Comunicar, n. 44, v. XXII, 2015 | Media Education Research Journal | e-ISSN: 1988-3293
www.comunicarjournal.com

ARG (Alternate Reality Games). Contributions, Limitations, and Potentialities to the Service of the Teaching at the University Level

ARG (juegos de realidad alternativa). Contribuciones, limitaciones y potencialidades para la docencia universitaria

Dr. Teresa Piñeiro-Otero is Professor in the Department of Humanities at the University of La Coruña (Spain) (teresa.pineiro@udc.es).
Dr. Carmen Costa-Sánchez is Professor in the Department of Humanities at the University of La Coruña (Spain) (carmen.costa@udc.es).

ABSTRACT
Education's gamification has represented an opportunity to boost students' interaction, motivation and participation. ARG (Alternate Reality Games) offer a new highly immersive tool that can be implemented in educational achievements. One of the strongest points of these immersive games is based on applying the sum of students participating efforts and resources (so called collective intelligence) for problem resolution. In addition, ARG combine online and offline platforms a factor that improves the realism on the game experience. In this regard, this present work aims to summarise ARG potentialities, limitations and challenges of these immersive games in higher and further education context. In terms of methodology, this research draws from an appropriate theoretical corpus and, analyses the educational potential of AGR that, in fields like marketing or corporate communication, has already started successfully, but it has still not been studied in depth in education. This study compiles, also, best practices developed in several subjects and academic degrees all around the world and not easily traceable. It concludes that, given the antecedents, potentialities and the exposed analysis, the possibility of incorporating alternate reality games into the university teaching practice in the frame of an educational strategy that determines its aims and more suitable system of evaluation, has to be considered.

RESUMEN
La ludificación de la educación ha representado una oportunidad para fomentar la interacción, la motivación y la participación del alumnado. Los ARG (las siglas inglesas de juegos de realidad alternativa) ofrecen una nueva herramienta altamente inmersiva que puede implementarse en el logro de los objetivos docentes. Uno de sus puntos fuertes consiste en la suma de esfuerzos y recursos (la llamada inteligencia colectiva) aplicada a la resolución de problemas. A esto se añade su combinación de plataformas en los entornos online y offline, lo que favorece el «realismo» de la experiencia. En este sentido, el presente trabajo pretende condensar las potencialidades, limitaciones y retos de los ARG al servicio de la educación universitaria. Basándose, a nivel metodológico, en la elaboración de un corpus teórico relevante y adecuado, analiza el potencial educativo de esta herramienta que, en ámbitos como el marketing o la comunicación corporativa ya ha despegado con éxito, pero que en el área educativa todavía no había sido abordada en profundidad. Recopila, además, ejemplos satisfactorios que se han desarrollado en diversas disciplinas académicas en otros países y que no resultan fácilmente localizables. Se concluye que, dados los antecedentes, potencialidades y análisis expuesto, debe valorarse la posibilidad de incorporar los juegos de realidad alternativa a la práctica de la docencia universitaria en el marco de una estrategia educativa que determine sus objetivos y sistema de evaluación más adecuado.

KEYWORDS | PALABRAS CLAVE
Gamification, immersive games, game-based learning, higher education, competences, co-creation, creativity, collective intelligence.
Ludificación, juegos inmersivos, aprendizaje basado en juegos, educación superior, competencias, co-creación, creatividad, inteligencia colectiva.

Received: 29-04-2014 | Reviewed: 22-05-2014 | Accepted: 21-06-2014 | Preprint: 15-11-2014 | Published: 01-01-2015
DOI http://dx.doi.org/10.3916/C44-2015-15 | Pages: 141-148

1. Introduction

In the age of convergence (Jenkins, 2006) methodologies, tools or educational spaces have been involved in a dynamic process of continuous transformation, characterized by greater flexibility and adoption of new technologies, formats and languages.

The concept of literacy has also been redefined. Besides the skills of reading and writing now it also refers to a multifaceted set of practices that apply this knowledge so as to accomplish specific purposes, in specific contexts, strongly influenced by the available technologies (Bonsignore & al., 2011).

These trends have been integrated in the design of teaching strategies to share channels and languages with «digital natives» (Prensky, 2001) in order to achieve a meaningful learning (Gikas & Grant, 2013).

Changes in higher education and the new educational methods emerging in recent decades have aroused the interest of a large number of authors from around the world (Altbach, Reisberg & Rumblety, 2009). Among the teaching methods that have attracted most interest in recent years in educational institutions, public authorities, academia and other entities is Massive Open Online Course (MOOCs). This interest has made The New York Times declare 2012 as the year of MOOCs (Pappano, 2012).

