Google question forms in order to know the students' profiles.

[7] People who have a specific knowledge related to PAGs, who were invited to interact with the students.

[8] Using the Aurasma.

[9] There was a particular time in the world's evolution history in which formal education institutions have lost their sense both for the learning subjects and for society, and thus, the entire educational system has collapsed, since there were so many problems that while the institutions could think of ways to solve them, the feeling was of total frustration. Linked to this situation, humanity was going through a deep crisis of values and ethics. All seemed lost, when then appeared a group of people who created a Clan called the Reign of Virtual Reality (REVIR), where everyone shared the same belief, that it was possible to build an education that made sense for the subjects and thus contribute to change the world. In this Clan there was no hierarchy, all members were potential leaders who could contribute to change what they wished to see in Education. It was then that they began to organize themselves into smaller Clans, each one with the aim of better knowing these problems. Thus appeared the Clans [21].

[10] Clans are family organizations presented during Antiquity and Middle Ages which acted as programmed devices to safeguard ownership of the property or to defend their own survival, bringing together several individuals by consanguineous bonds or solidarity of its members without there being a line of common descent among its members [4].

The problem was the agglutinative factor that united the students for the formation of the Clans. In order to do so, the work in the Clans involved the accomplishment of missions with objectives and achievements, which were inspired by the traces of the cartographic method of intervention research, more specifically, in the four varieties of the cartographic attention (Tracing, Touching, Landing and Attentive Recognition), adapted as a methodology for the development, follow-up and evaluation of the learning paths, carried out by the students. In each mission, in addition to the goals and achievements, there was a set of human tracks (Live Tracks) and non-human tracks (Online Tracks in QR Codes and RA).The expansion of the level of EXP or XP (experience), which allowed to progress in gamification, occurred to the extent that the students would unblock the achievements of each mission (learning).

For the development, monitoring and socialization of their productions, the Clans used DT such as Moodle, Evernote, Facebook (fan page and groups), Metaverse Second Life, Google tools, YouTube, Prezi, blogs, and others. It was through these DT that the theoretical, methodological and thematic subsidies were socialized so that the students could compose, together with the material that they researched on their own, a set of information to base the production on the Clans. During the physical encounters, the Clans were able to share experiences, highlighting the building process, finding and interacting with live clues, deciphering puzzles on QRCodes lanes, accessing clues in RA and discussing the experiences that were taking place.

The evaluation of the students' learning was developed in the monitoring of the learning process of each subject, while conducting their course, enabling the achievement of powers (knowledge built) through weekly records in Moodle's learning journal. Weekly registrations were also made in the game logbook or process with photo, audio, text and video registrations in Evernote, fan page and blog.

In this learning tracking movement were realized a self-evaluation, peer evaluation and evaluation of the teacher in Evernote/Facebook groups. The possibility of gaining more power/experience (XP or EXP) occurred to the extent that the subjects broadened the observable (depending on the meaning assignment to the theory under study); they sought and indicated relevant references (texts, audios, videos, games, applications, etc.); they evidenced autonomy and authorship behaviors in the interaction and construction processes of the thriving learning project; they created networks of interactions in the Clan and among the Clans; they proposed questions, socialized reflections and performed reviews; they shared knowledge, collaborated and cooperated with each other. Results, discussions and final considerations are now presented.

5   DISCUSSION. RESULTS AND FINAL CONSIDERATIONS

Considering the research's problem and objectives previously explained, some results of the quantitative and qualitative analyzes are presented, followed by the discussions and final considerations.

The survey, whose empiria was developed over the three years that It lasted, Involved 166 undergraduate students, 04 female doctoral students and 01 Bachelor Degree in Pedagogy female student, monitor at the AA. Thirty-five projects were carried

out during the research, resulting in games or gamified processes, coordinated by the academic students and with some kind of involvement of basic education schools or social projects. It is only during the four semesters of the years of 2015 and 2016 that the developed gamifications involved: 18 municipalities; 24 schools including municipal, state, private and NGOs; 59 education professionals; 240 parents, community professionals and around 454 students from kindergarten to 8th grade, including adult education, students with Down Syndrome and NGO projects.

