

Best Practices for the Design and Development of Ethical Learning Video Games

Rudy McDaniel, University of Central Florida, Orlando, FL, USA

Stephen M. Fiore, University of Central Florida, Orlando, FL, USA

ABSTRACT

This article builds upon earlier research (McDaniel & Fiore, 2010) in which the authors presented case studies focused on the design and development of two original ethical learning video games. Through this case study and a review of relevant literature, the authors explored the content creation of, and theoretical rationale for, the design and development of ethics games. Both games were geared toward an undergraduate student audience as casual learning games to be completed in a few hours of gameplay. To update and expand this original work, the authors reviewed contemporary research on identity, cognition, and self in relation to video game environments as well as literature dealing more specifically with ethics and video games. From this literature base and their applied design experiences, the authors offer ten guidelines as best practices to follow for aspiring ethics game developers.

Keywords: Best Practices, Case Study, Design, Development, Ethics, Guidelines, Identity, Lessons Learned, Production, Self, Video Games

INTRODUCTION

Designing games for education presents a number of challenges arising from the need to seamlessly incorporate learning content into an engaging interactive experience. While this is difficult enough for any type of learning content, such as science or mathematics, designing games for teaching about ethics is in some ways more complex. In many cases this is due to the inherent ambiguity that arises when there are not necessarily “right” or “wrong” answers and

responses can be largely contextual and based on personal value systems as well as situational factors. Such is the challenge associated with the question of learning in applied ethics, a field attempting to more directly address social problems from a moral standpoint via the philosophical method (e.g., Bayertz, 2003). These challenges motivate our chapter, and we use them as a stepping off point for the following set of questions devised to help bound the complexity inherent in developing games for applied ethics:

DOI: 10.4018/ijcee.2012100101

- What types of design approaches are most useful for teaching or exploring ethical content?
- How does one begin the task of designing an applied ethics game with limited resources?
- Is it better to start with a strong story, a capable technology base, or fun and interesting gameplay mechanics?
- Do the core gameplay ideas come from existing ethical scenarios that can be translated into a more interactive form?
- Should ethics games use pre-developed scripts, or include some mechanism for players to author their own ethical scenarios based on issues from their own lives?
- How can we conceptualize the notion of player identity so that actions and behaviors in the virtual domain are also useful in the real world?

In this chapter we recount the lessons learned from our own experiences in building two different types of ethics game projects to explore these questions. We offer these experiences with the hope they will provide useful information and best practices for other ethics game designers in various stages of conceptualization and development. Before exploring our case studies, we present an argument for games as useful vehicles for teaching ethics.

BACKGROUND: A BRIEF ARGUMENT FOR APPLIED ETHICS GAMES

The idea that computer games can be viable tools for learning has been discussed for several decades, starting with the often-cited work of Malone (1981) and his research with game variants and intrinsically motivating game features. Since then, games have progressed rapidly into forms that are very different from those studied by the pioneering video games researchers in the 1980s. Modern games—from role-playing games to first-person shooters—now offer a much more visceral and immediate experience for the player, especially in light of the new

affordances allowed by the first-person or third-person perspective. For example, Dickey (2005) writes, “the shift from an outside orthographic perspective to a first-person agent embedded in the game space marks a shift in moving the player from outside of the game into becoming part of the gaming environment” (p. 71). Similarly, Foshheim, Larsen, and Sageng (2012) note the ability of games to cognitively transport our bodies on screen using avatars, enabling what they describe as “remotely controlled proxies” (p. 30) that extend and transform our notions of physical awareness to a new virtual environment.

From this quality of games that allows for the manipulation of perspective and the formation of virtual identities through on screen avatars, it is plausible that games with ethical dimensions are likely to be useful and engaging tools for exploring ethical scenarios and dilemmas. After all, what better place to experiment with ethics than in an environment where wounds can be magically healed, relationships can be painlessly restored, and characters can be killed or brought back to life at will? Such immateriality and flexibility presents a number of interesting possibilities for experimenting with decision making in morally complex scenarios.

If we accept this premise of games as fertile territory for experimenting with moral decision making, we must then define those moments of gameplay that we would consider to be useful for such experimentation. After all, clearly not all moments of playing a game are ethically interesting from an ethical point of view. Players routinely perform in-game tasks (walking, collecting items, engaging in combat) that are necessary for gameplay objectives but do not engage with players’ value systems or provide instances for moral contemplation. Sicart (2012) has defined an “ethical gameplay experience” as one that refers to instances of video game play “in which an agent will take a decision crucial to her progression in the game based on heuristics derived from a moral evaluation of said instance of play” (p. 104). He notes that these gameplay experiences are enabled through the interplay

between game mechanics, rules, and semiotics (symbolic systems). For example, choosing to sacrifice a comrade within a game level in order to more easily progress through a level, or to save that comrade but face the consequences of additional complexity and challenge, would call for an examination of moral evaluation, even though the virtual consequences of such an evaluation are much different than they would be in the physical, or “real”, world.

We observe these ethical gameplay experiences when players are asked to consider the principles of morality or experiment with different value systems as they play through specific games. These aspects materialize through players’ decision making in video games such as the *Grand Theft Auto* (Rockstar Games, 1997-2009), *Fallout* (Black Isle Studios and Bethesda Softworks, 1997-2009), and *Fable* (Lionhead Studios, 2005-2008) series. Many of these games are explicitly designed with multiple pathways (and not always a simple “good path/evil path” binary dichotomy) to success so as to encourage players’ nonlinear explorations, feelings of authorship, and desires for replayability. Several of these games have been analyzed in the literature as detailed case studies of ethical design. For example, Sicart (2012) analyzes how game design creates ethical experiences in the Xbox 360 versions of *Bioshock* (2K Boston/2K Australia, 2007) and *Grand Theft Auto IV* (Rockstar North, 2008) and Schrier (2011) has written a detailed case study of the game *Fable III*. In Schrier’s (2011) research, she charts specific ethical scenarios used in the video game along with the actions players could take within those scenarios. Examples range from surrendering a friend (as opposed to a larger group of unknown villagers) in the “surrender a friend” scenario to the choice to drain a lake or preserve a lake in the “mine the lake” scenario. More extreme choices are also found within the game, such as in the “build a brothel” scenario wherein players can choose to either build a brothel or repair a shelter. *Bioshock* has additionally been analyzed by

Konzack (2009) and is described by this author as a study of “the ethics of greed” (p. 40).

A New Territory for Games Research

Despite the success of the commercial video games listed above, applied ethics games are only recently becoming explored as tools for teaching for learning (Simkins & Steinkeuhler, 2008; Schrier & Kinzer, 2009; Schrier & Gibson, 2010; Schrier & Gibson, 2011; Sicart, 2012; Reynolds, 2012). This area is proving to be a fertile and exciting area of research, though, because games offer rich, personalized scenarios for exploring humanity in new and interesting ways. While commercial games are filled with depictions of sex and violence (see Smith, 2009) this type of interactivity (the type that is most lucrative financially, of course) is only scratching the surface of what is possible in virtual worlds. As Bogost (2007) notes, video games make claims not about what it is like to be a machine, but rather about what it is like to be human in different types of unusual situations and embodied circumstances (e.g., as a Greek god, as a plane crash survivor, or as an anthropomorphized hedgehog). Despite its technological underpinnings, then, the act of playing video games is fundamentally a human activity, and one with various social dimensions that encourage different types of interactions (e.g., human vs. computer, human vs. human, human cooperating with computer, human cooperating with other humans). Given this inherent property, it only makes sense that the computational tools used so seamlessly in business and entertainment might also be useful in a variety of ways to examine more humanistic issues such as the nature of being human or the exploration of personal value systems.

