ELECTRONIC GAME RESEARCH METHODOLOGIES: STUDYING RELIGIOUS IMPLICATIONS

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A collection of pilot studies is described, illustrating how the religious implications of video games can be studied electronically by content analysis, natural language processing, ethnography or participant observation, and online interviewing. Many popular games for the Nintendo, PlayStation, and Xbox platforms either mock accepted religion or present heterodox, exotic, or imagined alternatives to it. Online games and virtual environments, like World of Warcraft and Second Life, offer inhabitants emotionally compelling experiences connected to spirituality and the supernatural. The methods employed here emphasize qualitative approaches, but connect them to quantitative approaches as well. Methods like these can be useful to study a variety of religion-related topics online. Electronic games are an especially good example to illustrate these methods because they, like the World Wide Web itself, are a commercially successful vanguard of the new technologies that may be transforming human culture.

This article presents new online research methodologies that could be used to study religion, and illustrates them through a unifying topic: the religious implications of electronic games. A number of researchers and members of the general public believe that playing video games may encourage violent behavior in the real world, or may shift the beliefs and values of the players in other socially undesirable directions (Felson 1996; Anderson and Dill 2000; Rauterberg 2003; Barr, Marsen, and Noble 2005). Others believe that electronic games can be educational, teaching fundamental thinking skills even when the game lacks explicit curricular content (Economist 2005). Research on such questions has not yet achieved a consensus (Boyle and Hibberd 2005), but the debate establishes a prima facie case for the proposition that games could affect the player's orientation toward religious issues. Electronic games may also reflect a well-established but growing computer-oriented counterculture fundamentally opposed to traditional culture, including religion (Yinger 1960; Gibson 1984; Sterling 1986; Stephenson 1992). It is even possible that certain categories of games satisfy some of the same psychological needs satisfied by reli-

*The views expressed in this essay do not necessarily represent the views of the National Science Foundation or the United States.
gion: providing compensatory status, a sense of community, and transcendence of the material world (Stark and Bainbridge 1985, 1987).

Many electronic games mock conventional religion, and may thereby erode the player's respect for the churches in his or her real community. Other games positively present ideas and symbols from religions considered exotic in the West, such as Japanese Shinto and Classical Paganism. Still others offer somewhat attractive invented religions. Religiously-based criticism of video games has come both from Christian (Davis 2005; Morris 2005; Hardy 2006) and from Islamic (BBC News 2001; CNN.com 2001) quarters. Worldwide, in recent years there have been three dominant home video game manufacturers—Nintendo, Sony (PlayStation), and Microsoft (Xbox)—and the fact that the first two are Japanese may possibly be significant. Its video games (like its graphic novels) could be a channel through which Japan exports its religious traditions.

Electronic games are technically comparable to computer simulations, and simulation has become a major methodological approach in the social sciences (Taber and Timpone 1996; Gilbert and Troitzsch 2005). In earlier research, one of us showed that computer simulation was a valuable methodology for exploring the implications and rigor of social-sciences theories of religion (Bainbridge 2006). Especially in the case of online games, research can examine how real human beings interact with each other and with artificial intelligence "non-player characters" (NPCs), in complex environments that are at least as realistic as laboratory experiments.

This essay primarily illustrates the use of qualitative methodologies, such as ethnography and content analysis, but also shows how they can connect to quantitative approaches. Given the essay's methodological emphasis, its substantive and theoretical values are more latent than manifest. Its empirical topic, religious implications of video games, has largely gone unnoticed by the scholarly community—although we think the games may indeed affect the player's religious orientation, most likely in ways antagonistic to traditional western faiths. This possibility raises theoretical issues, such as the role of face-to-face human interaction in sustaining faith as opposed to private emotional experiences like those offered by pre-Internet games. Edward Castronova (2005) has argued that online games such as Everquest and World of Warcraft are harbingers of a future in which much of human life takes place in such "synthetic worlds." More modestly, we suggest that a massive shift is currently taking place within video game culture, as all of the video game systems are connecting to Internet and games become social rather than individual experiences. Logically, social games, in which each player must become a trustworthy quest companion within an enduring group of players, will have even greater influence upon player's values, beliefs, and personalities. This major shift could have the paradoxical result of greatly reducing the social isolation widely believed to afflict many gamers, while drawing them even further away from conventional society into a subculture rife with religious deviance.

**CONTENT ANALYSIS OF OFFLINE VIDEO GAMES**

One cannot understand video games unless one has played them, so we worked our way through seven of the most religion-relevant ones. Although we completed all the games, our goal was not to win them but to understand them. Therefore, we occasionally consulted online walkthroughs, instructions for every step posted on the web by expert players who thereby gained status in the gaming community. We sometimes employed cheats, special bonus codes revealed on certain websites that could help overcome obstacles. These games are extreme-
ly complex, so often we invested more than a work week becoming thoroughly familiar with one, exploring its areas and implications rather than rushing to the end.