In the development scope of educational alternatives to current DE models, the games and gamification, when linked to the cartographic method of intervention research, adapted while interventionist teaching practice associated to the learning projects methodology and to the flipped classroom and BYOD concepts, they were revealed while significant methodology and practice to the current learning subjects, considering their culture and evidenced in the way that they learn in different contexts. This methodology and practice have led:

- the linking of the pedagogical practice in the AA-EAMD context, with the schools daily life reading, allowing a strangeness and a critical analysis of reality from the relations establishment with the studied theories, which allowed students to identify problems, where games/gamification could contribute as possibility for changes;
- an effective engagement in the teaching and learning processes, mainly because they allowed them to live an experience in which they were challenged to explore and carry out missions, which put them in control of the process, thus enabling, through their constant actions and interactions, to discover and to invent ways and solutions and making decisions. All this in a fun way, favoring immersion (flow state), the agency and the transformation;
- type of interaction in which the different subjects (student and teacher) were engaged by performing exchange of information, sharing experiences in a learning process just by doing it, which favored the role and the development of social autonomy and creative authorship. This is fundamental for the subject to attribute senses (understand), learn precisely because he is experiencing an experience, "being in the situation" - which allows him/her to speak "from within" from his own learning process. Thus, by speaking "from within" what is being lived and experienced, the subject becomes part of this hybrid, attributing meanings, signifying and producing movements, as one of the human actors that is associating with other human and not human actors the constitution of different networks that are being woven into the multimodal perspective;
- the experience of this practice in the connection with the learning path walked through by each Clan in the development of the game or gamified process in the school, resulted in greater engagement of the students in the AA-EAMD; in the meaning amplification on the learning that occurred from this experience and; in the re-signification of the experience lived in the initial formation for the Elementary School, allowing the students to assign sense to the teaching in the Contemporaneity.

Participating in a game or gamified process and simultaneously performing a game or gamified process at school enabled AA-EAMD students to have a deep sense of con-

fidence and self-esteem, which contributed to the flow of learning. By being able to identify problems in observing the schools daily life and contributing to their solution, students have experienced a positive sense of achievement and competence, further motivating them to the next challenge. The organization by Clans, together with the challenge proposed in the narrative that involved performing missions, instigated the collaborative and cooperative practice, since they had to define strategies and organize themselves to develop the game and/or gamified processes.

Still with regard to the methodology, it is important to emphasize that the cartographic research method, as an interventionist pedagogical practice in games and games processes and developed in a hybrid, multimodal and pervasive context, it allows accompanying the subjects in their different learning pathways. This monitoring involves the use of analog and digital technologies, both physical and online and encourages them to develop their own missions and projects that, from the BYOD's perspective, can extend beyond the time set for formal education.

The fact that the subject possesses a mobile device and being connected creates conditions for him/her to remain engaged in the process, regardless of time and space. Thus, the monitoring and evaluation process can, at different times, be "situated" and still imbricated. Through the designed and planned tracks in order to provide the analog and digital spaces hybridization, it was possible to establish a multimodal context, which is desirable when talking about immersion, agency and engagement.

More specifically, with regard to the movements proposed by Kastrup [7, 8] regarding the cartographic method, since the development of this practice allowed that it was possible to evaluate the power of the method and the inadequacies that are perceived in the own gamification experience. The question that seemed to be the most challenging was to guarantee the unpredictability and rhizomatic openness of the cartographic method and attention. In this case, it seems important to consider that it is necessary to invest more and more in mechanics and dynamics that strengthen and value the players' narratives (as in the case of RPGs).

Therefore, it can be said that the research reached the proposed objective, which was to develop pedagogical alternatives to the DEs models, so that the methodologies and the practice were significant to the current learning subjects when considering their culture and evidenced in the form as they learn in different contexts, in order to foster a more effective engagement in the teaching and learning processes.

Understanding the games/gamification potential for the creation of new designs in DE occurred in the extent that the empiria was being developed, it was possible:

- the understanding expansion on how to develop learning situations which are capable of enabling an AA (discipline) to be configured as a space of coexistence, which was neither a co-creation process from a space that is proper to the teacher, in the interaction with the students' own spaces, which are translated in a process of constant permeability, being that both are co-learners and co-teachers. In this way, there was the possibility of transforming both into coexistence, having origin in the cooperative and collaborative construction process. For the teacher, learning this, understood as attribution of meanings, occurs in the teaching process itself

while it is constituted. However, this is only possible if the educational relationship is built on the principle of trust and the legitimacy of the other in the interaction;

- the deepening and evolution in the design, initially proposed as a function of the developed course, propitiated by the articulation between: 1) cartography of the developed pedagogical practice; 2) return of the constant assessments, conducted by the students[11]; 3) the teacher's reflections about the developed practice – carried out at the end of each meeting with the students, 4) discussions at the research practice meetings[12] with the master's and doctorate's degree students; 5) theoretical and methodological deepening. In this context, we emphasize the contribution of the Actor-Network Theory (ANT), developed by Latour, Law and Callon, to understand the circulations movement, inscriptions, assemblages, mobility between human and non-human actors and; of the research-intervention cartographic method, adapted as an interventionist pedagogical practice, capable of potentialize the development of strategies, associated to the methodology of learning projects and to the concepts of flipped classroom and BYOD, in the configuration of Hybrids, Multimodal, Pervasive and Ubiquitous Living Spaces for learning;
- the discussion about the need to reconfigure methodologies, practices and curricula, as well as how to organize them in time and space based on everyday problems, capable to integrate different areas of knowledge, making it possible to construct learning paths in a way to contribute to an emancipatory and citizen education, which is more significant for the learning subjects.