Additionally, despite the predominance of literature correlating aggressive behavior to violent video game playing (see Weber, Ritterfeld, & Kostygina, 2009, for an overview of the literature as well as a discussion of the

limitations of many prior studies), there is also research that suggests the relationship between enacting virtual violence and real world implications is more nuanced and complicated than these studies suggest. As Weber, Ritterfeld, and Kostygina (2009) explain, while we are beginning to recognize some aspects of the relationship between violent game playing and aggression, we still do not know how players *understand* the video games they play, or how they translate those systems of game mechanics, rules, and symbols into their own internal mental models. Ethnographic studies can provide some insight into this process. For example, in one such study of ten experienced role playing gamers, Simkins and Steinkeuhler (2008) found that the playing of violent video games did not lead to violence in the real world, but rather that “such games appear to engage individuals in forms of ethical reasoning that may very well foster empathy, tolerance, and understanding for others—aptitudes crucial for humane behavior in a complex and culturally diverse world” (p. 334).

Although not always expressly designed as games, we are beginning to see additional examples of humanistic and reflective tools through initiatives such as the *Virtual Philosopher*, a tool for Socratic exploration and inquiry used in online courses (Hornsby & Maki, 2008; see also the *Virtual Philosopher* web site at <http://web.uncg.edu/dcl/courses/viceCrime/vp/vp.html>). Here, interaction is employed at a rudimentary level, but one which still offers a pedagogically sound means to enhance the understanding of ethical decision making. Despite the potential of games for use in this domain, only in the past five years or so do we see video games beginning to be seriously considered in traditional humanistic areas such as the study and consideration of ethics.

Given the potential of first-person perspective to enable learning via exploration of these alternative pathways, a particularly interesting question is whether in-game playing can influence out-of-game behaviors. Can virtual experi-

ences be constructed that encourage ontological contemplation both inside and outside of virtual worlds? Or, to get to the heart of the matter: is making video games to teach applied ethics a feasible and worthwhile pursuit?

Interactive Risk

The rich interactivity of games and their potential for encouraging players to take risks provide compelling arguments for using games as tools for teaching about applied ethics. Many scholars acknowledge that interactivity is an essential property of games that makes them unique as procedural representations of the world. These representations are co-authored by players in various ontological configurations (Murray, 1997; Ryan, 2002; Bogost, 2007). As participatory and procedural representations of an authored world with boundaries—and some degree of freedom with which to explore or test those boundaries—games allow players to participate in, rather than just witness, the unfolding of actions with ethical significance. These games function in the “*methetic*,” rather than “*mimetic*,” sense (Huizinga, 1955, p. 15). Simply put, gamers want to do, not just watch.

Video game players also often have emotional connections to their games and the gameplay experience. As participants, they have vested interests in and connections to the virtual characters they inhabit and the environmental objects they interact with. Arguably, these subjective factors can make ethical principles more relevant and memorable than simply reading about these concepts in an ethics textbook or working through case studies on a worksheet. Furthermore, games offer safe grounds for exploration under the learning principle of the “*psychosocial moratorium*” (Gee, 2007, p.59), a term borrowed from Eric Erikson (1968) to describe an environment in which the consequences of risk-taking are minimized. As Rouse (2005) notes in his analysis of the oft-discussed game *Grand Theft Auto III* (Rockstar Games, 2001), the game is successful because it al-

lows players to explore taboo activities in a safe environment. While many people would never do these things in the real world, he notes, the game-world encourages players to take risks. Rouse asks, "in the safe context of a game-world where the worst consequence is having to start your game over, who wouldn't want to try it out?" (p. 476). Opportunities for risk-taking, trial-and-error exploration, and emotional engagement are all available and useful for the ethics game designer who wants players to explore unfamiliar and perhaps even uncomfortable moral territories. As Sinkins and Steinkuehler (2008) maintain, "It may very well be that playing through such roles, including those we would never consider taking up in the real world, has the potential not only to foster greater empathy, tolerance, and understanding for others but to help us critically reflect on who we want to be for others and how we have both power and responsibility in all of the roles we inhabit in our lives" (p. 352).

Toward a New Genre

From this brief analysis, we can extract several different possible reasons for building ethics games. First, as an underdeveloped subject area in game design, the investment in additional time and effort is bound to yield some exciting humanities projects with which to examine morality and the human condition. Even if such efforts are spectacular failures, they are bound to at least open up new areas of research related to simulation and ethics. Second, by allowing players to become co-authors of interactive experiences, we can potentially access deeper levels of cognition, emotion, and reflection by allowing them to have some vested interest in the simulated activities through their own idiosyncratic creative processes and problem solving techniques. Finally, by providing a safe environment in which to test moral decision making and emotional responses, and within which to examine the simulated consequences of those decisions, we provide a sandbox for the observation of behaviors and actions. We can also use these games for studying the relation-

ship between virtual identities and the self. This issue, however, is a complex issue deserving closer attention.

IDENTITY, COGNITION, AND THE SELF IN ETHICS EDUCATION

We can further support the theory and utility of games for ethics education by studying the relationship between virtual identity, cognition, and the self. One of the most important questions relating to pedagogical game design for ethics content considers the transferability of learning from a virtual world to the real world environment. If learning is to occur that is useful outside fantasy-based environments, it should transfer from the simulated realm of computer games to the real world in which problems of that type are likely to be encountered. With many types of learning games, the issue of identity is interesting, but of lesser importance. For example, solving a mathematical problem as a scientist in the year 3018 to help refuel a stranded rocket is going to be very similar, mechanically speaking, to solving that same problem as a college undergraduate student in college algebra during a timed exam. When the mechanical knowledge of how to solve such a problem is the primary learning objective, then it does not much matter how interconnected the virtual and real identities may be once the player moves out of the game space and back into the real world space of being an algebra student.

When the particular learning topic concerns ethics, however, the question of transferability is in large part determined by the relationship between a real and a virtual identity, what Gee (2007) has referred to in one direction (from the real to the virtual) as the "projective identity" (p. 57). If the virtual identity is encapsulated neatly and wholly by a medium, then it is difficult to argue that matters of the self can be adequately addressed through the creation of a computer game, regardless of how cleverly that game is designed. What happens in the game-world affects only the virtual self and

no trace of that experience leaks out into the real world. If we make the argument that the real and virtual identities are entirely separate, that means that the virtual identity is engaged only when the player begins a game and that it ends when that game ends, neatly retaining any experiences within the game-world as part of its constitution. These properties are then reactivated when the next gameplay session resumes. If this relationship between identities is entirely separated in this fashion, if one leaves the real identity behind and engages the virtual identity during a gaming session and reverses this practice when leaving the game, then the relationship is trivial and not very useful. One could argue in this case that any learning gains are primarily limited to either the virtual or the real identity. For example, learning in the virtual world will benefit future virtual encounters while real world learning will not be of much use in the virtual world where rules of various kinds (e.g., physics, social dynamics, biology) may or may not be anchored in the realm of what is possible and likely. Thus we may be able to teach concepts at the level of declarative knowledge and factual recall, or even inference, but truly reaching the self in a manner that encourages players to be introspective and thoughtful about their own identities and values seems much more difficult.

On the other hand, if the relationship is one in which the virtual and the real identities meet at some point, perhaps at an instance in which narrative transportation (e.g., Green, 2004) or some other immersive technique has established a suitable degree of presence within the game-world, then developing more sophisticated ethical thinking in video games—knowledge which may include synthesis and evaluation of content rather than just comprehension, for example—seems more feasible. Just as presence has been defined as the overriding of one's awareness of a primary environment (e.g., real world) by a secondary environment (e.g., game-world) (Slater, 2002), so might the virtual identity gradually take priority over the real identity (e.g., a player ignores the need to tend to his grooming needs and real

world socialization activities until his avatar has finished leveling up a certain attribute or an in-game conversation has finished). Given this phenomenon where a virtual identity can take priority over a real identity, might it also be possible for that virtual identity to be powerful enough to have subtle influences on one's real world conceptualization of oneself? Gee (2007) has already noted that this process routinely occurs in the alternate direction, where we "feel responsible for a character" (p. 58) and project our own beliefs and values onto our virtual characters, as he himself did when playing his character Bead Bead in the game *Arcanum* (Troika Games, 2001).

