

Alternate reality games for developing student autonomy and peer learning

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Abstract

This paper discusses the educational potential of alternate reality games (ARGs), a relatively new game format that takes place both online and in the real world over a number of weeks, and combines narrative and puzzles to develop a collaborative community. In this paper, first the concept of ARGs are described, including their history and composition, and their potential pedagogic benefits are discussed in relation to constructivism, student autonomy and peer learning. Then the paper provides a case study of the Alternate Reality Games for Orientation, Socialisation and Induction (ARGOSI) project at Manchester Metropolitan University, which used an ARG for the development of digital literacy skills. Finally, the paper concludes by highlighting some of the potential challenges of using ARGs in education.

Introduction

This paper will provide an overview of the concept of alternate reality games (ARGs) and discuss their pedagogic potential in Higher Education. A case study of the Alternate Reality Games for Orientation, Socialisation and Induction (ARGOSI) project, which developed an ARG for students at Manchester Metropolitan University, will be described and some emerging findings presented. Finally, the paper will conclude with a consideration of some of the practicalities and issues of using alternate reality games for teaching and learning in Higher Education.

Alternate reality games are a comparatively recent genre of game; the first fully-formed ARG is widely considered to be a game called *The Beast* that was created in 2001 as a promotional vehicle for the Steven Spielberg movie *AI* (Hon, 2005). Alternate reality games have been described in web magazine CNET as 'an obsession-inspiring genre that blends real-life treasure hunting, interactive storytelling, video games and online community' (Borland, 2005). Michael Smith, the CEO of Mind Candy, creators of PerplexCity, one of the best known and most popular ARGs in the UK, describes the genre as 'part story, part game and part puzzle' (Brightman, 2006).

ARGs provide a fictional game world and narrative that is interwoven with real people, places and events. They engage players with a series of interactive and collaborative challenges and puzzles that contribute to finding out more about the storyline as it unfolds. Martin and colleagues (2006) describe this interwoven nature of the real, online and fantasy world, saying that ARGs 'take the substance of everyday life and weave it into narratives that layer additional meaning, depth, and interaction upon the real world. The contents of these narratives constantly intersect with actuality, but play fast and loose with fact, sometimes departing entirely from the actual or grossly warping it' (p6). A crucial element in the design of alternate reality games is the notion that 'this is not a game': an alternate reality game will often not advertise itself as a 'game' and it is up to the players to distinguish between reality and fiction. There is no explicit distinction between the

real world and the game world, sites within the game will often be indistinguishable from genuine sites, and the creators of the game often go to great lengths to ensure that they are anonymous and uphold the secrecy of the game.

Stewart (2006), lead writer of *The Beast*, suggests four defining characteristics of ARGs: that they have an ongoing storyline, which is broken up and the players need to assemble over time, piecing together the narrative from multiple sources as the game unfolds; that they make use of many different media types to act as a delivery mechanism for the game, such as print, telephone, blogging, social networking sites, email, web pages, radio, television, advertising, and actual people; that they provide a collaborative environment in which players are required to cooperate to solve the puzzles (either because the puzzles explicitly require more than one person or because they are so hard and cover so many domains of expertise that it is unlikely that one individual will be able to solve it alone); and that they create an environment where the audience interact with the game world and are responsible for shaping it – the game itself changes over time in response to the activities of the players.

It has also been argued that essentially, there are three integrated components in alternate reality games: exposition, interaction and challenge (Phillips, 2006). Exposition is the story, plot, and events that drive the game, the characters and their motivations, and they world they live in. This narrative is presented both online and in the real world, using real people and places with fictional events overlaid. Interaction takes place in the form of a dynamic dialogue between the players and the game characters and this creates the ability for players to shape the game world by creating ongoing mythology around the game, by communicating both with other players and with characters within the game (this can also be carried out through a variety of media including chat, email, telephone, messaging and live events). Challenge provides the game-play: the puzzles, ciphers, riddles and collective achievements that provide purposeful activity to the story and create an ongoing motivator and continued immersion in the game world.

Since their inception, there have been many types of alternate reality game produced, including promotional, grassroots (games that are produced as fan sites or works of fiction for their own sake), productised (i.e. commercial), single-player, and educational (Barlow, 2006). They have been used to advertise products, films, computer games, music and television series. Although much of the most significant ARG development has occurred with developers creating games as viral marketing initiatives, they have parallels with other genres, drawing inspiration from literature (in particular the adventure game books popular in the 1980s and interactive online fiction), movies, urban treasure hunts, internet hoaxes, role-playing games (RPGs), and massively multiplayer online role-playing games (MMORPGs). ARGs are niche and generally appeal to a small proportion of the population, but those individuals who do become involved typically show extremely high engagement with the game, giving up large amounts of time and going to extreme lengths to get involved and complete the challenges.