Another result relates to the articulation with Basic Education, which provided powerful interlocutions, because, from the developed methodology, students who were already teachers were disarmed and challenged to rethink their practice in the classroom from the reflection about their own learning process about what their students also experience while learning (signification and re-signification).

This awareness is significant for the transformation of pedagogical practices, since the teacher begins to differentiate between: 1) the "use" of certain DT in education X the meaning of DT in their learning process, which enables the creation of learning situations in which the subjects operate these technologies, experiencing them in the construction of experiences that make possible the meaning in the learning process; 2) the "content broadcast " X the construction of knowledge; 3) the "apply" an methodology X develop a methodology; 4) the "teaching" X the construction of learning spaces. The results impact has been extended to students of Basic Education in the involved classes in the projects development that resulted in games or gamified processes, and to the schools, involving teachers, management team and parents.

Considering the quantitative and qualitative results, there was a significant social impact provided by the project, especially linked to Basic Education, which occurred

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[11] Every week, the students evaluated the AA and the work developed by the teacher, with the purpose of correcting directions.

[12] The research practice is a curricular activity of the UNISINOS Post-Graduation Program in Education, in this case, developed in the context of the Digital Education Research Group GPe-dU UNISINOS/CNPq, linked to the Education, Development and Technologies research line, being that the responsible for the development of this project is the coordinator.

due to the games and to the gamified processes that were constructed from the movement's perspective "Games for Change" (developed from relevant educational issues, identified in the context of Basic Education schools where the Pedagogy students worked, causing impact in the institutions where the games and gamified processes were developed). It is emphasized the involvement of the community, because, this being a strategy that works with the concept of extended classroom, depending on the theme addressed by the Pedagogy students in the development of the projects, it was necessary to interact with other spaces and professionals ("Live Tracks").

Linked to this issue, AA-EAMD enabled students to understand how the games and the gamification can make up innovative pedagogical methodologies and practices that value multiple social spaces, such as knowledge-building spaces, as well as to promote cooperation between schools, Community and social segments. This may be one of the possibilities for the reconfiguration of the current educational context that has received criticism because it is losing meaning for the learning subjects and for the society in the face of the sociocultural transformations nowadays occurring.

In this way, the social impact, due to the linkage with the schools daily life, instigated, within the scope of the research, to investigate the scope that the pedagogical methodologies and practices developed in Higher Education can have in the Basic Education when being experienced and signified by the learning students, and these (schools daily life) are also considered learning and training spaces for students of Higher Education, by integrating their training process.

Thus, the concept of the classroom and the "walls" of the university are broadened. Therefore, the research results motivated the expansion of the proposal through the development of a research project with Primary Schools of the Municipality of São Leopoldo (EMEF Irmão Weibert, EMEF Santa Marta and EMEF João Goulart), with the aim of intending and rethinking the interfaces between DT and education, as well as developing learning situations (built in a co-creation process, based on a critical reading of the school's daily life), using games and the gamification's concept to social change in perspective of the configuration of Hybrids, Multimodal, Pervasive and Ubiquitous Living Spaces, integrating school spaces, university spaces and city spaces, in order to promote education for citizenship.

Moreover, it is noteworthy that the project provided greater integration between education (undergraduate, graduate and fundamental), search (GPe-dU, scientific research, masters and doctor's degree training) and extension (continued teacher training), generating positive impacts for both schools where the games and the gamified learning projects were developed, as well as for training at different levels.

6   REFERENCES

1. CAROLEI, P (2014) Games Pervasivos como proposta de potencialização da Comunicação Científica. **Anais do XXXVII Congresso Brasileiro de Ciências da Comunicação**, Foz do Iguaçu 2014
2. CAROLEI, P; SCHLEMMER, E. Alternate reality game in museum: a process to construct experiences and narratives in hybrid context. In: **Proceedings of EDULEARN 2015 Conference,** Barcelona: IATED, 2015. v. 01, p. 8037-8045.

3. CASTELLS, M. **A galáxia da Internet: reflexões sobre a Internet, negócios e a socie-dade.** Traduzido por BORGES, Maria Luiza X. de A. Rio de Janeiro: Jorge Zahar, 2003.