If we accept this outcome as a possibility, we acknowledge that what one does in the virtual world will affect, though perhaps only subtly, how a person considers new variants of that virtual situation when it occurs in the real world. This continuous model offers more hope for ethics game designers as it states that there is at least some degree of engagement with the self during gameplay. Such engagement might take into account one's bodily interactions with the game-world through positioning of the body and use of the controller as well as cognitive processes engaged and activated by body and brain when solving problems and interacting with different types of content in the virtual domain. Understanding identity as a construct that takes into account the body and the environment is helpful here.

A focus on the importance of one's holistic environment in understanding identity leads to a contemporary notion of self that is explained by Clark and Chalmers (1998) in their well-known essay that introduces the extended mind thesis. According to this perspective, the mind is dependent on other scaffolds such as environmental aids (e.g., calendars, calculators, or computers) that require the brain and body to work together "in tandem with the external environment" (Cogburn & Silcox, 2009, p. 13). This argument suggests that the environment actively drives cognitive processes, meaning that a video game can potentially drive thinking about values and examining ethics in a

meaningful sort of way. Specifically, cognition does not occur in a vacuum, but rather within a task or behavior (see Clark, 2001; Hutchins, 1995; Rowlands, 2003). The emphasis is on the practice of cognition “by which internal representations are incomplete contributors in a context-sensitive system rather than fixed determinants of output: and they too focus on the ongoing interactive dance between brain and world” (Sutton, 2006, p. 282).

Clark and Chalmers (1998) even use a video game-like metaphor to explain their hypothesis, suggesting that a person might play a game similar to *Tetris* (Tetris Holding LLC, 1985) in a variety of ways. First, she might sit down in front of a computer and answer questions to fit shapes into variously sized sockets. To determine which shapes would fit into which sockets, she would “mentally rotate the shapes to align them with the sockets” (p. 7). Or, she might perform the same operation by choosing to physically rotate an onscreen image to gauge the fit against sockets. As anyone who has played *Tetris* knows, this gains the player a sizeable advantage in speed as she can quickly permute a puzzle piece into a variety of shapes much more quickly than she can do the operations in her head. Finally, the *Tetris* player of the future might be able to use a neural implant to perform rotations as fast as the computer in the second example. From a cognitive perspective, Clark and Chalmers ask, what is the difference between these three processes? The first and third examples seem intuitively similar, and as the second and third examples are also similarly computational (the difference being that the second player uses a computer for this process while the third player in the future computes internally via a neural implant) they question the judgment of claiming that cognition ends at the boundary of the skin. They note that many types of cognitive processes (e.g., pen and paper for long multiplication problems, physical rearrangements of tiles in *Scrabble*, books and diagrams, etc.) have long been used in various types of thinking processes, so

why not consider other external media such as computers and video games in the same way? Their primary argument is simple: “cognitive processes ain’t (all) in the head!” (p. 8; see also Clark 1997; 2001).

A summary of this work in identity and cognition presents us with two useful observations. First, in an immersive and well designed game, players care about their virtual identities. Since they care about their virtual identities, there is an opportunity to design games which challenge the player’s moral values and to study the degree to which virtual games impact real world identities. Second, players can be conceptualized as using games to think by scaffolding or augmenting existing internal mental processes with external, environmental aids. These aids could certainly be gaming hardware (e.g., controllers), but as we argue, players also augment cognition through their external manipulations of virtual avatars in fantasy-based worlds. While the graphical manipulation occurs outside the player’s body, the consequences of the avatar’s virtual actions are internalized and integrated as the player thinks about what she is doing. Continuous feedback from the game means that a player can quickly adjust her mode of thinking as game events occur. For example, the body language of non-playable characters (NPCs) may subtly influence the player to adjust her thinking as she interacts with them and attempts to work through a moment of conflict. The action occurs outside the player, but the immediacy of feedback serves to augment thinking even as it unfolds. This means that in the realm of teaching applied ethics, where a goal might be to challenge students to think about the implications of different actions in regards to different ethical codes and principles, games are potentially just as useful for applied ethics as graphing calculators are for trigonometry. As cognitive aids that allow students to safely experiment with different behaviors as they act out different roles and are portrayed by different avatars, they offer interesting possibilities for pedagogy.

From Theory to Design

If we are to accept the conclusions reached by Clark and Chalmers (1998) regarding environment as active in cognition as part of an extended mind model, and if we can accept the ideas offered by theorists such as Cogburn and Silcox (2009) who see personal identity as a connected and continuous experience that can extend into virtual worlds, then there is some hope to the quest for building workable and impactful ethics learning games. Like more mature technologies such as pen and paper, video games provide us with extended ways of thinking and encourage embodied cognition. The difference is that this happens in kinesthetic relations with the controller, as opposed to physical activities such as chewing on an eraser to focus one's thoughts, or twirling a pencil before writing to relax one's mind for a creative sketch. Unlike these physical technologies, though, video games also allow us to experience virtual embodiment; by way of graphical, symbolic representations; as we interact with procedural worlds. These procedural worlds can be authored to allow players to consider ethics in various ways. More importantly, we can make the claim that such experiences will allow players to take something away from that virtual world and to incorporate those experiences into their real world identities, value systems, and senses of self. The next question then becomes one of applied design: how does one build such an ethics game with this goal in mind? More specifically, which types of game mechanics, design strategies, and learning environments will afford players with the proper opportunities for blending real and virtual identities for the purpose of learning about ethics?

In the next section of this article, we consider and address these questions by describing our experiences in building two types of ethics games, the first originating from a series of preexisting narrative scenarios and focusing on a narrow subset of ethical dilemmas, and the second beginning with traditional RPG game mechanics and no predefined expectations for how the story should unfold. With both efforts

the goal was to build an immersive game-world with interesting scenarios capable of engaging players' awareness of their moral values and leaving a lasting impression. Both efforts produced radically different results. After briefly discussing each of our ethics games, we return to this question of applied design by distilling the lessons learned from our experiences into ten guidelines for prospective authors.

OVERVIEW OF CASE STUDIES

The first game we discuss, *Veritas University (VU)*, was developed for incoming college students and based upon the existing work of designers at *EthicsGame.com*. *EthicsGame.com* delivers ethical training scenarios to various clients through Internet media. This project involved a translation of existing hypertext scenarios (in narrative form) into a more interactive, game-based form. *VU* contains two scenarios, one dealing with plagiarism and the other dealing with how to handle an inconsiderate roommate. The game brings the player through a careful consideration of the ethical issues as organized by stakeholders, duties, and particular foci (e.g., "rights/responsibilities" or "results" lenses).

We designed the second game, *Knights of Astrus (KoA)*, more with the gameplay mechanics in mind than the initial narrative scenarios. In this project, the design team borrowed from existing commercial games that explored ethical dilemmas, such as the popular commercial titles *Fable 2* and *Fallout 3*, and attempted to replicate some of these mechanics on a much smaller scale. The Office of Information Fluency at the University of Central Florida (UCF) funded *KoA*, which was proposed as a game to help college undergraduates become more comfortable with uncomfortable ethical situations. In building this second game, our aim was to introduce learning opportunities in the domain of applied ethics to a humanities learning game with an audience of college-age students. Our goal in this game was not to be prescriptive in terms of ethical content, but rather to encour-

age players to make tough decisions that would require moral reasoning. This reflection could later be articulated using an in-game journal.

Design and development for both games was led by the first author, whose background is in digital media, and involved collaboration with faculty from ethics and cognitive science. Development of the games involved a team of undergraduate students from a variety of majors and skill sets—ranging from artists to programmers to producers—and took place over the course of several semesters at campus-based computer labs.