The pedagogic benefits of ARGs

In recent years there has been rapidly increased interest in the potential of computer games for learning, primarily for children but also in the context of adults in Higher Education. The increasingly diverse student population has led to a rethink about ways of teaching and learning that are appropriate, and computer games can offer many pedagogic benefits. While they can be motivational for some students, not all HE students will find games intrinsically motivating and, in fact, many perceive such games as a 'waste of time'. However, if designed and used purposefully, when students are convinced of the efficacy, a key feature of games is their ability to create engagement, a factor that contributes to effective learning, through compelling stories within immersive environments, with high levels of interaction and feedback.

Certain computer games can also be viewed as constructivist learning environments (Whitton, 2007) where students can learn by constructing their own understandings of the world, by problem-solving and personal discovery. They can provide the opportunity for learners to explore immersive virtual worlds using rich media, create realistic and purposeful contexts for practising skills that can be applied to the real world, and provide a forum for working with other players to achieve shared goals. They have the facility to create a context for problem-solving experiences, allowing groups of students to work together to tackle real-life, multi-disciplinary problems.

Computer games can also support collaborative learning, enabling students to work together creatively, build on individual strengths as part of a team, develop critical thinking and negotiation skills, and test their ideas against the ideas of others. Multi-user gaming communities commonly provide platforms for collaboration and learning from others. Studies of Massively Multi-user Online Role-Playing Games have found evidence of the potential for learning a range of group skills (Ducheneaut & Moore, 2005). They can also support the Experiential Learning Cycle (Kolb, 1984) by providing authentic and active experiences in which students can gain knowledge, receive feedback, reflect on the outcomes, and apply to the real world (although, in practice, games are poorer at supporting reflection and application and these processes are commonly supported through additional activities in the context of educational games).

Alternate reality games provide many of the same pedagogic advantages of computer games in general: they are collaborative, as players are required to work together to solve the puzzles, active and experiential, and provide an authentic context and purpose for activity, both online and in the real world. By presenting a series of challenges and an unfolding narrative alternate reality games create puzzlement and mystery, stimulating engagement, and as ARGs also generally take place over several weeks, or even months, they provide the space for reflection. Lee (2006) describes the advantages of ARGs over types of computer games for learning, noting that players act as themselves rather than playing a fictional character, social interaction and collaboration is required, and that there is anecdotal evidence that ARGs have equal appeal for both males and females.

Moseley (2008) presents seven pedagogic benefits of alternate reality games:

1. They facilitate problem-solving at all levels in the form of a graded challenges, and enable students to pick up their own starting levels of competence and start from there.
2. There is steady and ongoing progress and tangible rewards (usually in terms of a leader board, prize artefacts such as badges or grand prize). There is also potential for relating these rewards to assessment.
3. They employ narrative devices such as characters, plot and story (which don't have to be fictional or fantastic but can fit into real-world themes such as history or news) to stimulate curiosity and engagement.
4. Players have the power to influence the outcomes of the game, in terms of plot direction, storyline and game-play. This increases engagement and their stake in and ownership of the game.
5. Regular delivery of problems and events, which is key to maintaining engagement, allows the game to be modified as it progresses, and provides space between events for students to reflect.
6. There is the potential for a large, active community to be built around the game, with a group that is self-supporting and provides scaffolding and advice for new players.
7. They are based on simple, existing technologies, and because they rely predominantly on existing web technologies, they do not require the high-end production values and therefore do not need the same levels of technical expertise or expense to produce as commercial games. This makes them a much more practical and feasible game-based option for education.

A second point on the use of existing technologies is that because players experience a number of different types of media, and are expected to use them to solve challenges and create artefacts, there is the added learning outcome of familiarising the players with a wide range of internet technologies.

Alternate reality games have an additional advantage, in that they can be easily modified or changed to accommodate a different overarching storyline that may be more appropriate for different age groups, locations or subject disciplines. As they are based on a series of challenges, the challenges can be loosely-coupled with the overall story and different challenges used depending on the learning outcomes required – in effect it is possible to create a whole library of challenges that relate to learning outcomes in different subject areas. The whole ARG model easily lends itself to re-use and re-purposing, particularly in the areas of key learning skills, such as information literacy, digital literacy, critical thinking, and creativity, and skills for supporting the development of students as autonomous learners (e.g. goal setting, confidence building, motivation, development of identity as a learner).