Depending upon the focus of research, a variety of techniques may be used to record information. In a previous project we had documented about 750 programming errors in popular video games, in preparation for an analysis of their social-psychological implications (Bainbridge and Bainbridge 2007). In that case, somewhat elaborate equipment proved very useful. We had connected the several video game systems used in that work to a video cassette recorder and to a digitization device that ported action clips into a computer, where we could select the best frames to illustrate each error, and post them on a website. For the following examples, simple note-taking about religious themes was sufficient, although we found that e-mailing our observations to each other as we separately explored games helped motivate the work as well as record observations. The first four games described below and in Table 1 were connected to popular movies, so examining the movies for comparison became part of the research process.

**Chronicles of Narnia: The Lion, The Witch, and The Wardrobe** is the nearest thing to a popular Christian video game at the present time, but nothing in the game specifically announces its Christian character. Based on the first of a series of novels by C. S. Lewis, and produced in connection with a movie, it supports values that Christians might admire. Jane Pinckard (2005) observed, “Disney wanted to downplay the Christian allegorical elements in the film adaptation... to ensure widespread appeal among atheists, pagans, and god-fearing church-goers alike.” Notably, the game play encourages cooperation. The four playable characters are children whose virtues must be combined to achieve success: Peter (strong, natural leader), Susan (mature, patient), Edmund (athletic, desires to succeed), and Lucy (adventurous spirit, empathy, desires to do what is right). For example, at one point, three of the children must hang onto an ogre while Susan carefully shoots arrows into it. The player must switch from child to child, playing as them in turn and sometimes combining two, holding hands or one on the shoulders of the other. The game can accommodate two players, who cooperate in moving the children forward, rather than competing.

The game includes *cutscenes* — unplayed scenes duplicating some action from the movie — about a lion character named Aslan, a Christ figure who dies sacrificially to be reborn. Although Aslan is not explicitly connected to Christ, the fact that a child playing the game cannot interact with Aslan provides a certain sacred distance. As in many games for small children, failure to master a challenge does not lead to the death of the character played by the user. Instead, the player is simply sent back to the beginning of the challenge. In a typical video game for teens and adults, however, the player is given a certain number of lives, losing one after each failure, possibly gaining lives along the way, and being forced to start the game over if all the lives are lost. Given all the concern about violence in video games, and the inconclusive scientific literature on its impact, we can wonder whether the games have an effect on conceptions of death in the real world, either trivializing it or supporting an expectation of reincarnation.

**The Da Vinci Code** recapitulates the story of a controversial novel and movie about the unraveling of religious mysteries that have long been discussed in heterodox circles (Baigent, Leigh, and Lincoln 1982). A professor of symbology and a government cryptologist, the hero and heroine, solve innumerable puzzles and mystic metaphors to uncover murderers who turn out to be agents of a Roman Catholic order. As the instruction booklet explains, “This conservative and highly regulated sect of the Church values discipline and strict following of the rules above all. They have little tolerance for other religions and their practice of corporal mortification (self-flagellation to absolve their sins and keep pure) is looked down upon by the upper echelon of the Church... Their ability
In *Constantine*, the very first thing a player must do is go to Hell. Based on a movie and graphic novel, the story concerns John Constantine, a faithless soldier in the war between Heaven and Hell, at a time when infernal demons have broken a truce and begun invading Earth. Many of his weapons have biblical origins: a pistol that fires stones from the road to Damascus, a machine gun shooting nails used to crucify martyrs, holy water grenades, a bomb called the Shroud of Moses, and finally, the spearhead that slew Jesus. Constantine’s mission requires him to shuttle back and forth between terrestrial Los Angeles and Hell’s devastated version of the city, where infernal fires hurl melting cars and buses through the sulfuric air. At the end, Constantine must fight against both the angel Gabriel and Mammon, the son of Satan. Then he discovers that God had engineered the demonic invasion to strengthen religious belief, which only reinforces his view that God is really no better than Satan.

*Star Wars Episode III: Revenge of the Sith* is a fundamentally religious drama, but set entirely outside the Christian tradition. The Star Wars stories concern the Jedi, akin to Zen masters, who possess super-normal powers based on their knowledge of the Force. They must cultivate an almost Buddhist detachment from the world, lest they be seduced to the dark side of the Force to serve their own personal desires rather than the spiritual needs of the galaxy. This is the episode in which Anakin Skywalker is turned to the dark side, against the urging of his teacher, Obi Wan Kenobi. Until the final level, the player alternates between the characters of these two Jedi, battling enemies with a light saber and the occasional application of the Force. The Force can lift heavy objects that block the path, throw things at enemies, cast spells on enemies to facilitate using the light saber on them, allow the Jedi to jump great distances, and heal the Jedi when he has been wounded. Along the way, the player builds up the abilities of both Jedi, only realizing near the end that this makes Skywalker a more formidable opponent when he turns against Kenobi. In the final level, the two battle, with the player taking the role of Kenobi against Skywalker who is played by the game machine and becomes Darth Vader, the formidable villain of the series. The values taught by Star Wars differ from Christianity not only in urging detachment rather than charity, but also in lacking a deity and suggesting that humans can acquire god-like powers.