Game 1: Veritas University

Overview

Ethicsgame.com is an online portal with a variety of ethical training materials focused in different areas such as healthcare, student life, and business. The slogan of the game, “we’ve taken the ‘ick’ out ‘ethics,’” speaks to the aim of the developers to make learning about ethics more fun and engaging. Baird’s book *Everyday ethics: Making hard choices in a complex world* (2005) provides the methodological framework for the web based system. The original content of *ethicsgame.com* is text-based and reminiscent of early text adventure games like *Colossal Cave Adventure* (Crowther, 1976) and *Zork: The Great Underground Empire* (Infocom, 1980). Text-based prompts and online forms lead the player through various scenarios in which they must make decisions that then influence subsequent information presented to them later in the scenario.

The authors’ team was awarded a contract to build a graphical experience for visitors that would re-imagine the existing textual scenarios of *ethicsgame.com* in a virtual, interactive environment. We were tasked with creating two different animated game levels, each focusing on a different area. These two areas involved ethical dilemmas of plagiarism and dormitory room etiquette.

Creating the Environment

The first design objective was to graphically create the environment described in the original online scenarios and build an artistic representation of this environment to be navigated from a first person perspective. The design team chose to use 2D rather than a 3D representation primarily for the sake of time (the game was produced in a single 16-week academic semester). Although a preliminary narrative script existed, the script required major adjustments to better fit the virtual environment presented in the game-world. The graphical portrayal of Veritas University, the fictional location in which the scenarios of the game take place, was therefore an important step in our move to create a more immersive experience for the players of *ethicsgame.com*. The team created several different 2D interactive environments such as a courtyard, professors’ offices, a library café, residence halls, and interior dorm rooms. The primary aim was to make the university setting as familiar as possible in order to encourage players’ identification with their avatars and create an environment in which projective identity could function.

Setting the Context

VU begins with the game’s primary narrator, Rian, explaining the gameplay instructions to the player (see Figure 1). The player takes on the role of a new student in the university. An initial scenario is explained in which the player’s roommate, Mark, has been sharing his computer with the player throughout the semester. After using his computer to write a term paper, the player discovers that Mark has taken significant portions of the player’s work and turned it in to another professor for another course. The player then proceeds through various interactive screens to identify the ethical problem, find stakeholders, determine duties and obligations to those stakeholders, and then make an eventual decision based on all avail-

Figure 1. Game introduction with Rian, the narrator and guide



able information. Along the way, the player interacts with various environments in a 2d fashion by clicking on characters and objects to gain additional information that may or may not be relevant to the task at hand. Navigation is accomplished by clicking navigational arrows to move through corridors and enter structures such as university buildings and residence halls. A central courtyard location (see Figure 2) allows the player to explore various parts of Veritas University.

After exploring the campus and gathering information, the player is prompted with an interactive form in which she must answer questions correctly to continue. If an incorrect answer is provided, she is debriefed accordingly as to why she chose the wrong option; in this case, the correct answer is revealed (Figure 3). In a basic type of ethical dilemma such as this, correct and incorrect answers were possible to gauge. While initial questions were relatively straightforward, questions later in the game were more nuanced and often required players to choose multiple answers or use a continuum to assess information contextually based on the stakeholders involved in a given situation.

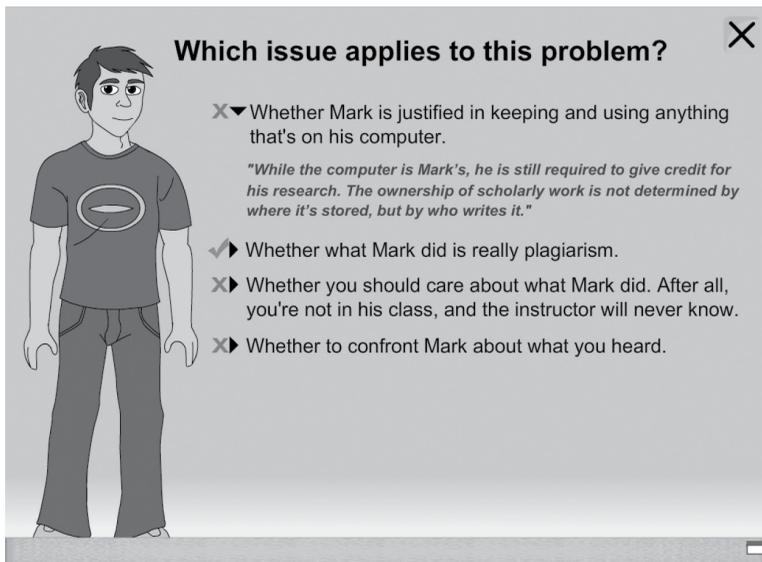
Additional Design Mechanics

To assist the player throughout the game, virtual characters and interactive objects were introduced into the game's design. In the original textual scenarios, much information necessary to the player was built into an *Ethics Guide*, an online reference that could be accessed throughout the game. In *VU*, a mechanism was included which allowed players to access the *Ethics Guide* information and a means for note taking (see Figure 4) as part of the player's toolset. Also present was a virtual ethics professor named Alice Tanner (see Figure 5) who guides the player in a more natural way, without breaking the flow of the narrative scenario. Professor Tanner appears throughout the game in instances where the player needs additional information about strategies for problem solving according to particular heuristics, such as a "rights and responsibilities approach." Similarly, scholarship points (also shown in the toolbar in Figure 4) are utilized to tally the player's score. This score is determined by the number of correct answers, the extent to which available information is consulted, and the player's ability

Figure 2. Courtyard in Veritas University



Figure 3. Feedback for incorrect answer



to screen out irrelevant and incorrect answers. Professor Tanner also contributes a copy of the *Ethics Guide* early in the game that can assist with the player's decision making. It is the same information that is present in the original textual version, but in this case it has narrative significance as an authored document from a character in the game.

After visiting with Professor Tanner, Rian leads the player through step-by-step analyses of the ethical issues, which in the first scenario involve the aforementioned plagiarism dilemma and in the second scenario involve dorm room etiquette and one's duties to a roommate in terms of privacy and the right to a good night's sleep. In several instances, the player is instructed to

Figure 4. Game toolbar

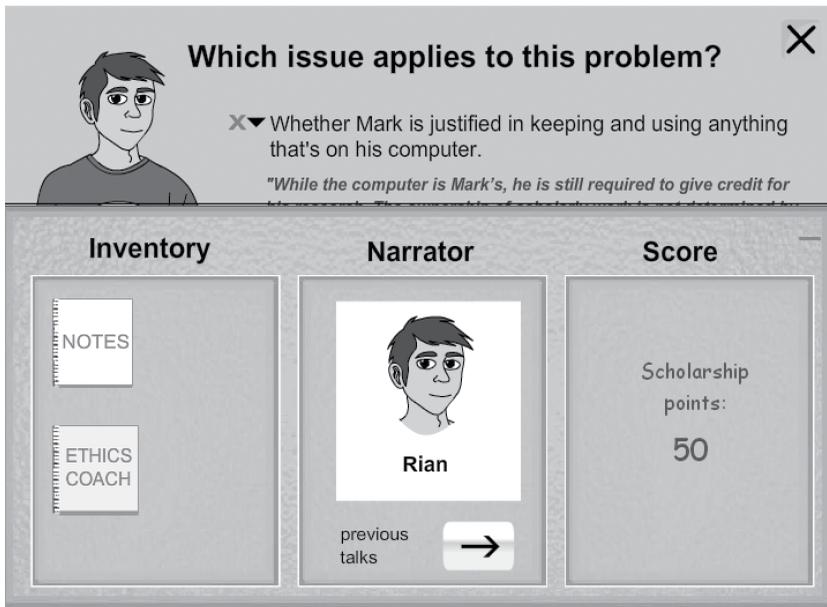


Figure 5. Professor Tanner



research concepts or terms in the *Ethics Guide* to explore certain information in more detail.

