

The Compass Rose of Social Impact Games

Dana N. Ruggiero

Abstract—Within games that are meant for more than play, specific processes and procedures lie hidden within game mechanics that are key to gameplay. These keys provide an opportunity for the player to help or guide others, think about moral or ethical issues, learn about a problem in society, and learn about social issues, like a compass rose. This article presents an overview of the research related to persuasive games with a social impact component. The overview begins with a brief introduction of the use of persuasive games in education and concludes with their development over the last ten years. Next the author introduces each of the four compass points and uses examples of current social impact games to support how the processes and procedures within the game are affected by the game design. Finally, three recommendations are discussed for the design of social impact games in respect to the four compass points of social impact games.

Index Terms—Video games, social impact, learning.

I. INTRODUCTION

Social impact games can fall under the category of persuasive games. Persuasive games are games that try to affect the learner's perspective about a certain topic. Social impact games try to affect the learner's perspective about a social issue. These games are created in a way that unlock the potential of gameplay to teach or inform about social issues. Thus, there are keys to creating social impact games that can affect not only the design of the game but the experience of the game player.

According to Henry Jenkins, "video games and other forms of digital media can foster participatory cultures with relatively low barriers to artistic expression and civic engagement" [1]. One characteristic of social impact games is that they provide authentic problems for learners to solve. By making the problem the central focus of the educational game real-world contexts can be manipulated by the learner. Learners can attain content knowledge across a variety of disciplines by addressing these problems [2]. Finally, processing the content knowledge learned allows the learner to employ it for the benefit of the game. Off the shelf games have been used in social studies, history, and government classes while nonprofits and universities are designing serious games on civic education more and more [3], [4].

Commercial games can have explicit civic and political content that can be used in education. One example of this is *SimCity*, a computer game in which the player is the creator of a city that they build from the ground up. The player sets the taxes, decides on the type of industry available, develops strategies for city growth, and must consider their approval

ratings. By developing their city, players learn to respond to citizen demands with caution, balance the city budget, and deal with emergencies such as fires, job shortages, and educational reform. Engaging in learning opportunities allows players to practice and develop civic skills and social skills [5]-[7]. However, what are the civics characteristics of game play that result may result in the possible learning benefits mentioned above?

According to the Civic Potential of Games, a McArthur Foundation report based on the 2007 Pew Study civic experiences in games are the following: (a) helping or guiding other players, (b) thinking about moral or ethical issues, (c) learning about a problem in society, and (d) learning about social issues. Using this report on civic experiences the author reviewed social impact games from the games for change website and identified the same components. This review was completed as the basis for this paper and the four compass points of social impact games are introduced and analyzed through examples of current social impact games (see Fig. 1 below).



Fig. 1. The four compass points of social impact games

II. HELPING OR GUIDING OTHER PLAYERS IN GAMES

Games not only deliver messages, but also simulate experiences [3]. Simulating experiences are transformative because we become absorbed in the game's narrative and come to believe that the game events are personal experiences [8]. Guiding other players within a game allows a more immersive transportation as Melanie Green calls the process of being absorbed into the story. As a result, connecting to others through an immersive experience seems to lead to integration within communities. Requiring ongoing and sustained cooperation does not have a specific link to civic engagement but it does potentially lead to identifying shared goals, negotiating conflict, and connecting with others [1]. Managing relationships, talents, skills, and creating contexts in which coordination is an essential part of the

Manuscript received May 10, 2013; revised July 17, 2013.

D. N. Ruggiero is with Bath Spa University, Bath, UK BA2, BN (e-mail: d.ruggiero@bathspa.ac.uk).

game experience offers opportunities to lead and be led [9]. More experienced players, regardless of age, are able to take on leadership roles and help others through wikis, fan sites, and mods that are created for more popular games [9]. All these suggest that helping or guiding others in a game allows formal constraints of the game to fall away as leadership roles grow and change over the course of gameplay. Both Thomas & Brown and Jenkins relate that taking an active role in leading in games will create contexts of experiential learning. While there is little empirical research available that challenges or supports these notions, the researcher plans on utilizing the ideas presented within these studies to test specific instances of gameplay and its effect on social responsibility; which in this context would be the moral responsibility to help others. Many games are based on competition or quests. Massive Multiplayer Online Games (MMOGs) allow players to choose their own characteristics and build their character based on personal preference.