*Castlevania: Lament of Innocence* is set in Europe, centuries ago, telling the tale of a knight who tries to rescue his beloved wife from a vampire’s castle, which includes a large church. As the game’s introduction explains, knights “valued courage and honor, fighting heretics and heathens in God’s name.” The knight seeks the Church’s help in his quest, or at least its permission, but “The Crusades are raging in the East, and since the Church is focusing on fighting heathens rather than monsters, it has forbidden unauthorized battles.” The only help religion offers the knight is a couple of weapons - a cross and holy water — that sometimes kill the numerous enemies more effectively than his whip, knife, or axe. Ironically, once the knight has succeeded in his quest, and rescued his wife, she reveals the only way her soul can be saved is for him to kill her, which he reluctantly does.

*Final Fantasy X* concerns the journey of the girl Yuna and her seven guardians, in a world named Spira, where peace is periodically disrupted by an evil creature entitled Sin. Yuna is a summoner, meaning that her duty is to journey on a pilgrimage, collecting Aeons to help her fight battles, until she reaches the destroyed city of Zanarkand, where she must sacrifice her life to summon the final Aeon and defeat Sin temporarily. These Aeons are the creature-like manifestations of dead souls, called the *ayat*, and are often named after supernatural beings from other cultures, such as Bahamut and Shiva. Along the way, she also must perform “the sending,” a ritual in which she sends souls to the Farplane, their final resting place. The heroes have several encounters with the high priest Seymour Guado, who leads the worshippers of Yevon, the religion of Spira. Ultimately, the player learns that corruption of the teachings of Yevon spawned destruction in their world.

*God of War*, which won several awards for best game of 2005, centers around Greek mythology and the interactions between Gods and mortals (Grossman et al. 2005). The player controls Kratos, a ruthless Spartan bent on revenge against Ares, the God of war. Long ago, Kratos had been in battle against barbarians, when suddenly he was about to be killed. However, at the last moment, he pleaded to Ares to save his life and promised his life to him in return. Ares gave Kratos the power to slay the barbarians, and after that, Kratos loyally destroyed towns and killed innocent people to satisfy Ares’s desires. However, when Ares’s evil plotting results in Kratos entering a holy temple and slaughtering his own wife and daughter inside, he vows vengeance upon the God. Kratos goes through many trials and tribulations to obtain Pandora’s Box, the only weapon that can destroy a God. Throughout the game, Kratos receives gifts of powers from the Gods, including the ability to call upon dead souls to help him fight battles, granted to him by the God Hades.
to blend with shadows is said to be uncanny, and their thirst to inflict God’s vengeance, insatiable.”

The book and movie clearly identified this group as the real Catholic order, Opus Dei, but perhaps to blunt religious criticism, the game describes them as a disreputable splinter group of a fictitious order, Manus Dei.

Unintentionally, the game offers religious players four sacred virtual environments in which they could actually perform devotions: St. Sulpice in Paris (where the player can pray at the stations of the cross), Temple Church and Westminster Abbey in London, and Rosslyn Chapel in Scotland. By the end of the story, the player has learned that the male chauvinist fathers of the church have deceitfully concealed the marriage between Magdalene and Jesus, and the fact that their bloodline has continued to the present day. Their motive was not merely to suppress women, but also to sustain the supposedly false myth that Jesus was divine rather than being a mortal man. Refused permission to film at Westminster Abbey, the moviemakers used Lincoln and Westchester cathedrals, instead. Both cathedrals received considerable criticism for apparently supporting this heretical endeavor, and both posted explanations on their websites: Lincoln publishing a sermon against the film and Wincheste holding an exhibition debunking the story (Buckler 2006; West 2006; Till 2006; Kennedy 2006). However, the video game depicts each of the four genuine churches.

**CONTENT ANALYSIS OF ONLINE GAME REVIEWS**

Our experience with these games supports the view that many of them work against conventional religion, but this impression must be checked against other sources of information, using a variety of methodologies. A number of websites serve evangelical Christian communities, and some of these comment on video games. Notably, a site called Christian Answers offers many reviews of popular video and computer games that can be subjected to content analysis.

Each review includes four quantitative ratings, and social scientists should always be alert to existing data that are naturally quantitative or quantifiable—so-called found data. The four rating scales are: Christian Rating (“Is the game anti-Christian and immoral in any way?”), Violence (“Is it violent? Does it encourage violent behavior?”), Adult Content (“Sexual encounters, nudity, or suggestive or sexually immoral material?”), and Game Play (“Is the game fun to play? High quality?”). These scales are scored from 1 (worst) to 5 (best), which means that low scores on the Violence and Adult Content scale indicate that the game heavily relies upon violence and sex. Games are classified by platform, which means the particular machinery on which it is played. Table 2 shows correlations among the four measures, plus means for four categories of platforms.