ARGs also have the potential to be valuable tools for supporting student autonomy because they can be structured and run over several weeks or months, and they can support the use and gradual removal of scaffolding and increased difficulty. Players have to manage their own time during game play, fitting in physical events and activities with online ones to suit themselves. The collaborative community

around the game is self-directing and players have to choose how and with whom they work on particular challenges; many challenges are open ended (e.g. the creation of artefacts) so it is entirely up to the players to be creative about how they approach them.

Alternate reality games also provide a range of opportunities for facilitating peer learning, They start to blur the line between player and game designer, because participants are involved throughout in shaping the story and contributing to the narrative in a way that goes beyond simply 'playing the game'. A common feature of ARGs is also their ability to create self-sustaining communities with established players supporting and mentoring new players, which could have the potential within Higher Education to provide a framework for peer mentoring, for example by second-year students running a game for first years.

The ARGOSI project

The ARGOSI (Alternate Reality Games for Orientation, Socialisation and Induction) project was a JISC-funded collaborative project between Manchester Metropolitan University (MMU) and The University of Bolton (UoB), starting in April 2008 and finishing in March 2009. It provides an example of the use of an alternate reality game developed specifically to support students in Higher Education.

The project aimed to provide an engaging alternative way for students to acclimatise themselves to university life. By using techniques from game-based learning and the design of digital narrative to stimulate curiosity, provide appropriate challenges, the project team developed a game that runs over the first eight weeks of the university term. This game – ViolaQuest – consists of a series of challenges that are designed to map on to information literacy learning outcomes as well as providing the opportunity for students to work together, meet other people and get to know the city of Manchester.

A current issue in Higher Education is that of student retention and the link to effective induction. Formal induction activities, such as library skills, tend to be short, run in inflexible face-to-face slots, and, because they are run at the start of the year necessarily use tasks that are not contextualised for students, and for which they have no perceived need at that time. Socialisation and orientation activities, which are commonly based around pubs, do not always suit students from different backgrounds and cultures. The ARGOSI project aimed to provide an engaging and purposeful alternative to traditional methods of introducing students to university life, providing a context for exploring Manchester and meeting other new students. While it was hypothesised that ARGs could be used to teach a whole range of curriculum-based learning outcomes, for this project the pilot also focused on a single area of induction content – library and information skills – as a proof of concept. It was not intended that the ARG developed would ever take the place of the traditional student induction but that it will provide an alternative aimed at students whose needs are not necessarily being met by the induction model currently provided.

In keeping with other ARGs, ViolaQuest is built around a series of challenges that need to be solved collaboratively to reveal the underlying narrative. The challenges focus on orientation within the city and socialisation with other players, the ongoing story provides coherence to the challenges, and the collaborative community provides a forum for students to share information, provide hints for each other and work together. In addition, there are a number of 'curriculum' challenges that are directly mapped to the learning outcomes from the library induction and integrate peripherally into the main story. The rationale behind this loose coupling of narrative challenges and content challenges is so that a modular approach can be adopted and different content challenge sets produced and used depending on the context in which the game is deployed.

The ARGOSI project developed an integrated online gaming environment, drawing together appropriate and relevant online tools, including the use of character blogs, Facebook, web sites, and email. This game environment provides a mechanism for registering users, delivering challenges, showing who has completed each challenge, and public and private communication. The story behind ViolaQuest is centred on an MMU student who had found an old letter from one of her ancestors, that hints of a secret society and hidden machine. It is then up to the players to solve a series of challenges to uncover the six pieces of an old map that will give them the clue to the location of the machine, on the way uncovering what the society was for and the purpose of the machine.

Key to the ethos of the project is student involvement in the development process and the development methodology is focused around regular testing days in which aspects of the game design, such as playability, usability and accessibility, are tested and refined based on feedback from the participants. This model of rapid iterative prototyping, testing with users, modification and testing supports the user-centred development of the software and ensured that the user voice was heard throughout the development. Findings from a series of interviews after early testing indicate that there are four primary reasons that the players engaged in the game: Completing (finishing all the challenges), Competing (being first and fastest to complete), Curiosity (finding out how the story unfolds), and Communicating (talking to and working with others). These factors were a useful tool in the final game design as it highlighted a need to balance these factors, for example a leader board was added to the game functionality to provide an element of competition, which had not explicitly existed in the game design previously.