4. CHAGAS, W. dos S. **Quem é o responsável por essa bagunça?!** A influência da família na indisciplina escolar. Monografia de Especialização. ULBRA. Canoas: 2006.

5. FARDO, M. L. **A gamificação como estratégia pedagógica:** estudo de elementos dos games aplicados em processos de ensino e aprendizagem. Universidade de Caxias do Sul, Programa de Pós-Graduação em Educação. 2013. Dissertação (Mestrado). 104 f.

6. INEP. Instituto Nacional de Estudos e Pesquisas Educacionais Anísio Teixeira. **Censo da Educação Superior de 2014.** Brasília, D. F. Ministério da Educação, 2015.

7. KAPP, K. **The Gamification of Learning and Instruction:** Game-based Methods and Strategies for Training and Education. Pfeiffer, 2012.

8. KASTRUP, V. **O funcionamento da atenção no trabalho do cartógrafo.** Psicol. Soc. 2007, v. 19, n. 1, p. 15-22.

9. KASTRUP, V. O método cartográfico e os quatro níveis da pesquisa-intervenção. In: CASTRO, L. R.; BESSET, V. (orgs.). **Pesquisa-intervenção na infância e adolescência**. Rio de Janeiro: Nau editora, 2008.

10. LEMOS, A.**Cibercultura, tecnologia e vida social na cultura** P. Alegre: Sulina, 2004.

11. LÉVY, P. **Janelas do Ciberespaço**. Porto Alegre: Artes e Ofícios, 2000.

12. McGONIGAL, J. **Reality Is Broken:** Why Games Make Us Better and How They Can Change the World. The Penguin Press HC, 2011.

13. MOORE, M., KEARSLEY, G. **Educação à distância.** S.Paulo: Cengage Learning, 2008.

14. MURRAY, J. (2003). **Hamnlet no Hollodeck.**São Paulo: Editora UNESP.

15. PAPERT. S. **The Connected Family.** Atlanta, Georgia: Longstreet Press, 1996.

16. PASSOS, E.; KASTRUP, V.; ESCÓSSIA, L. (Orgs.). **Pistas do método da cartografia:** Pesquisa-intervenção e produção de subjetividade. Porto Alegre: Sulina, 2009.

17. PASSOS, E.; KASTRUP, V.; TEDESCO, S. **Pistas do método da cartografia:** a experi-ência da pesquisa e o plano comum. Porto Alegre: Sulina, 2014.

18. SANTOS, EE. O. Educação on-line para além da EAD: um fenômeno da cibercultura. In: **X Congresso Internacional Galego-Português de Psicopedagogia,** 2009, Braga-PT:

19. SCHLEMMER, E. Projetos de Aprendizagem Baseados em Problemas: uma metodologia interacionista/construtivista para formação de comunidades em Ambientes Virtuais de A-prendizagem. In: **Congresso Internacional de Informática Educativa 2001 Universidad Nacional de Educación a Distância UNED 2001,** 2001, Madrid. Anais

20. _____. Gamificação em espaços de convivência híbridos e multimodais: design e cognição em discussão. Revista da FAEEBA, v. 23, n. 42, 2014.

21. _____. **Gamificação em contexto de hibridismo e multimodalidade na edu-cação corporativa. In Revista FGV On-line.** EAD: Teoria e Prática. Os caminhos entre a técnica de ensino on-line e o cotidiano do aprendizado. a. 5, n. 1, p. 26-49, jan./jun. 2015.

22. SCHLEMMER, E.;LOPES, D. Q. A Tecnologia-conceito ECODI: uma perspectiva de i-novação para as práticas pedagógicas e a formação universitária. In **VII Congresso Ibero-americano de Docência Universitária,** 2012, Porto, Portugal.

23. TREIN, D.; SCHLEMMER, E. **Projetos de Aprendizagem Baseados em Problema no Contexto da Web 2.0.** Revista e-Curriculum (PUCSP), v. 4, p. 1-20, 2009.

24. VALENTE, C.; MATTAR, J. Second Life e Web 2.0 na educação: o potencial revolucio-nário das novas tecnologias. São Paulo: Novatec, 2007.

25. ZICHERMANN, G.; LINDER, J. "Game-Based Marketing". Jargonlab, Inc. and Joselin Linder. 2010. Disponível em: <http://www.slate.com/id/2289302/>

26. ZICHERMANN, G.; CUNNINGHAM, C. **Gamificationby Design:** Implementing Game Mechanics in Web and Mobile Apps. O'Reilly, Sebastopol, 2011.