The correlations make sense, suggesting that social scientists can profitably work with statistics from online reviews, which are extremely numerous in many fields. Violence and Adult Content correlate with the summary evaluation called Christian Rating, but more so with it than with each other. This is what one would expect with components of an index. Game Play is hardly at all related to the three other ratings, implying that the technical quality of a game is unrelated to its cultural orientation. Among the platforms, Nintendo is generally reputed to be better for younger children, with its flagship Mario and Donkey Kong games, and we see it has a higher Christian Rating chiefly because it tends to avoid Adult Content (giving it a higher score on that measure). The final row of the table reminds us that video games are different from personal computer games. The more favorable average rat-
Table 2
Quantitative Measures from *Christian Answers* Game Reviews

<table>
<thead>
<tr>
<th>Christian Rating</th>
<th>Violence</th>
<th>Adult Content</th>
<th>Game Play</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christian Rating</td>
<td>1.00</td>
<td>0.72</td>
<td>0.72</td>
</tr>
<tr>
<td>Violence</td>
<td>0.72</td>
<td>1.00</td>
<td>0.61</td>
</tr>
<tr>
<td>Adult Content</td>
<td>0.72</td>
<td>0.61</td>
<td>1.00</td>
</tr>
<tr>
<td>Game Play</td>
<td>0.15</td>
<td>0.10</td>
<td>0.13</td>
</tr>
</tbody>
</table>

Mean Rating from 1 (worst) to 5 (best):

- 49 Nintendo 64 and Game Cube games: 3.39, 2.88, 3.88, 4.31
- 70 PlayStation and PlayStation 2 games: 3.13, 2.89, 3.56, 4.31
- 33 Xbox games: 2.97, 2.58, 3.27, 4.21
- 165 PC games: 3.67, 3.36, 4.13, 4.39

The lower cost of producing games for PCs means that several explicitly Christian games have been produced, which is not the case for the three video game platforms.

To carry out a pilot study using content analysis, we read through all the reviews of video games on the site, copying into a spreadsheet verbiage that expressed specifically religious criticisms, other than violence and adult content. We then inductively developed a rough category system to describe the various criticisms we found in reviews of 82 games.

**Objection Categories**

*Presenting Asian Religions Favorably*

Reviews of seven games complained that they presented Asian religions in a positive light. For example, a review of *Beyond Good and Evil* observed, “At the start of the game we see Jade in deep meditation, Buddhist style. One of the characters eventually comes to have mystical powers of healing.” A review of *Dragon Ball Z: Budokai* is bothered by the Asian concept of spiritual energy (Ki or Chi) and by references to Japanese objects of worship called Kami, and says, “The issue of the afterlife is also addressed in a manner that is not according to biblical standards, as characters can be resurrected from the dead using wishes from Dragon Balls. Christians, however, know that resurrection comes from God, not by making wishes.” According to one review, in *The Legend of Zelda: The Windwaker*, “Every few minutes it’s ‘The gods this, and the gods that...’ the Windwaker contains ‘the power of the gods,’ you get a certain ability from the wind god and the ability to travel quickly through cyclones from the cyclone god... and the two sages when mentioned are said to be praying to the gods... What really did it for me though, was that there is a point in the game where it is required to seek out two sages to pray to the gods for the master sword to be reenergized.”
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Presenting Alternate Religions Favorably

Fully nineteen reviewed games present images of alternative or invented religions, which would be called cults if they existed outside the game. Reviewers seem especially disturbed when the player must perform rituals or otherwise act in accordance with the deviant beliefs of the religion. One reviewer notes about Dragon Quest VIII: “The characters in the game all worship a certain Goddess, and you are required to enter her church to save your game. When you talk to the Priest, he gives you some choices: Divination, Confession, Purification, Resurrection. These options all serve different gameplay purposes such as resurrecting your characters, healing them of status ailments, saving your game, or telling you how much more points you need to reach the next level.” In The Elder Scrolls III: Morrowind, “There are dark shrines around the world (Daedric Shrines) where you can find books and other lore about a not-so-secret demon worshipping cult.” In Xenogears a new religion sets out to destroy God; the “Covenant” in the Halo series follows a religion dedicated to eradication of humanity, and in Eternal Darkness: Sanity’s Requiem, “One corrupted monk even practices an evil religion in secret.” Exodus 20:3 says, “Thou shalt have no other gods before me,” and Christian reviewers are offended when other deities appear in the games. Golden Sun: The Lost Age has a Shrine of the Sea God; in Tenchu: Wrath of Heaven, “you hear about false gods.” and in Fire Emblem: Path of Radiance, “Characters often refer to the ‘goddess’ Ashera, and players will meet Apostle Sanaki, the young girl said to be the goddess’ mouthpiece.”

Magic and Witchcraft

Perhaps reminded of Exodus 22:18, “Thou shalt not suffer a witch to live,” reviewers are offended by thirty-eight games involving magic and witchcraft. Even the popular Pokémon games for young children, in which the player trains cute little animals, comes in for criticism: “To gain the competitive edge, a trainer must use magic potions to heal and strengthen his Pokémon, and wear magic badges to control the stronger Pokémon. In addition, the really powerful Pokémon have psychic powers and can throw curses. This bears disturbing similarities to witchcraft.” Kingdom Hearts: Chain of Memories includes magic spells, and “one character is known as a witch and has the power to rearrange people’s memories.” In the Mortal Kombat II part of Midway Arcade Treasures 2, “Several characters engage in sorcery, lending the game a darkly supernatural feel.”