Given the high volume of registrations, these types of courses offer to universities and teachers an intermediate area for the teaching-learning process between the highly organized and structured classical classroom and the open web with a huge volume of extremely fragmented information and chaotic organization (McAuley & al., 2010). Also, as Siemes (2013) highlights, in addition to distribution, the importance of MOOCs lies in autonomy given to students owing to the control over their own learning as well as the use of many tools and technologies during the course deliveries (Siemes, 2013: 8).

In some cases, the design of these courses as well as the participants' use of certain tools, involve the creation of a user community that can get to form a real learning network. These types of Massive Open Online Courses are discursive communities that create knowledge together (Lugton, 2012; Scopeo, 2013; Siemes, 2013).

The popularity of MOOCs led to the adaptation of teaching strategies based on gamification to this new context. The voluntary and autonomous nature that characterizes the enrolment in an open online course involves, more than another mode of instruction, an individual decision to learn and think independently encouraged by the use of digital games as providers of motivation and external stimulus (Cebrián de la Serna, 2013: 186).

This perspective led Borden, in 2012, to change the typical content of open courses into a learning experience based on the concept of teaching and learning gamification, by creating various alternate reality games (ARG).

This is not the only experience in this sense, in fact, it is worth noting the teaching innovation project The Games Mooc (http://gamesmooc.shivtr.com) of Colorado Community College System, which encourages the use of ARG and other type of digital games in MOOCs as well as in other areas of higher education, from the open training of teachers and people interested in their design and development.

These initiatives have linked two leading trends in education today: MOOCs and integration of games in the teaching-learning process. If 2012 was the year of massive open online courses, gamification of higher education is a close reality, according to the prospective issues of Horizon Report Higher Education 2014.

This work is an approach to the use of ARG in education, the features of their use with teaching purpose and their potential. To this end, we have undertaken an exhaustive literature review of the state of play as well as some of the initiatives successfully developed.

2. Alternate Reality Games (ARG). Definition, characteristics, scope

Alternative Reality Games are an emerging genre of immersive interactive experiences where players collaboratively locate clues, organize scattered information and solve puzzles to advance the storytelling that combines both real and online environments (Doore, 2013).

The first far-reaching ARG was used for the advertising campaign of the film «Artificial Intelligence: AI» (2001) by Steven Spielberg. Under the name of «The Beast», this ARG launched in 2001 in the United States began with hidden clues in the movie posters that attracted the public's curiosity and led to an expedition through the real and online world, in order to have information related to the film (Valencia, 2013). Beyond that, their use with transmedia universes has increased in order to: build loyalty, entertain and amuse, create «engagement» or make the project profitable (Scolari, 2013, Dena, 2008).

Marketing and corporate communications are other areas where they have been used successfully. The game dynamics allow the participation of the public, who are introduced into the story and enjoy it

thanks to an experience linked to the brand (Tuten, 2008; Estanyol, Montaña & Lalueza, 2013).

However, depending on the structure, it would be a crossmedia storytelling because games are about finding clues, solving puzzles and getting information from an initial clue «rabbit hole», so that there is a necessary circuit from one content to another (from some information to another, so it is required to access all the content).

One of the keys to this game is its leitmotif: «This is not a game». This implies that realism / authenticity is one of the main points, so all platforms that are used must be active (websites, e-mail addresses, phone numbers, QR codes, etc.). It refers also to the continuation of the game in the real world, which is one of the most important defining features.

«In game genre terms, ARG are a subset of pervasive games, because their multiplatform distribution of content spills into players' everyday lives via SMS messages, phone calls, email and social media orchances to meet non-player characters (NPCs) face to face» (Hansen, Bonsignori, Ruppel, Visconti & Krauss, 2013: 1530)[1].

This offline-online combination also helps the immersion process of participants, who «live» adventure directly (Arrojo, 2013).

This is conditioned by one of the distinctive features regarding other games, duration. While gaming lasts minutes or hours (or you can continue the game on different days), ARG provide a more or less continuous experience during weeks and months, where participants star in an adventure besides living their life.

Another main point is collaborative storytelling dynamics. «We suggest that ARG are a form of collective storytelling. Although game designers hold most of the story in hand, players have much influence on how the story unfolds. Because players discuss the game in public forums, game designers adjust the story and clues based on player feedback. As a result, the story co-evolves between the groups» (Kim & al., 2009)[2].