Lessons Learned

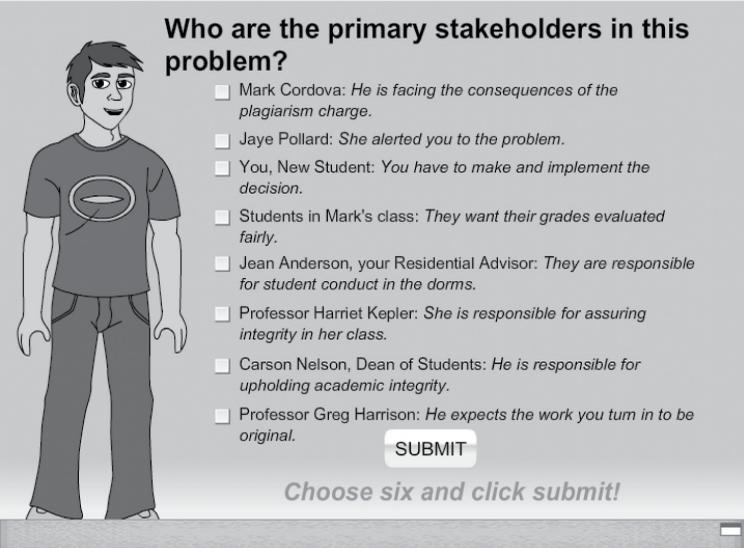
Because the development of *VU* emerged from an initial story and a set of ethical dilemmas in narrative format, initial primary challenges for the team were in regards to making the scenarios more interactive. For this reason, team members added additional virtual locations to explore, translated information from documents into character dialog, used voiceovers for speech animations, and developed an artistic style to make the university seem more lifelike. In the end, however, the game was not as engaging as was hoped for, due largely to its reliance on menu-driven forms and the detailed assessment that was not hidden from the user. It proved quite difficult to translate the amount of information contained on the assessment forms into natural, lifelike interactions with the inhabitants of Veritas University. Assessment forms also served as breaks in presence that reminded the player she was expected to be learning about ethics rather than simply exploring a virtual world and becoming immersed in the dilemma. In

fact, many of these forms would entirely halt progress in the game until the player provided an acceptable answer or number of answers; some of these forms required a fair amount of thinking from the player (e.g., Figure 6). This was both a positive feature, in that it encouraged reflection, and a negative feature, in that it reduced the immersion of the game-world. Another problem was that Rian the guide would sometimes recite dialog that would have been more appropriate for Professor Tanner; when Rian showed an in-depth knowledge of ethical topics it sometimes accented the artificiality of his character. Prompts from Rian to consult with Professor Tanner or open the *Ethics Guide* for more information were less intrusive in terms of breaking the player's immersion (see Figure 7).

Game Ending and Next Steps

The plagiarism scenario ends by asking the player to make a final decision: either confront the roommate and allow him to explain what happened or turn himself in on his own, or bypass this conversation and report the roommate to his professor. The game then directs the player to a final debriefing with Professor

Figure 6. Choosing primary stakeholders



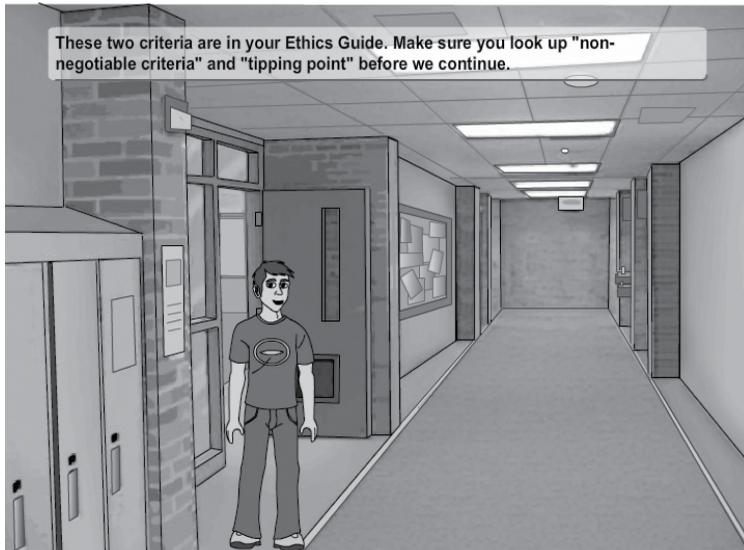
Who are the primary stakeholders in this problem?

- Mark Cordova: *He is facing the consequences of the plagiarism charge.*
- Jaye Pollard: *She alerted you to the problem.*
- You, New Student: *You have to make and implement the decision.*
- Students in Mark's class: *They want their grades evaluated fairly.*
- Jean Anderson, your Residential Advisor: *They are responsible for student conduct in the dorms.*
- Professor Harriet Kepler: *She is responsible for assuring integrity in her class.*
- Carson Nelson, Dean of Students: *He is responsible for upholding academic integrity.*
- Professor Greg Harrison: *He expects the work you turn in to be original.*

SUBMIT

Choose six and click submit!

Figure 7. Vocabulary prompts



Tanner (see Figure 8), and then awards her with a final conversation and potential virtual scholarship given by an authority figure, Dean Nelson. The overnight guest scenario mirrors the same format, but with different content, different references to the *Ethics Guide* mate-

rials, and different object interactions. Players receive various types of awards depending on the scholarship points total at the end of the game. Too low a score leads the Dean to admonish the player and encourage her to try playing through the game again with more attention to detail.

Figure 8. Final debriefing with Professor Tanner



As a precursor to the more ambitious ethics game project, *VU* served a major role in helping our team to consider more engaging ways for the player to interact with virtual environments with ethical implications. With this game, however, it was clear that a deeply immersive environment with the potential to fully engage a player's sense of self and make her pay close attention to her implicit moral reasoning processes was not yet present.

For the authors' next project, a more immersive and interactive experience, with several variations, was desired. A fantasy environment was hypothesized to make the experience more novel and interesting. Allowing the player to customize her avatar so as to encourage identification with that avatar and foster the projective identity hypothesized by Gee (2007) was also thought to potentially improve immersion and enjoyability. Finally, and most significantly, a focus on gameplay mechanics and interactions would allow for the creation of a game that was more fun to play and less dependent on preexisting ethical scenarios and form-driven assessment. While plagiarism and dormitory etiquette are issues many students will face at one time or another in their lives, there are numerous other types of scenarios that can also be used as virtual pedagogical tools to prompt ethical discussions or promote awareness of real world events.

Game 2: Knights of Astrus

Overview

In the second game, the authors still wanted players to have enduring relationships with their avatars and the game-world, but also considered mechanisms to make the gameplay experience memorable and exciting. Players needed to feel as though they were really playing a game rather than merely participating in a training simulation. The real and virtual would still be connected, but in this case, they would be mediated by a game with a focus on fantasy and role-playing. To help accomplish

this, players were initially placed in a science fiction-based environment with a tough problem to solve. *Knights of Astrus (KoA)* begins with a short cinematic sequence showing a space craft crashing into a gulch on an alien planet. Minimal exposition is given to the player as she is tasked with exploring the alien terrain and its surrounding city to learn as much as possible about the environment. A basic character customization function was implemented so as to give the player some sense of ownership and identification with her chosen character. While it only included a few options for each facet, the customization system allows players to choose a gender and several different hairstyles and skin tones.

Creating the Environment

After watching the opening cinematic and configuring her character, the player is immediately placed in a playable environment. In contrast to *VU*, *KoA* uses a combination of both third-person perspectives for general area explorations and first-person perspectives for interior explorations and dialogue segments. Although the first level functions as a tutorial for the overall game, the player is not advised of this and instead learns the game mechanics as she navigates the gulch (using the familiar adventure gaming movement keyset made up of the letters W, A, S, and D), explores the buildings in the area, adds items to her inventory, and accesses the quest log. She is immediately advised of the lack of water on the planet, a fact that will have some bearing on her encounters with NPCs and the ethical dilemmas she will face later in the game.