Ghosts

Eight games contain ghosts. One reviewer said of Star Fox Adventures, “The game has a very mystical feel to it. The Krazoa Spirits are very ghost-like in appearance. When Fox collects one, it gets absorbed into his body, he floats into the air for a moment and his eyes glow slightly blue. That can definitely make Christians uncomfortable.” Perhaps innocently enough, one of the tasks in Luigi’s Mansion is sucking up ghosts with a vacuum cleaner. Metal Gear Solid 3: Snake Eater presents a much gloomier view: “‘The Sorrow’ is a ghost who cries tears of blood and forces you to walk down a seemingly never ending path filled with the ghosts of every single person you killed in the game. This part was eerie and disturbing and the ghosts let out an eerie yell every time you shoot them or punch them.”

Spirit Possession

Finally, reviews of ten games explicitly refer to possessed or misused souls. A review of Abe’s Oddysee says, “The designers have given the player the ability to ‘possess’ other char-
acters, which is a troubling element for Christian players. This ability has to be used in order to complete the game so it is not an option that can be ignored.” In Soul Calibur II, “when you soul charge you focus your soul or ‘spirit’ to get a stronger attack.” At the end of Dark Cloud, “you call out for a wandering soul so you can restore someone’s life.” In Okage: Shadow King, “the boy summons an evil spirit and sells his soul to it to heal his sister’s new disease.” In Final Fantasy VII, “Instead of actually dying, characters in this world diffuse into the planet—into the ‘Lifestream,’ where their consciousness lives on.” Another game with an unorthodox view of the afterlife is F-Zero GX: “There is a level where you have to race against your own soul and they mention something about 2 universes with one being the underworld.”

**NATURAL LANGUAGE PROCESSING**

The term currently used in computer science for analysis of written text is *natural language processing* or NLP. Automatic computer analysis of written text has a long history in social science (Stone et al. 1966; Kelly and Stone 1975), and there has been a huge amount of research activity in this area over the past decade, largely motivated by the need to improve search engines on the World Wide Web (Belew 2000). A useful example is the Clusty search engine, at clusty.com, which not only finds websites but also clusters them into groupings on the basis of the vocabularies they use (Palmer et al. 2000).

Using a system like Clusty effectively requires the user to select keywords that really distinguish the subject of interest from other topics. For example, the word “game” has so many meanings and subcategories that it would not be helpful. In contrast “PlayStation” has only one meaning, and the same can be said for “Jesus” even though a few men in Latin culture have it for their first names. Entering “PlayStation” and “Jesus” into Clusty on November 7, 2006, turned up 176 websites, fully 44 of which were distinguished by the words “Sony” (the maker of PlayStation) and the word “pulls.” These sites referred to Sony’s decision to “pull” a controversial advertisement celebrating the tenth anniversary of the PlayStation that depicted a young man wearing a crown of thorns formed out of the PlayStation symbol, with the caption “Ten years of passion.” The second largest category, containing 30 sites, refers to an offer from the Landover Baptist Church to give a free PlayStation 2 to any child who accepts Jesus as Lord and Savior. Close examination reveals that the offer is a hoax, and the Landover Baptist Church is in fact an anti-evangelical parody website. This “church” is currently proclaiming, “Welcome to Jesusland, formerly the United States of America.” Anti-religion satires are common on the web, and the archetype is the decade-old Church of the Subgenius, that parodies reverence for messiahs by worshiping a pipe-smoking normal guy named Bob who sells tracts and advocates “slack.”

To conclude this section, we thought it would be appropriate to describe Attribute Value Analysis, a new kind of NLP that is in the early experimental phase of development, and forms a bridge back to more traditional kinds of content analysis. Traditional content analysis, whether quantitative or qualitative, relies upon human judgment. NLP is fully automatic and does not incorporate the judgments of human beings. Attribute Value Analysis (AVA) bridges across these two well-established approaches, applying the values of a particular person through an automatic tabulation of the words used in a text document. The first stage in the development of an AVA tool is development of a lexicon of words, which in this example consists of 1,600 adjectives that could describe the qualities a person possesses.
The 1,600 qualities came from a line of research that began with a project exploring the semantic differential. This is a commonly-used questionnaire scale that asks the respondent to judge something in terms of several pairs of opposite adjectives, and has recently been expanded for research over Internet by David Heise (Osgood, Suci, and Tanenbaum 1957; Heise 2001). In the first phase of our research, 36 students in classes on the Sociology of Organizations and on Small Group Processes were asked to think about the qualities they would like to see in people they were working with. Each student wrote down as many as twenty of these terms, then next to each one he or she wrote its opposite (antonym). Then the classes discussed the words and selected eighteen pairs that seemed to cover the most important dimensions of personality that were important for co-workers. This battery of eighteen fresh paired-opposite items was administered to 512 respondents who were members of small work groups. Statistical analysis of the data confirmed that this process of item-generation was working, so the second phase of the project returned to the full list of qualities the students had mentioned, identifying many more pairs of opposites. The third phase of the work involved employing four standard thesauri to generate as many pairs of opposites describing personal qualities as possible, without reusing any of the words or employing any obscure terms.