Designers and producers of ARG (the so-called puppetmasters) construct storytelling in collaboration with users and players, as it develops. «A successful ARG, then, is not simply the result of an audience doing the right thing at the right time but, instead, it is a dynamic and mutable interplay between producer and player, one that relies on the overlapping literacies of each» (Bonsignore & al, 2012: 2)[3].

Collaboration also occurs among players, so some authors (McGonigal, 2007, Jenkins, 2006) think it is a practical example of «collective intelligence» (Lévy, 2007) based on the exchange of information and help through network. «Many game puzzles can or must be solved only by the collaborative efforts of multiple players, sometimes requiring one or more players to «get up from their computers to go outside to find clues or other planted assets in the real world» (Brackin & al, 2008: 5)[4].

Alternative Reality Games are an emerging genre of immersive interactive experiences where players collaboratively locate clues, organize scattered information and solve puzzles to advance the storytelling that combines both real and online environments

Basically, it is a practice of co-creation, that is, collective creation also in line with the principles of the Web 2.0. «In comparison to the static Web 1.0 that focused on information, this new concept of the Web [2.0] is focused on the user and the tools for creation, production and dissemination of content by a community of interagents» (Costa-Sánchez, Piñeiro-Otero, 2012: 186).

This group collaboration generates the formation of a community around the game, joining forces and resources in order to achieve a goal. Establishing a community requires the completion of three stages (McGonigal, 2007): 1) collective knowledge; 2) cooperation and 3) coordination. These stages correspond to three ARG design elements: 1) content massively distributed; 2) ambiguity in meaning and 3) respond capacity in real time, three requirements to be considered when creating it.

In short, the defining characteristics of ARG are: 1) Expansion of the game into reality and the combination of offline and online platforms at the service of adventure (we live in real places, with channels and platforms that exist and are available, with fictional characters in the real world, etc.). 2) On the basis of the above, the ability of players to get immersed. 3)

The dynamics of the game involve researching and solving a mystery, so one needs to gather information, find clues and solve puzzles. It is based, therefore, on discovering and creating knowledge. 4) The storytelling is collaborative, so that puppetmasters are adding or modifying the story according to the response of players. 5) Collaboration also occurs when solving the game, with participants helping each other, so it is considered an example of practical application of «collective intelligence».

Higher education must adapt to technological and social context in which students live. The classroom as a teaching and learning space should not ignore what happens outside. The integration of social media in teaching is an interesting opportunity at the service of motivation, participation and creation of shared knowledge. Gamification, meanwhile, is an upward trend in various fields because it promotes an active role in players-participants, collaboration in problem solving with available resources and motivation to achieve goals.

The popularity of ARG over the last few years has led to the delimitation of subtypes of such games according to some features both convergent and divergent. Convergent to all the games that belong to the same type of ARG and divergent if compared to other sub-genres.

In this regard, the International Game Developers Association (IGDA) proposes a classification of ARG taking into account the context of other similar games and their purpose. This proposal classifies ARG into five categories, which include training-education (Barlow, 2006). Also Brackin & al. (2008) pay special attention to these ARG in their classification as part of non-commercial typology.

3. An approach to educational ARG

Over recent decades, researchers have paid particular attention to how digital games influence learning processes and their effects on the overall educational process (Gee, 2004; Kafai, 1998; Prensky, 2001; Squire & Jenkins, 2003). For several authors (Prensky, 2007), the educational setting has changed in terms of context and also the profile of the agents involved in it, so that in the new educational model that promotes independent learning, the old teaching dynamics must amend.

Most studies conducted in an educational context have demonstrated positive results concerning gamification of the teaching-learning process in terms of increased motivation and task commitment as well as enjoyment around them (Hamari & al., 2014: 4: Cebrián, 2013). Cebrián (2013: 192) also stresses the ability of the game to encourage digital literacy by enabling the individual to encode-decode his storytelling, and deepen communicative, creative and recreational skills.

In the last decade there have been several considerations of the educational benefits of ARG, mostly Anglo-Saxon. The importance of social web and its tools, the ubiquity of Internet thanks to mobile technologies and the increasing use of multimedia content in general, have led teachers and trainers to adopt new strategies using ICT to attract the attention of students and increase their level of commitment to their own education and training process. Educational ARG have common elements with other types of games, but promote a non-traditional product that goes beyond formats, platforms and languages to be as simple and complex as knowledge (IGDA, 2006: 19). These immersive games are a powerful tool that has become a teaching tool in the third millennium (ARGology, 2009; McGonigal, 2011).