Setting the Context

There are several ethical problems embedded in the gameplay experience of *KoA*. Because of the authors' desire to place players in uncomfortable, but engaging, problem solving roles, combat and conflict of various flavors were included. In the tutorial level, the player

learns the combat system by being forced to fight some guards who are questioning the player's presence on the planet. Unlike many enemies in role-playing games (RPGs), however, these guards have personalities and histories which are revealed through conversation. One guard is a bully; the other is being bullied. The player must decide what to do after the combat is finished. She can choose to kill the guards, tie them up and leave them, or let them both go. The fact that the player must choose the same fate for both NPCs is unsettling to the player and helps to set the tone that there are not always ideal solutions to the dilemmas one faces in the real world. In addition, later encounters in the game reveal the consequences of the player's prior decisions. Many of the ethical choices are made during conversation points in the game. Players are also able to hack into various computer consoles and electronic devices; the decision to hack opens a puzzle-like mini-game that increases in complexity depending on the strength of the device's security or the current level and its difficulty. This mechanic was borrowed from the commercial game *Fallout 3* (Bethesda Game Studios, 2008) and was included to vary the gameplay experience by introducing a variety of puzzles and challenges.

There are a variety of other ethical dilemmas embedded in the game, from seemingly minor incidents involving only a character or two to major problems that affect the entire game-world. In one scenario, the player comes across an animal trapped in a mechanical device and must decide whether to free the animal or leave it to perish. In another, the player explores a town and is offered a quest to steal a vase from a citizen or to help that citizen by performing a task and receiving the vase as a reward. The quest itself involves another decision; it turns out the citizen runs a dog-fighting ring from his basement, but the dogs have gotten loose and cannot be contained. Do you kill the wild dogs, at the NPC's request, or do you choose to set them free and risk being injured in battle?

Additional Design Mechanics

Additional design mechanics in *KoA* depend upon the specific context of particular scenarios. For example, at one point in the game, the player must enter an underground prison and free an NPC character who is also a member of the resistance movement on the planet, the Knights of Astrus. It turns out the planet is running out of water and the resistance movement believes the government is deliberately keeping water from the people. To free the agent who has information critical to the resistance, the player enters a prison only to find that the structure is collapsing. The player must take advantage of emergency escape pods (which require 8 humans to deploy and contain a maximum of 12 seats) to flee the premises. She can choose to rescue the other prisoners, or leave them to their fate. In addition, to complicate matters further, one of the prisoners is elderly and has a stroke just when the first pod fills to capacity. Do you choose to give up your seat to the elderly prisoner and hope the other pod fills, or do you leave him behind to wait and face an almost certain death?

After the escape sequence, guards emerge and the player is captured in the gulch. After being interrogated for a bit, the guards suddenly leave, and it becomes apparent that a bomb threat has occurred. In fact, it turns out that the resistance has made the bomb threat and that the Knights of Astrus are more fanatical than originally thought. In this scenario, the player finds herself free again and has to deal with the bombs somehow. She does not have much time to decide. With the help of a robotic augmentation system obtained earlier in the game, she can rescue a larger group of adults in an office building or a smaller group of children in another location (multiple bombs are spread out across the city). Or, she can just shield herself and let the bombs go off if she feels it is not her place to decide the value of other lives and she does not wish to put herself at risk with potential

injuries from the bombs. The augmentation device projects a shield around the player and some number of additional citizens, but its range is limited, which leads to the dilemma.

Lessons Learned

With this project, the authors found that a more complex gameplay mechanic still needed to be combined with planned checkpoints to ensure players encountered and completed the various dilemmas. The storyline served as a gating mechanism for moving the player through the environment. As with many branching storylines found in commercial games, the overall story of *KoA* is gated so that a single ending is eventually revealed. Regardless of how noble or heinous a player's actions are throughout the game, she is eventually rewarded for completing the game by having her ship repaired and being allowed to leave the planet. While there is a single ending, the way in which the player obtains the various parts is quite different depending on her in-game decisions and behaviors. These varying decisions and behaviors served as catalysts for the discussion of real world issues and ethical dilemmas as the design team moved into the formal testing and assessment phase of this project.

Game Ending and Next Steps

The last major scenario, which ends the current version of the game, occurs after the bombs explode and the ground collapses in part of the city. The player falls beneath the ground and ends up exploring some catacombs. Eventually, she finds an underground lake, an important discovery in a world with water problems! The lack of a reliable water supply has contributed to the stress of the city's inhabitants throughout the game, and in the end, it is the player who decides what is to be done with the water. She can choose to tell the government, who has supposedly been repressing the citizens (e.g., imposing a curfew) and using military force, the resistance (who, in the prior scenario, revealed themselves to be fanatical killers), or the townsfolk, who may very well destroy each other in

the fight to reach the water. A fourth option is for the player to simply pass the responsibility off on an NPC character, Bill Ten Thunders, who has earlier revealed himself to be a mentor character. He is also the mechanic who will eventually help you fix your ship.

To support replayability and long-term player involvement, the team designed this second project as a platform for students to develop their own scenarios using customizable tools within the game. To this end, the game was designed specifically with customization in mind to allow for other types of user-generated content to be added by students who wanted to "mod" the game. The resulting map editor can be used later in the development of future iterations of this project as part of a toolset for user-defined content, or to generate customizable levels in which players can create their own terrains, upload their own dialog trees, and ultimately develop their own ethical dilemmas using this toolset.

An analysis of the dilemmas used in *KoA* shows that various types of classical ethical conundrums are being considered in the game (e.g., the lifeboat dilemma; see Cohen, 2007). These could be improved further by making the choices more difficult and impactful with consequences linked to future events occurring in the game. Many of these initial scenarios may end up serving as placeholders for more sophisticated scenarios that will emerge with future iteration and additional consultation with ethics subject matter experts and playtesting groups.

GUIDELINES FOR FUTURE DEVELOPERS

In this final section we provide a brief summary of our lessons learned from these projects. Much of what we learned during the previous two years will be relevant to other ethics game developers. Rather than focusing on technological workflow procedures, we instead offer what we found to be the ten most important lessons learned taken from these development experiences (see Table 1):

Table 1. Guideline for developing applied ethics games

1. Define Learning Objectives	Carefully articulate and consider the nature of learning objectives
2. Strive for Balance	Identify an appropriate balance between learning content and player enjoyment
3. Playtest Frequently	Provide sufficient time to playtest the game throughout its development and playtest as early as possible
4. Include Detailed Assessment	Carefully consider the most appropriate methods for learning assessment and how those are constructed in your game
5. Build Opportunities for Projective Identity	Develop game characteristics to support connections between real and virtual identities
6. Consider Unique Content Creation	When appropriate, provide opportunities for user-created content
7. Stay Focused	Focus on particular outcomes of moral decision making rather than striving for an “all in one” solution
8. Employ Feedback Carefully	During the design process, think about when and how feedback about behavior should be deployed.
9. Know your Genre	There is no “one design fits all” method of game design. Be aware of the genre in which you are designing.
10. Don't Underestimate your Audience	You will be likely designing a game for seasoned users of interactive media. Try not to oversterilize your content or oversimplify your gameplay mechanics.