A computer program was then built around the 1,600 adjectives, in the form of personality analysis software called Self. It was published on the CD-ROM accompanying the book, Computing in the Social Sciences and Humanities (Burton 2002). The program asks a person to rate each of the adjectives on two scales: 1) how good or bad it is for a person to have that quality, and 2) how much or little the respondent has that quality. Thus, the software measures both the person’s values and the person’s self image. The adjectives are rated individually, but the computer can analyze responses in terms of pairs of opposites, looking for contradictions as well as identifying areas where the person makes very strong distinctions. Self-esteem can be measured as the correlation between the two rating scales, which reflects how good the respondent feels his or her personal qualities are, and the very large number of items makes it possible to measure self-esteem in different spheres of life rather than just globally. For sake of the demonstration presented here, the authors of this article used the software and prepared their personal data files (listed below as “Research Subject 1” and “Research Subject 2”) for further analysis.

A second computer program was written to scan text, counting how many times each of the adjectives was used. This was a specialized program, designed just for our research, but since we are both experienced programmers, one of us was able to create and test it within a day. A reviewer of this paper asked how other scholars will be able to use ad-hoc programs like this. The answer, for better or worse, is that as in the physical sciences, they will need to form research teams including the necessary technical expertise. Social scientists who lack programming skills may often need to collaborate with computer scientists if they want to take advantage of some of the latest methods. For example, many language analysis programs are shared, but consist of modules that must be assembled by technically trained people for each particular application.

For analysis by this program, we downloaded reviews of the seven video games described in the earlier section on content analysis of offline games. These reviews were published on the following central game-oriented websites: G4 Cable TV Channel, Game Spot, Game Spy, GamePro, Gaming Age, IGN, and PlayStation Magazine. We concatenated the seven reviews for each game in a single text file, to compare games rather than individual reviews,
and used the program to count how often each adjective was used. Favorable reviews tended to be longer than unfavorable reviews, so the number of times an adjective in the lexicon was used ranged from 701 for Final Fantasy X and 524 for God of War down to 289 for Da Vinci Code and 279 for Constantine.

One kind of output consists of the mean ratings of adjectives on each of our two Self scales, adjusted for how often each adjective was used in the text. For example, the word "magic" was used 10 times in the seven reviews of Final Fantasy X, and research subject #1 rated that word 7 on a scale from 1=bad to 8=good. Research subject #2 rated "magic" at 5 on the same scale. A total of 206 different words from the lexicon were used in the reviews of this game. For each research subject, the number of times a word was used was multiplied by the subject's rating of that word, then the products were summed and divided by the total word count to get the mean. The result for Final Fantasy X was 5.53 for research subject 1 and 5.39 for subject 2. Note that with this method both numbers are valid measures, although only one of us had actually played the game. Figure 1 graphs the results for one subject against the other, for the seven video games.

Clearly, reviewers employed very different words (as classified by the two research subjects) to describe Da Vinci Code than the other games. It differs from the others in repre-
senting conventional religion, if from a heterodox perspective, and from being largely a puzzle game rather than an action game. Closer analysis would be required to explain why Constantine and the Star Wars game stand together but somewhat apart from the other games, but their position at the center of the chart demonstrates that the two research subjects rated the salient adjectives for these two games similarly. The different values systems of the two research subjects are reflected in the curved arc of all seven games.

One way this approach might be used in future studies is as a screening device for textual material to be included in a traditional study. For example, we find it is entirely practical to download a large number of classic novels from the Web, and run them through the process. With only modest programming effort to handle input and output, this could be done for thousands of religious books, using the rating values of (e.g.) the half dozen members of a research team, or of religious leaders representing diverse communities who volunteer to participate in the study. Statistical techniques could then map the books and identify a small subset of them that deserved close scholarly analysis, such as the books central to different provinces of religious literature, or those marking the outer boundaries. Much work remains to be done, exploring the utility of Attribute Value Analysis and the best techniques for employing it, but for present purposes it makes the important point that many new methods could be developed for analyzing data collected online.

ETHNOGRAPHY AND INTERVIEWING IN ONLINE VIRTUAL WORLDS

This final set of pilot studies expands the scope of the research to include real social interaction inside virtual worlds, exploring the two most influential examples, World of Warcraft (WoW) and Second Life (SL). Many ordinary video games can accommodate two or more players sitting in front of the same television set, as we noted in the case of Narnia. In contrast, online games can accommodate thousands of players, with dozens interacting directly in a local area of cyberspace. Our goal in entering WoW and SL was to explore the potential of both environments for observing behavior and for person-to-person interviewing, although they might also be suitable for controlled experimentation and survey methodology.