In primary and secondary education there some initiatives of educational ARG such as HARP (2006), Ecomuve (2009) and, in Latin America, Mentira (2009) can be highlighted. These games for primary and secondary education have been designed by experts from Harvard University, University of Wisconsin, MIT and the University of New Mexico (Center4-Edupunx, 2012). In Europe, the EMAPPS Project (2005), an educational ARG project developed by various entities and funded by Sixth Framework Programme stands out.

ARG have an additional advantage: they can adapt their story to different contexts, age groups, locations, subjects and disciplines, as well as learning objectives (Connolly, 2009). This ability to be adapted allows the creation of ARG by external academic institutions, to be used by various schools in different school contexts. The changes introduced by players can be adapted to the global story and we can point out differences of use in terms of the required results (Whitton, 2008).

The academic nature of these initiatives advances the important weight that educational ARG have for higher education. Alexander, a pioneer in the integration of these games in teaching strategies, started using ARG for teaching Arts in 2002, just a year after the premiere of «The Beast» (ARGology, 2009).

Initiatives like «Blood on the Stacks» (2006), «World without oil» (2007), «The Great History Conundrum» (2008), ARGOSI (2008), «Just Press Play» (2011), «EVOKE» (2010) or «The Arcane Gallery of Gadgetry» (2011) are some of the ARG that have been successfully implemented in the context of higher education.

4. Potential of ARG integration in higher education

Alternate Reality Games combine the features of gaming and social software and, therefore, the teaching potential of both tools (Lee, 2006). They are collaborative, players must work together to solve puzzles, they are active and experimental and provide real contexts and objectives for the activity in the real and virtual world (Whitton, 2008; Lee, 2006).

However, ARG offer additional learning benefits. First, players are not limited by the possibilities of an avatar or a fictional character but are their own agents and use their own experience and knowledge to move forward in the game. Tests and puzzles make participants cooperate and they do not have predefined safe spaces that set the time and logistical limits of gaming.

Due to this cooperation among participants Brackin & al. (2008) refer to the social network as the backbone of ARG. Lee (2006) also stresses that these games feature changing situations that require quick decisions, while the regular delivery of tests stimulates reflection (Moseley, 2008).

In regard to primary and secondary education, authors such as Turner and Morrison (2005) have explored the use of ARG as pedagogical tools, seeking greater engagement and involvement of primary and secondary students in their own learning process. ARG are an integral part of a distinct class that provides students the opportunity for personalized learning, matching their proficiency and understanding (Center-4Edupunx, 2012).

In the context of higher education, we can approach the potential of ARG in teaching and learning on the basis of the work of several authors, among them Moseley (2008) and Fujimoto (2010).

An ARG requires that its public follows each of the activities and collaborate and interact with other users-participants (De Freitas and Griffiths, 2008). Besides greater involvement of students in their own learning process, taking an active role in the creation of content may affect the design of the game world (Whitton, 2008). Such interference of players in game results -following Moseley- means a higher level of commitment and participation.

It is collaborative learning. In many cases, the community of players becomes a support network where most experienced players help new ones (Whitton, 2008). This kind of peer-to-peer education community becomes more important in those contexts where students have followed different personal and educational paths, since the divergence of knowledge and skills complement each other to achieve the objectives (Dunleavy, Dede & Mitchell, 2009; De Freitas and Griffiths, 2008). As Hernández, González and Muñoz (2013) point out collaboration and learning may arouse interesting personal and social opportunities, while generating deep impact that requires a review of the pedagogical, organizational and technological elements within a particular virtual environment for learning.

It is a learning process from situation, while ARG create a context of real life, which is based on problem solving (Whitton, 2008; Moseley, 2008; Moseley & al. 2009). ARG also provide a multimodal and multimedia learning, which makes players move through various platforms, formats and languages.

5. Dealing with the design of an educational ARG

One of the most challenging aspects when designing an educational ARG is to create a credible setting, suitable for learners, which makes them commit to the experience. As Fujimoto (2010) points out, if the game setting is seen as educational this will not only entail the rejection of some players, it will also make it lose its recreational nature to become school work. If the main feature of an ARG is precisely its «non-game» nature, in education an oxymoron occurs: it must be credible and fun, entertaining but promoting commitment to some activities.