1. **Define Your Learning Objectives:** First, before starting development on the game, and even before beginning scripting of the ethical learning content, carefully consider the types of learning objectives you want your players to achieve. When planning *KoA*, we initially thought it would be useful for players to learn about different ethical models (e.g., egoism, altruism, or utilitarianism) and then to be debriefed on how their actions correlated to these models. After initial meetings with our philosophy subject matter experts, however, we adjusted *KoA* so that the game was more open-ended and simply allowed the player to make decisions. We then asked the player why she chose to behave in this fashion by incorporating a game journal that doubled as an assessment tool. In this way, we were learning about the player and her values while she was learning about the consequences of her decision making in the simulated world;
2. **Balance Fun and Learning:** Second, focus on a balance between learning content and fun. While it is easy to proceed enthusiastically in either direction, it is also quite easy to throw off the critical balance between a compelling experience and an experience from which one can learn. With *VU*, despite our best efforts, the game turned out to be a little bit too heavy on ethical learning content and somewhat light on fun gameplay. With *KoA*, in some sense, the reverse was true, since the final game mechanics were more polished than the ethical scenarios players face in the game. To accomplish this critical balance, gathering feedback from one's intended audience is important. This feedback is best obtained through giving your audience direct experience with your game;
3. **Obtain Audience Feedback through Playtesting:** Third, playtest early and frequently during development. Playtesting often means allowing your audience

to experience your game even before it is fully polished. Although we did not handle the playtesting directly for *VU*, we did present early versions of *KoA* to attendees at three different conferences during the first year of development. Feedback from these sessions was very valuable in shaping our decision to scratch the first year of development and begin anew with the lessons learned from this initial feedback. If possible, incorporate playtesting early in the design process and pay close attention both to what players find enjoyable and to what they end up learning from the experience;

4. **Evaluate Assessment and Guidance Plans:** Fourth, when designing games for learning, particularly for learning complex issues such as those associated with ethics, the nature of the assessment instruments, and their delivery, is critical. For example, assessing the learner without he or she knowing can be effective to keep that player engaged and immersed. But the computational requirements behind such forms of dynamic assessment running in the background are formidable. Similarly, instructional guidance should be delivered in such a way that it does not interfere with immersion in the game. Working this guidance into the narrative game-flow requires overcoming challenges arising from story-construction and dynamic adaptation of story structure, though, so those challenges should be acknowledged and planned for;
5. **Allow Players to Identify with their Avatars:** Fifth, consider the role of projective identity throughout the development process. As discussed earlier in the chapter, projective identity is the term Gee (2007) uses to refer to the relationship between one's real and virtual identity as one projects her own beliefs and desires onto the virtual character. If opportunities for the player to feel closer to her virtual character are built into the gaming system, such as the player customization and player

feedback mechanisms built into *KoA*, there are some interesting possibilities for sustaining the learning process and improving identification in both directions, even after the game itself has ended. Similarly, if opportunities in the real world allow players opportunities to discuss, debrief, or even defend their actions in the game, then they are re-engaging that identity and recalling their decision making process to respond to this new challenge;

6. **Consider User-Generated Content:** The creative possibilities and motivational factors suggest it is useful to take advantage of opportunities for unique content creation by your players. Although we are not yet in the position to do this fully with *KoA*, the parallel development of a map editor and the modular use of eXtensible Markup Language (XML) files for item placement and dialog make user-contributed content a possibility for the future. We imagine such tools being very useful for philosophy courses in which students are encouraged to apply the content from that course into creating their own variants of ethical dilemmas. User-created content is also helpful for extending the game into other areas that might have interesting ethical scenarios to consider (e.g., industrial/organizational contexts, discrimination, or international ethics);
7. **Develop an Appropriately Focused Scope:** Looking back at the experience of designing these two games, one of the major shortcomings was that we tried to incorporate too much content into relatively brief learning experiences. To that end, the most successful portions of the games were those that focused on very specific outcomes, such as helping the student players to identify the specific ethical stakeholders impacted by a given dilemma. Similarly, even commercial games are most effective when the ethical situations are clearly catalyzed by specific events (choosing whether or not to blow

up the town of Megaton in *Fallout 3*, for example, or deciding whether or not to sacrifice certain non-playable characters in *Bioshock*);

8. **Use In-Game Feedback Effectively:** As Sicart (2012) notes, game development companies take different approaches when designing how their game worlds will adapt based on ethical decisions made by players. This adaptation can be considered feedback to the players based on the decisions they make. For example, Sicart observes that *Bioshock's* game world does not change until the very end of the game. This delays the ability of players to see the impact of their decisions until the very end of a ten or more hour experience of gameplay. In contrast, other video games such as the *Fable* series or *Fallout 3* employ more gradual changes to the game worlds so that players can see the impact of their in-game behaviors on other characters within that virtual space. It is important to carefully consider which model is more appropriate for your own learning objectives when designing games with the purpose of shaping behavior or improving knowledge;
9. **Make Effective Use of Game Genres:** Game genres, from RPGs to FPSs to RTSes, vary widely and offer different types of gameplay. One of the most frustrating experiences as a gamer is to play a rich and rewarding game within a certain genre and then have an additional game in that genre not meet our expectations. When a game does not fully take advantage of its genre, it is unlikely to be either fun or motivating to play, which defeats the purpose of using it as an ethical learning game in the first place. For example, consider the narrative richness of many contemporary role playing games. This freedom and flexibility allows players to take on a variety of moral positions, from supremely evil to wholly good and kind and everywhere in between. Simkins & Steinkeuhler (2008) use the example of *Elder Scrolls: Oblivion* (Bethesda Softworks, 2006) and note

that “one could become a hired assassin, murdering the innocent and robbing their corpses, but one could as easily become a servant of the law and a defender of the weak” (p. 333). When designing ethical learning games and designing an RPG or any other genre, it makes sense to consider the unique advantages and affordances of that genre and do your best to design effectively for them;

10. **Know your Audience:** Lastly and most importantly, you need to recognize and understand your specific target audience and their expectations. Part of this process will entail understanding the media consumption habits and prior exposure of your audience to prior gaming stimuli. For example, unless you are designing an ethics game for three year olds, it is likely that your target audience will have been exposed to violence and sexuality in video games, film, and television for a number of years. While it is not advisable to create glorified violence or sexuality in your own game, it may be setting the bar a little too low to focus on dividing a cupcake or cookie as an exercise in ethical empathy. Whether it is in regards to their expectations for stimuli or other areas of your content, knowing your audience is an important and primary step in the process that you should not overlook. Using pre-surveys or focus groups, whether formal or informal, can provide enough feedback to move you in the right direction towards appropriately engaging content and gameplay mechanics.

CONCLUSION

In this article, the authors reviewed recent developments in the literature dealing with ethics and video games and then moved on to a consideration of the connection between the virtual and the real. We considered the self as a connective tissue woven between real and virtual space, an important positioning if we are to argue that the self is able to be influenced in

a meaningful way in a video game environment. We then wrote about the lessons learned from the design experiences of two different games, one solidly grounded in existing narrative scenarios but lacking in truly game-like mechanics, and the other designed with traditional RPG mechanics in mind and augmented with opportunities for player feedback. Although both games used the same core technologies, the overall experience of playing *Veritas University* is quite different than playing *Knights of Astrus*, and in neither game is the experience sufficiently drawn out so as to truly draw the player in and test her moral reactions on a significant scale. Despite this problem, it is important to note that both games were designed and funded with modest budgets, limited amounts of faculty oversight, and small teams composed largely of undergraduate majors in the humanities. Neither game used a “modded” approach, however, so the amount of work done by these students was both surprising and encouraging, even if the ethical learning goals are not yet fully being met in an ideal way. Drawn from this experience, we offered ten guidelines for aspiring ethics game developers that we believe are helpful for designing games that are both enjoyable for players and useful for pedagogical purposes.

Based on this review of the literature and these experiences in ethical game design, the authors have come to the following conclusions. A well-designed and empirically tested ethics game will do much to help educate players about different ethical models, about the impact of their decision making on others, and about the advantages and disadvantages associated with different behaviors from different moral perspectives. More importantly, though, such games may encourage the formation of communities of individuals with a common shared experience of playing that game and understanding its content. It is these communities of players who will ultimately lead to the most interesting types of learning in this domain, particularly if these users are encouraged to interact with one another and if these interactions are observed and studied. Clearly, there is a great deal of additional research to be done in this area, par-

ticularly in studying the relationship between virtual in-game actions and real thinking and behaviors. Future scholars will find rich possibilities for research in these areas.