Both WoW and SL are extremely complex environments, as evidenced by the fact that extensive wikis (collaborative online encyclopedias) have been created for both: www.wowwiki.com having fully 22,918 articles, and slhistory.org having 1,078. Both contain virtual churches and have many other potential implications for religion. In both, the user creates an avatar with a user-selected appearance (Damer 1998) who represents the user in the virtual world, walking and handling objects, and speaking with the avatars of other users through a text system that combines the features of text messaging with online chatrooms. In both environments, avatars can cooperate with each other to accomplish practical tasks, and they are linked in an economic system. Both WoW and SL can be described as games, although it is not really possible to "win" either of them. WoW is more obviously game-like, containing many combats (duels of several kinds) and puzzles (quests and negotiations), with the cultural assumption that players want to increase their status. SL could be described as a software toy (using the term proposed by Will Wright, the creator of the somewhat similar non-competitive video game, The Sims), but it has different meanings for different users, including being the location for online college classes, conference meetings, and religious or spiritual fellowship gatherings.
World of Warcraft could be conceptualized as God of War gone global, and is firmly rooted in the well-established genre of fantasy quest gaming represented by both the table-top role playing game Dungeons and Dragons, which dates from 1974, and by the text-only online quest games generically called Multi-User Dungeons (MUDs) dating from 1978 (Bartle 2004; Lummis and Kern 2006, 2007). To create an avatar in WoW, the user selects one of the following races: Humans, Dwarves, Gnomes, Blood Elves, Night Elves, Draenei, Orcs, Tauren, Trolls, and a faction of the Undead animated corpses known as the Forsaken. The user must also select one of several classes, including five with supernatural powers: Warlock, Mage, Shaman, Druid, and Priest. On January 11, 2007, the number of WoW subscribers surpassed 8 million. When a major expansion of WoW called The Burning Crusade was released on January 16, 2007, 2.4 million copies were sold the first day. Only a handful of religious denominations have more members than WoW does. Given its supernatural symbolism, its engagement of the user’s emotions, and the many hours each week members may participate, one could argue it has greater spiritual significance than all but a half dozen mainstream American denominations. Already, it has become the location for extensive social-scientific research (Williams et al. 2006; Nardi and Harris 2006; Nardi, Ly, and Harris 2007).

Second Life is an open-ended virtual environment in which “inhabitants” can build physical objects such as architecture and working machines, thus creating their own spaces for interacting. Participants buy land from the developer, Linden Labs, and a flourishing economy exists between players using “Linden dollars” (L$). Our first experience with SL came in August 2006 when the senior author gave a keynote address at the annual meetings of the World Transhumanist Association in Helsinki, Finland. The conference was held both at a real university and in Second Life, where an additional 40 international participants could chat with each other in a virtual auditorium, and watch both the speaker and his PowerPoints on virtual screens. As of May 21, 2007, a total of 6,588,455 people had created avatars in Second Life, and 1,734,041 had activated that avatar within the previous sixty days. Between 10,000 and 50,000 tend to be online at any given time during the day.

These virtual worlds contain real humans, and thus the ethical rules for research with human subjects are relevant. Many projects will not require human subjects review, however, because the environments are public places. Anonymity of players is preserved by the fact that both environments prevent them from using their own names. The exact standards for evaluation will depend upon the nature of the research and the nature of the sponsoring organization, but “45 CFR Part 690: Federal Policy for the Protection of Human Subjects” is widely followed by social scientists employed by educational institutions.5

There are several technical requirements for doing research inside WoW and SL, starting with use of a credit card to set up accounts in each. WoW has a modest monthly charge for each player, but SL is free unless the project requires a virtual headquarters location (for example to distribute questionnaires or conduct experiments), or special clothing or virtual devices. A high-speed Internet connection and a fast personal computer, ideally with advanced graphics capabilities, are also necessary. For SL, we found that a good set-up was one computer with two high-resolution screens, one dedicated to the virtual world and the other dedicated to simple graphics and word processing programs where we could manage data collection. This did not work as well for WoW until we obtained a new game-oriented computer running the Vista operating system, but we made great use of a number of auxiliary programs that did such useful things as take an instant census of all the characters online at the moment (Ducheneaut et al. 2007), or chart price trends in the auction market for virtual
objects. Both SL and WoW have a snapshot feature that allows one to save the screen conveniently (Bardzell 2006). As with conventional photography, it is necessary to take account of lighting conditions, because both worlds have night times, and WoW has rainstorms. Both chat systems allow the researcher to paste in prepared questions, one at a time, but WoW has a capability to embed each question in a macro programming routine that allows a single button press to ask the whole question. The text from a chatroom in SL is easy to copy and paste into a word processor, whereas WoW does not facilitate text capture, so a second computer for ethnographic notes may be required.