There are three components in any ARG: exposition, interaction and change (Phillips, 2006). Beyond

these components, it is difficult to determine what form, structure or what elements an educational ARG should contain. As Fujimoto (2010) notes there are countless games and game rules, ranging from something as simple as a treasure hunt to something more complex, as an educational experience based on problem solving.

Davies, Kriznova and Weiss (2006) suggest some guidelines for ARG design in order to promote progress, imagination and curiosity: 1) players must be able to perceive the ARG outcome; 2) the main goal and sub goals should be challenging; 3) it must involve mental activity; 4) at the beginning of the game, the end must be uncertain; 5) the ARG should require that the player develops strategies to succeed; 6) it should offer different paths to reach the goal; 7) the game must have appropriate tests and obstacles meeting maturity and prior knowledge of the players.

Dealing with the design of an educational ARG is difficult, as its structure must involve players so to encourage them to participate and complete the experience, while they should complete the learning goals. Some of the barriers identified by Balanskat (2008) for the effective use of ARG include access to new technologies among the participants in the project, teacher training, safety issues, difficulties to combine games and school curriculum goals or lack of assessment of social skills.

6. Discussion and conclusions

Higher education must adapt to technological and social context in which students live. The classroom as a teaching and learning space should not ignore what happens outside. The integration of social media in teaching is an interesting opportunity at the service of motivation, participation and creation of shared knowledge (Menéndez and Sánchez, 2013: 156). Gamification, meanwhile, is an upward trend in various fields because it promotes an active role in players-participants, collaboration in problem solving with available resources and motivation to achieve goals (McGonigal, 2011).

In the context of the European Higher Education Area, ARG are a useful tool in the acquisition of skills, understood as the proven ability to bring into play knowledge and skills, personal, social and methodological capacity. ARG are also beneficial in meeting European Parliament requirements for responsibility and autonomy (European Parliament, 2007). Many of the transversal competences (instrumental, personal or systemic) are related to the operating dynamics proposed by ARG: problem solving and decision making, teamwork, individual learning, use of ICT, ability to apply theoretical knowledge in practice and communication skills, for instance. These types of immersive games are based on three elements: convergence, participatory culture and collective intelligence, becoming illustrative examples of the new media ecology described by Jenkins (2006).

In terms of specific skills of the Degree in Audiovisual Communication, designing an ARG can be a useful task for students (not just experimenting) when implementing creative strategies and using ICT in a communication campaign, as already happens in marketing and film promotion. Students must learn to apply their knowledge, improve their social and communication skills and they are expected at university to develop their values and attitudes so as to succeed in the workplace (Teichler, 2007).

Apart from the potential benefits enumerated above, creating surprise and mystery, stimulating commitment and -given the use of ICT and 2.0 tools- extensive access without too many production costs should be added/considered

In Spain, there are no studies on the use of these types of games as a teaching tool at university, reflecting that it is not a standardized activity. Designing an ARG is an arduous task that can make teachers reject its use. In this sense, authors like Carson, Joseph and Silva (2009) have proposed the use of mini-ARG to achieve specific and concrete objectives. This work reflects on ARG as a new option when raising content and educational methodology in higher education. It emphasizes its adequacy for teamwork, since they favor the assignment of objectives, the setting of dynamics to achieve them, collaboration among participants, the overcoming of small puzzles (which can be associated with the subject content) and a high degree of involvement in the experience. In any case, as an educational tool, it should be part of the education planning process to ensure the achievement of its objectives and provide for a system to value the extent of compliance with the goals (Chin, Dukes & Gamson, 2009; Connolly, 2009).

Notes

[1] «In game genre terms, ARG are a subset of pervasive games, because their multiplatform distribution of content spills into players' everyday lives via SMS messages, phone calls, email, and social media orchances to meet non-player characters (NPCs) face-to-face» (Hansen, Bonsignori, Ruppel, Visconti, Krauss, 2013: 1530).

[2] «We suggest that ARG are a form of collective storytelling. Although game designers hold most of the story in hand, players have much influence on how the story unfolds. Because players discuss the game in public forums, game designers adjust the story and

clues based on player feedback. As a result, the story co–evolves between the groups» (Kim & al., 2009).

[3] «A successful ARG, then, is not simply the result of an audience doing the right things at the right time but, instead, it is a dynamic and mutable interplay between producer and player, one that relies on the overlapping literacies of each» (Bonsignore & al., 2012: 2).

[4] «Many game puzzles can or must be solved only by the collaborative efforts of multiple players, sometimes requiring one or more players to «get up from their computers to go outside to find clues or other planted assets in the real world» (Brackin & al., 2008: 5).

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