Raise the Village, is a social pervasive game in which players purchase game-enhancing virtual goods that will assist the villagers in the game. In a unique and socially responsible twist a real-world equivalent gets sent to the villagers in a Ugandan village from which the game was modeled after. This mindset of people helping people is also supplemented by the game's notifications system where players receive photos and blog posts from the village where their real world contributions are making a difference. This game, like Farmville on Facebook, advances player levels through making friends and helping each other purchase, build, farm, and trade within the village. By encouraging online social intervention, Raise the Village creates a society in which there are no face-to-face communications but a rich array of recreational activities that scaffold players through game play and increase participation [1].

Raise the Village, along with the empirical research available on these topics, suggest that 'helping' in virtual environments can build social skills outside of it. To more clearly link these studies to the proposed research the ability to transfer abstract concepts such as social responsibility and civic engagement from classroom to gameplay and back again can be perfectly modeled in this situation. To help someone else in a game, to create a situation in which the learner has no gain except to 'help' will allow the learner the opportunity to enhance their views on civics in gaming.

III. THINKING ABOUT MORAL OR ETHICAL ISSUES IN SOCIAL IMPACT GAMES

Research in the area of persuasive social impact games is barren. Social impact games can offer access to ethical and moral questions but do not necessarily answer these questions with any certainty [10]-[13]. Games that offer opportunities to think about moral and ethical situations allows players to make positive and negative choices in a controlled atmosphere [13].

Most of the research completed on ethics in video games has been done on violent games and their effect on certain populations [14]-[16]. Addressing ethical issues in video games is also done through rule bases. In his book, *Ethics in*

Computer Games, Miguel Sicart describes the game *XIII* where the player is an amnesic assassin sent on specific tasks. When the player enters the bank they are told specifically not to kill the police officers and if they do the system punishes them by restarting the game. This form of negative reinforcement forces the player to follow the ethical rules set forth in the game if they want to play.

Making positive and negative choices in games, as both Sicart and Blackmon detail, shows that while a rules base can force a response based on choice it cannot make the choice for the player to begin with. This idea, the idea of choice, is important to the proposed research study because it allows the development of moral choices through experience. By creating situations where players have the ability to 'kill the cops' or in the next case 'bomb the terrorists' the learner will develop their own sense of right and wrong. The literature currently is scant on this topic and while the researcher did find and quote the two authors above it is a topic that bears more in-depth study.

Other games that raise moral and ethical situations do not explicitly tell the player the purpose of the game but let the gameplay unfold as written leading the player to a prescribed end imposed by the game's rules [13]. An example of this is the game September 12 where violence only begets more violence. The first game in a series termed news games; this game is seen through the eyes of a first person shooter. The player has a scope overlaying the scene of a Middle East village and when they 'pull the trigger' they find that instead of shooting the terrorist they are launching bombs that kill innocent bystanders as well. The more the player tries to kill the terrorists the more innocents they kill and their families then become terrorists. In essence there is no way to win this game based on the rules. The only way to succeed is not to shoot at all and that is conveyed to the player as they lose the game again and again. September 12 was created by a former CNN journalist, whose main goal was to trigger conversation among young players and today this game has been exhibited all over the world in museums and used by teachers to discuss terrorism.

Planet Green Game is also an online game created for Starbucks that according to Treemedia, the creator of the game: "allows players to learn important information about their environ-mental impact and gives them tools and ideas of ways to reduce their ecological footprint and engage their elected officials, business owners and community leaders." By making this a first person point of view game Starbucks and Treemedia are able to use the rules of the game to personalize each player's experience as they explore the fictional town of Evergreen. The player's choices affect how they move through Evergreen and their carbon footprints increase or decrease based on their choices (ethically green or not). As they hit milestones within the game the message system details pertinent information about recycling and carbon footprints. Players monitor their progress based on a points system that shows them how choosing paper versus plastic bags or walking versus riding in a car affects the environment of Evergreen. While not as life and death as September 12, the Planet Green game creates an opportunity to fail built into the rule set.

IV. LEARNING ABOUT A PROBLEM IN SOCIETY IN GAMES

From an information standpoint there are social impact games that work as presentations of knowledge to inform players about problems in society. These games are concerned with presenting information in an interactive format that allows players to experience the games' problem and find ways to either survive or solve it, promoting advocacy from game play [17]. This type of social impact game promotes exploration of a topic that is integrated into gameplay [18].