The testing of this design model is one of the research outputs of the project, which will also be considering whether an Alternate Reality Game is an effective and appropriate medium for enabling students to meet the intended learning outcomes of the library and information skills induction, create social networks during the induction period, improve their confidence in navigating the city and university campus, and engage in, and enjoy, the induction experience. Other issues that will be explored include evaluating the success of the development process for an educational ARG and the cost-effectiveness of the project overall.

Conclusions

Although there are clearly benefits to the notion of using alternate reality games in education, there are also developmental, logistic and pedagogic challenges that need to be addressed in order to create and manage a successful educational ARG in the context of university education.

Relying as they do on the imaginative use of existing low-end technologies tools such as blogs, social networking sites, web 2.0 applications, email and 'the real world' to create the gaming environment, the development of an ARG is relatively straightforward compared to the typical development cycles of computer games. However, because they rely on an engaging narrative interlinked with a robust series of challenges they still require a broad cross-section of creative skills in web development, game design, graphic design and storytelling, as well as the necessary subject expertise to ensure that challenges are appropriately mapped to learning outcomes (i.e. students will achieve the intended learning outcomes from playing the game as well as the gaming outcomes).

Fundamental to all ARGs is a compelling plotline that is sustainable and will act as a backbone for the game, drawing players in by stimulating curiosity and moving them on as the story progresses. Although this narrative may develop over time it must be robust and flexible enough to accommodate variations to the story while retaining a degree of internal logic. In the case of the ARGOSI an expert in digital narrative was brought in to outline the types of plotline that might be suitable and had a critical iterative cycle of plot development in order to produce the final story. In addition to a strong story ARGs require many real world and online assets to facilitate game play, for example ARGOSI required the creation a challenge web site, character blogs, and fake websites used as plot devices, as well as numerous prop documents including diary pages, maps and engineers' drawings. The assets must be plausible as they help to drive the game forward and can be time consuming to produce and require the input of someone with graphic design skills.

From a logistic point of view it would be difficult to run an ARG with too few or too many participants. The game needs a critical mass of players in order to make meaningful collaboration possible and to allow the social network of players to develop naturally (with the ultimate goal that it will become self-supporting). One of the emerging issues from the ARGOSI project is recruiting players and maintaining prolonged engagement over the period of the game in such a way that established players have enough to do while new players are not overwhelmed. There are also issues with too many players as during the running time a core team are needed to monitor the game interaction, reveal clues and pieces of the story, create blog postings and interact with the players in many other ways; if there were too many participants this would require a level of administration that could not necessarily be delivered.

The ARG-like nature of the ViolaQuest game created as part of the ARGOSI project had to be compromised in a number of ways so that it could be used safely and effectively within an educational setting. One of the key features of grassroots ARGs is the idea of 'this is not a game' where the boundary between real life and game play is intentionally blurred, and where players are sometime unsure about whether

artefacts are part of the game or not. Although ViolaQuest uses many virtual and real world gaming spaces over the course of the game, players are never in doubt about whether they were still playing or not, and it is clear that the game is associated with a particular educational institution. The provision of a safe and accessible learning environment was considered more important than adhering to the 'this is not a game' aesthetic. There is a related concern that it can be argued that the appeal of ARGs is that they are outside the mainstream, and by legitimising them in a university context educators are in danger of removing their very essence and indeed the fun of participation.

Another consideration is that the use of ARGs in an educational context is likely to always remain niche. A similar pilot scheme at the University of Brighton concluded that the ARG 'provides an interesting alternative to existing mechanisms for introducing students to certain types of information or services. This format does not appeal to all students, but is very effective for those that like it.' (Piatt, 2007, p2). Given that ARGs may be a tool that enables universities to support students whose needs are not being met by traditional induction, it is then important to consider how big the niche needs to be before an ARG becomes a cost-effective tool. If enough students who would otherwise withdraw from university are being retained due – in part – to an induction that meets their needs then ARGs would still be an effective, if niche, alternative.

A final point is the relative newness of the ARG genre in terms of academic research and the lack of papers published in the area. If they are to be considered as an effective pedagogic tool in the field of Higher Education, and achieve mainstream acceptance, it is important that their effectiveness in terms of learning and student engagement is rigorously researched by the academic community.

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