ACKNOWLEDGMENT

The authors would like to thank the Office of Information Fluency at the University of Central Florida for financial support for *Knights of Astrus*, especially co-directors Dr. Martha Marinara and Dr. Charles Dziuban. In addition, we would like to thank our colleague Dr. Nancy Stanlick for subject matter expertise and advising in regard to ethical content. For *Veritas University*, Dr. Catharyn Baird of *ethicsgame.com* provided generous funding for the project and permission to use screenshots. Jenny Draper provided outstanding technical writing and project management support for both games. Numerous student authors participated in these projects and we are grateful for their hard work. In particular, for *Veritas University*: graduate students Patricia Abón and Jennifer Farhat, and undergraduate students Eryn Gruber, Jesse Babineau, and Amanda Dickinson. For *Knights of Astrus*: graduate students Patricia Abón and Jennifer Farhat and undergraduate students Andrew Horner, Eric Little, Michael “Davey” Eakins, Connie Odom, Nick Pham, Bill Sellinger, Jesse Babineau, Brandon Pate, Dion Gizas, Brad Taylor, and Doru “Charlie” Bogatescu. Development of this paper was also partially supported by the Department of Philosophy Ethics Center Initiative.

REFERENCES

- Baird, C. A. (2005). *Everyday ethics: Making hard choices in a complex world*. Centennial, CO: CB Resources.
- Bayertz, K. (2003). Self-enlightenment of applied ethics. In A. Cortina, D. Garcia-marza, & J. Conill (Eds.), *Public reason and applied ethics: The ways of practical reason in a pluralist society* (pp. 33–49). London, UK: Ashgate.

- Bethesda Game Studios. (2008). *Fallout 3*. Microsoft Windows. Retrieved from <http://fallout.bethsoft.com>
- Bethesda Softworks. (2006). *Elder Scrolls IV: Oblivion*. Microsoft Windows.
- Black Isle Studios. (1997). *Fallout*. Microsoft Windows.
- Bogost, I. (2007). *Persuasive games: The expressive power of videogames*. Cambridge, MA: The MIT Press.
- Clark, A. (1997). *Being there: Putting brain, body, and world together again*. Cambridge, MA: The MIT Press.
- Clark, A. (2001). *Mindware*. Oxford, UK: Oxford University Press.
- Clark, A., & Chalmers, D. (1998). The extended mind. *Analysis*, 58(1), 7–19. doi:10.1093/analysis/58.1.7
- Cogburn, J., & Silcox, M. (2009). *Philosophy through video games*. New York, NY: Routledge.
- Cohen, M. (2007). *101 ethical dilemmas*. New York, NY: Routledge.
- Crowther, W. (1976). *Colossal cave adventure*. PDP-10.
- Dickey, M. D. (2005). Engaging by design: How engagement strategies in popular computer and video games can inform instructional design. *Educational Technology Research and Development*, 53(2), 67–83. doi:10.1007/BF02504866
- Erikson, E. (1968). *Identity, youth, and crisis*. New York, NY: Norton.
- EthicsGame.com*. (2009). Retrieved April 23, 2009, from <http://ethicsgame.com/>
- Fossheim, H., Larsen, T. M., & Sageng, J. R. (2012). *The philosophy of computer games*. New York, NY: Springer.
- 2k Games (2007). *Bioshock*. Microsoft Xbox 360.
- Gee, J. P. (2007). *What video games have to teach us about learning and literacy* (2nd ed.). New York, NY: Palgrave Macmillan.
- Green, M. C. (2004). Transportation into narrative worlds: The role of prior knowledge and perceived realism. *Discourse Processes*, 38(2), 247–266. doi:10.1207/s15326950dp3802_5
- Hornsby, K. L., & Maki, W. M. (2008). The virtual philosopher: Designing socratic method learning objects for online philosophy courses. *MERLOT Journal of Online Teaching and Learning*, 4(3), 391–398.
- Huizinga, J. (1955). *Homo ludens: A study of the play element in culture*. Boston, MA: The Beacon Press.
- Hutchins, E. (1995). *Cognition in the wild*. Cambridge, MA: The MIT Press.
- Infocom. (1980). *Zork: The great underground empire*.
- Konzack, L. (2009). Philosophical game design. In B. Perron, & M. J. P. Wolf (Eds.), *The video game theory reader 2* (pp. 33–44). New York, NY: Routledge.
- Lionhead Studios. (2005). *Fable: The lost chapters*. Microsoft Windows. Retrieved from <http://www.lionhead.com/>
- Lionhead Studios. (2008). *Fable II*. Microsoft Xbox 360.
- Malone, T. W. (1981). Toward a theory of intrinsically motivating instruction. *Cognitive Science*, 4, 333–369. doi:10.1207/s15516709cog0504_2
- McDaniel, R., & Fiore, S. M. (2010). Applied ethics game design: Some practical guidelines. In K. Schrier, & D. Gibson (Eds.), *Ethics and game design: Teaching values through play* (pp. 236–254). Hershey, PA: IGI Global. doi:10.4018/978-1-61520-845-6.ch015
- Murray, J. H. (1997). *Hamlet on the holodeck: The future of narrative in cyberspace*. New York, NY: Free Press.
- Reynolds, R. (2012). Ethics and practice in virtual worlds. In H. Fossheim, T. M. Larsen, & J. R. Sageng (Eds.), *The philosophy of computer games* (pp. 143–158). New York, NY: Springer. doi:10.1007/978-94-007-4249-9_10
- Rockstar Games. (2001). *Grand Theft Auto III*. Microsoft Windows. Retrieved from <http://www.rockstargames.com/>
- Rockstar Games. (2008). *Grand Theft Auto IV*. Microsoft Xbox 360.
- Rouse, R. III. (2005). *Game design theory and practice* (2nd ed.). Plano, TX: Wordware Publishing.
- Rowlands, M. (1999). *The body in mind: Understanding cognitive processes*. Cambridge, UK: Cambridge University Press. doi:10.1017/CBO9780511583261

- Ryan, M.-L. (2002). Beyond myth and metaphor: Narrative in digital media. *Poetics Today*, 23(4), 581–609. doi:10.1215/03335372-23-4-581
- Schrier, K. (2011). *An investigation of ethical thinking in role-playing video games: A case study of Fable III*. (Unpublished doctoral dissertation). New York, NY: Columbia University.
- Schrier, K., & Gibson, D. (Eds.). (2010). *Ethics and game design: Teaching values through play*. Hershey, PA: IGI Global. doi:10.4018/978-1-61520-845-6
- Schrier, K., & Gibson, D. (Eds.). (2011). *Designing games for ethics: Models, techniques, and frameworks*. Hershey, PA: IGI Global.
- Schrier, K., & Kinzer, C. (2009). Using digital games to develop ethical teachers. In D. Gibson (Ed.), *Digital simulations to improve education*. Hershey, PA: IGI Global. doi:10.4018/978-1-60566-322-7.ch016
- Sicart, M. (2012). Digital games as ethical technologies. In H. Fossheim, T. M. Larsen, & J. R. Sageng (Eds.), *The philosophy of computer games* (pp. 101–124). New York, NY: Springer. doi:10.1007/978-94-007-4249-9_8
- Simkins, D. W., & Steinkuehler, C. (2008). Critical ethical reasoning and role-play. *Games and Culture*, 3(3-4), 333–355. doi:10.1177/1555412008317313
- Slater, M. (2002). Presence and the sixth sense. *Presence (Cambridge, Mass.)*, 11(4), 435–439. doi:10.1162/105474602760204327
- Smith, S. L. (2009). Perps, pimps, and provocative clothing: Examining negative content patterns in video games. In P. Vorderer, & J. Bryant (Eds.), *Playing video games: Motives, responses, and consequences* (pp. 64–86). New York, NY: Routledge.
- Sutton, J. (2006). Memory, embodied cognition, and the extended mind. *Philosophical Psychology*, 19(3), 281–289. doi:10.1080/09515080600702550
- Tetris Holding, L. L. C. (1985). *Tetris*. Microsoft Windows. Retrieved from <http://www.tetris.com/>
- Troika Games. (2001). *Arcanum: Of steamworks and magick obscura*. Microsoft Windows. Retrieved from <http://www.terra-arcanum.com/>
- Weber, R., Witterfeld, U., & Kostygina, A. (2009). Aggression and violence as effects of playing violent video games? In P. Vorderer, & J. Bryant (Eds.), *Playing video games: Motives, responses, and consequences* (pp. 409–425). New York, NY: Routledge.