From homelessness to illegal whaling, these games offer opportunities for reflection based on prospects endemic to the player's situation. An example would be Homeless: It's No Game, developed by T.J Lavender puts the player in the shoes of a homeless woman for one night. The player must survive the streets of a pretend town by meeting certain needs such as self-esteem, hunger, bladder, and thirst. By using the mouse the player visits places around town to beg for change, collect bottles, sell goods at the market, dumpster dive, and drink water from public fountains [17]. Furthermore, as the avatar touches certain squares of the game board a fact card to the left tells the player what they are gaining or losing depending on the situation. While the game does not promote an ethical stance it does show the player that being homeless is not good through the fact box and the splash screen at the end [17]. When the player wins or loses depending on how well they navigated the streets, they have been presented information about being homeless for 24 hours. Whale's Revenge, an online game that was developed to gain signatures for a petition to stop whaling, puts the player in the place of the whale. As the player uses the mouse to swim back and forth whaling boats from the surface throw harpoons. If the player gets hit the whale sings and a pool of blood appears. The more the whale sings the faster the harpoons get thrown. Inasmuch as this is a strategy gain the randomness of the harpoons makes it impossible to avoid getting hit and the player always loses. As a platform Whale's Revenge is set up to garner attention to the plight of the hunted whales.

By including the sound of whale song as well as the graphics that show blood clouds the developer is trying to induce empathy for this plight. Schaffer argued that games used in education need to exhibit a connection between context and content and games such as Whale's Revenge are specifically targeted to create that link [19]. Additionally by introducing a topic that is both relevant currently and elicits emotion the game is creating an authentic situation in which the player acts [20].

Problems in society as challenged through games are a more researched aspect of social impact games. As detailed above, the literature suggests that creating a connection between context and content can have an effect on the learner. While this affect is not specified in a study using persuasive games the researcher plans to use this premise to build both context and content support into the study parameters.

V. LEARNING ABOUT SOCIAL ISSUES IN GAMES

Games that address social issues on a global scale use

authentic problems, tend to be facilitated by an artificial intelligence, and are ill-structured [2], [4], [13], [16]. Social issues is a broad term that can define any number of problems or activities around the world, nevertheless the focus of this section is to introduce societal issues in a global context as presented by social impact games. Darfur is Dying is such an online advocacy game that is designed to raise impact of the genocide in Darfur. Created by University of Southern California students for a competition hosted by uMTV the player is a refugee in a camp and has to perform certain tasks in order to survive. One task is to forage for water outside of the camp in which the player has to navigate to a water source without being caught by the Janjaweed militia. Another task is to collect firewood and food within the camp. Each of these tasks allows the camp to survive for seven days. Suffice to say foraging for water is fraught with danger and the player rarely succeeds demonstrating the daily struggle of life in Darfur.

Food Force, a game produced by the U.N. puts the player on the fictional island of Sheylan in the middle of a drought. The player's job as a virtual aid worker is to complete six missions that will help find and feed hungry people. Since its release in 2005, WFP's video game's aim is to teach children about the logistical challenges of delivering food aid in a major humanitarian crisis has been downloaded over 6 million times, and has an estimated network of 10 million players worldwide. Inasmuch as this game is about a situation in which few of the players will have had an actual experience. The game uses prompts and redirects to create an authentic learning environment. If the player does not succeed in a task they are not punished but reminded that hungry people from a drought-starved nation are relying on them to do their job well.

Food Force and Darfur is Dying are games that go beyond national borders and look at basic human rights in the form of a social impact game. The literature supports that games that create these links to daily human experience can create learning experiences. In this instance the learning experience is about logistics and not social responsibility as suggested by the literature. The proposed research study plans on using games like these to explore what learners gain other than an understanding of logistics.

VI. CONCLUSION



Fig. 2. Recommendations formed from the four compass points

From the four compass points of social impact games that have been discussed in this paper there are three ways that this information can be synthesized into useful

considerations for designing social impact games. These recommendations are to defined intended outcomes, employ experts from the start of the game design process, and try to address wicked problems in context (see Fig. 2). Well-designed social impact games use the four points discussed in this paper. Through analysis of the games discussed in this paper and the four points three recommendations for designing social impact games are synthesized below. The following recommendations are based on social impact games that are currently being created, marketed, and used in different settings.

A. Define Intended Outcomes

Defining intended outcomes for the game at the beginning of the project enables the designers to create elegant solutions to facilitate learning within the gameplay. Developers of social impact games want to raise awareness of their issue as well as simulating interest and activism. To attain meaningful results designers should quantify realistic intended outcomes at the beginnings of the project. Examples of intended outcomes are: number of unique users, number of dollars donated, number of letters written to Congress, number of Facebook postings, or number of news stories written. This idea that impact needs to be quantifiable drives game design teams to integrate features specifically to achieve those outcomes. For example, an intended outcome for *Commons* was to generate ideas for fixing community works in New York City. Given that goal, the team worked to provide information snippets about the city throughout the game and then had a running total on the final splash page. Without preplanning for this feature it may have been implemented as an afterthought, an add-on that may have appeared piecemeal.

Other attainable intended outcomes that are not necessarily numbers based are also possible. Social impact games are intended to change attitudes and behaviors, and every game has a theory of change or a series of techniques that will be implemented in order to build new pathways for the player. This is a holistic process where the game designers look at ‘trails of change’ or the social interventions that will bring about those outcomes. This is more complex and intricate than measuring impact by numbers alone, with outcomes of attitude and behavior seen on a societal level as opposed to a quantifiable measure.

B. Experts Are Important

Game teams are often diverse with game programmers, artists, designers, producers, and others all engaging in the creation of the game. Social impact games benefit from the inclusion of team members with a deep understanding of relevant issues; these people are called subject matter experts (SMEs). Their integration into the team from the beginning and participation in the system design gives the project a social impact focus from day one. They can also be relied on to playtest the game for accuracy and objectivity- game designers are not experts on these social issues and a lay knowledge of homelessness, whaling, or the genocide in Darfur is not enough for a truly immersive social impact game to be effective. SMEs can range from a single person to whole organizations that specialize in the field. As an

example, *Whales Revenge* included a team of Greenpeace activists, marine biologists, and ecologists whose specialization is whaling. The team relied on their advice and the input of their network of experts from the first week of the project through the final project launch, complete with public relations efforts.

Additionally, to improve the game, subject matter experts will add to how the games message is portrayed in gameplay. In social impact games subject matter experts play a large role in the game’s persuasiveness, credibility, and potential for influence.

C. Address Wicked Problems

In social impact games there are often social issues in which parameters are fuzzy and difficult to codify. Inasmuch as solutions to social issues are difficult to craft because well-meaning actions typically are person specific, offending at least one set of stakeholders. Thus trying to solve a social problem in a game you can’t win is how people embrace wicked problems through gameplay. Creating more problems is something that cannot be avoided in social impact games, and as the gameplay unfolds potentially more entrenched problems can occur. These problems, wicked in nature, and unsolvable in gameplay, were originally written about by Dr. Horst Rittel and are referred to as wicked problems [21]. Designing as social impact game takes the variable nature of wicked problems and allows their contradictory and incomplete background to create innovative gameplay.

Games offer an out of the ordinary potential to allow game players to look beyond perspectives they are bombarded with through peer groups and traditional media [22]. New media, such as social impact games, is causing a shift in the way that media influences social issues. From newspapers to television, the change in media in the 1950s shifted people’s mode of understanding from word-based to image-based. Games have once again shifted people’s understanding within the image-based mode from audience to participatory given their immersive and interactive nature.

VII. SUMMARY

The work discussed in this article has concluded by discussing the concept of learning through the procedure of gameplay. This has emerged from classical game theorists such as Huizinga and Caillois, through game developers such as Crawford who developed the foundation of work being done today. The study of video games today ranges from education to narrative development to game design with relationships between video games in their current form being explored from development to play. While there have been many games created that aim at persuading a given population to do, change, or buy something social impact games are constructed differently.

Using no rubric of design principles or learning frameworks it is not possible to know how these games were constructed, but it is possible to see their outcomes. Social impact games are finding their place in the classroom, urged on by teachers, students, and games such as Food Force and America’s Army have been downloaded millions of times for both instructional purposes and home play [11]. What the

researcher draws from the literature available on social impact games is that to synthesize the research on social impact games requires clearer definition of what a social impact game is. Through the four compass points of social impact games and the three recommendations for designing future games this paper has discussed, analyzed, and synthesized the current state of social impact games. However, we still need more literature to paint a complete picture. While the researcher has drawn parallels from existing literature to the four compass points of social impact games there are still gaps to be filled. More empirical studies detailing not only the learning outcomes but also the attitudinal outcomes of playing social impact games are needed.

REFERENCES

- [1] H. Jenkins, "Confronting the challenges of participatory culture: Media education for the twenty-first century," presented at the MacArthur Foundation Digital Media and Learning Program, Chicago, 2006.
- [2] J. R. Savery, "Overview of problem-based learning: Definitions and distincts," *The interdisciplinary Journal of Problem-based Learning*, vol. 1, no. 1, pp. 9-20, 2006.
- [3] I. Bogost, *Persuasive Games: The Expressive Power of Video Games*. Cambridge, MA: The MIT Press, 2007.
- [4] K. Squire, "Cultural framing of computer/video games," *Game Studies*, vol. 2, no. 1, 2002.
- [5] J. Kahne, E. Middaugh, and C. Evans, *The Civic Potential of Video Games*, Civic Engagement Research Group at Mills College, 2008.
- [6] D. Ruggiero, "Conceptualizing a Persuasive Game Framework," in *Proc. World Conference on Educational Multimedia, Hypermedia and Telecommunications*, T. Amiel & B. Wilson, Ed. pp. 1181-1185, Chesapeake, VA: AACE, 2012.
- [7] S. E. Finkel and H. Ernst, "Civic Education in Post- Apartheid South Africa: Alternative Paths to the Development of Political Knowledge and Democratic Values," *Political Psychology*, vol. 26, 2005.
- [8] J. H. Murray, *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*, Cambridge, MA: MIT Press, 1997.
- [9] J. Thomas and J. Brown, "Why Virtual Worlds Can Matter," *International Journal of Media and Learning*, vol. 1, no.1, January 2009.
- [10] B. S. Woodcock. (May 2009). An analysis of mmog subscription growth. *Online Report*. [Online]. Available: <http://www.mmogchart.com>
- [11] T. Lavender, "Games Just Wanna Have Fun...Or Do They? Measuring the Effectiveness of Persuasive Games," *Loading*, vol. 1, no. 1, 2007.
- [12] A. Lenhart, Teens, Video Games, and Civics, *Pew Internet and American Life Report*, September 16, 2008.
- [13] M. Sicart, *Ethics of Computer Games*, Cambridge, MA: MIT Press, 2009.
- [14] M. McCormick, "Is it wrong to play violent video games?" *Ethics and Information Technology*, vol. 3, pp. 277-287, 2001.
- [15] S. Blackmon, "Racing toward representation: an understanding of racial representation in video games," in *Gaming lives in the twenty-first century: literate connections*, G. E. Hawisher and C. L. Selfe, Ed. New York: Palgrave, 2007, pp. 203-216.
- [16] G. Frasca, "Simulation versus Narrative: Introduction to Ludology," in *The Video Game Theory Reader*, M. J. Wolf and B. Perron, Ed. New York and London: Routledge, pp. 221-236, 2003.
- [17] T. J. Lavender, "Video games as change agents -- The case of homeless: It's no game," *The McMaster Journal of Communication*: vol. 7, no. 1, 2011.
- [18] B. J. Fogg, *Persuasive Technology: Using computers to change what we think and do*. San Francisco, CA: Morgan Kaufmann, 2003.
- [19] D. Shaffer, "Video games and the future of learning," *Phi Delta Kappan*, vol. 87, pp. 104-111, 2005.
- [20] A. Walker and B. E. Shelton, "Problem-based educational games: Connections, prescriptions, and assessment," *Journal of Interactive Learning Research*, vol. 19, no. 4, pp. 663-684, 2008.
- [21] H. W. Rittel and M. M. Webber, "Dilemmas in a general theory of planning," *Policy sciences*, vol. 4, no. 2, pp. 155-169, 1973.
- [22] D. Ruggiero, B. Garcia-Hurtado, and W. R. Watson, "Juvenile Offenders: Developing Motivation, Engagement, and Meaning-Making Through Video Game Creation," *International Journal of Game Based Learning*, vol. 3, no. 2, 2013.



Dana Ruggiero is a senior lecturer in Learning Technology in the School of Education at Bath Spa University. She is involved in research initiatives from various European research institutes including the EU TEMPUS and ERASMUS programs. Ruggiero completed her Ph.D. in Learning Design and Technology from Purdue University and earned an M.A. in Education from Augsburg College. Her research interest focuses on praxis in design for persuasive technology, multimedia installations, and affective knowledge, including the application of games for social issues such as homelessness, juvenile offenders, children in care, and health.