After only three or four hours practice, a researcher can navigate SL comfortably, but there is no way to study WoW from inside without first becoming an experienced player. This takes at least a full work week, and a month’s preparation developing skill is probably more realistic. To this point, one of us has already spent 400 hours in WoW, with the plan to complete an extensive ethnography. This involved running eight characters as if they were research assistants or native informants, including priests in five fictional religious movements. The environment in World of Warcraft covers the equivalent of hundreds of square miles of forest, agricultural land, hills, towns, and cities, containing thousands of non-playing characters (NPC’s), many of which are dangerous. Depending upon the location and the research goals, the avatar may need characteristics that take effort to gain. In WoW, we first used a human priest named Maxrohn (after a deceased Episcopal Priest from our own family), who could not really navigate the environment safely until he had worked his way to level 20 out of the 70 levels in the game, gaining personal status, protective armor, and many magical spells in the process. Last names in SL are provided by the program, and our first avatar was called Interviewer Wilber to give the people we encountered instant awareness that he would ask questions. To evaluate the potential of WoW and SL for research relevant to religion, we carried out three pilot projects in each.

Development of Morality in WoW

It is widely believed that religion functions to uphold morality in society, by giving people transcendent motives to cooperate with each other (Parsons 1964; Bainbridge 2007). A classic topic of social-science computer simulations is the evolution of cooperation among artificial intelligence agents that lack religion or any other value except enlightened self-interest (Axelrod 1984). In World of Warcraft, we can observe how groups form out of the need for self-defense and to achieve difficult goals (Homans 1950). WoW has provisions for players to link together in temporary groups or long-term guilds, as well as to trade with each other and with NPCs across an economic network. We have been particularly interested to observe and to experience implicit cooperation. To reach a target location safely, it is often advisable to kill the monsters along the path, one by one, and we have often seen individuals in pursuit of similar goals clear a path that benefits all of them, without coordinating their actions through any kind of direct communication. To study group formation, the researcher’s avatar must be willing to join groups formed by other human players, and work with them to accomplish the leader’s quest.

The WoW Approach to Death

Using WoW as her prime example, Lisbeth Klastrup (2006) has analyzed the multiple meanings of death in computer games, including the distinction between permadeath (which
is permanent) and mere death (typically followed by immediate reincarnation). A WoW player faces hundreds of duels to the death against NPCs and avatars, although we set ourselves the goal of seeing how far we could get our priest without having him kill the avatar of a real person. Our priest often died and was transported magically to a cemetery, where he had the choice of asking a spirit to resurrect him, at the cost of “reincarnation sickness” that saps strength, or running a long distance back to be reunited with his corpse. When Maxrohn reached level 10, he “learned” a spell giving him the power to resurrect dead avatars, to spare the owner having to run from the graveyard to the corpse. This is one of the abilities that makes a priest valuable to a group of otherwise more powerful warriors, and it reminds us that real religious professionals fill a particular role in the division of labor of modern society.

**Interviewing WoW Avatars about Their Religion**

At the most prominent training site for human priests, the Cathedral of Light in Stormwind City, we interviewed priests to learn how they understood Holy Light, the core concept of their invented religion. For example, a level 24 priest named Ozymandias, who seemed knowledgeable about the fantasy faith, said, “The Holy Light is a great blessing that comes to us from the Nether.” A level 30 priest named Chariz was less knowledgeable: “Holy... Umm... Light?” We asked whether the Holy Light encourages particular virtues. Chariz replied, “Goodness, hope, and protection of the weak.” In fact, the three cardinal virtues are respect, tenacity, and compassion. Figure 2 shows Maxrohn being welcomed into the cathedral by an artificial intelligence NPC. The cathedral contains absolutely no recognizable religious symbols. The doctrine of Holy Light involves emotional awareness of the unity of the individual with the universe, but deities are not part of the doctrine. Thus, when a priest resurrects an avatar, he draws upon his own spiritual union with the universe, not upon divine aid.

**Photographing Religious Architecture in SL**

The SL search engine allowed us to find cathedrals, churches, temples, one mosque, one synagogue, and other potentially religious sites. We toured them, photographed them, and attempted to determine their current function, as in the following five diverse examples. Skyler’s Peace Garden is a pleasant outpost of the Church of Jesus Christ of Latter-day Saints, where Skyler and his friend Dennis were ready to share their faith with visitors, who come (Skyler estimated) about every ten minutes. Avatars of proselytizers do not constantly inhabit the Second Life Church of God (First Pentecostal Church of Second Life), but a connected web page (slchurch.blogspot.com) proclaims, “The Word of God Reaches the Metaverse. Now with the soul count in second life just passing the 2.5 million mark, we feel that the VR world is in more need than ever for the light of God’s word.” The replica of St. Paul’s Cathedral in London appears to be a work of virtual craftsmanship, rather than a site of worship, and the Bible near the altar is open to James 2:18, “Show me your faith without your works, and I will show you my faith by my works.” At MahaMaya (The Temple of the Devi), we watched a slide show explaining that real life was merely another level of illusion, no more real than Second Life, based on the insights of quantum physics, multiple reality theory, and the Advaita Vedanta of Sankara. Finally, we found a magnificent Japanese temple complex, complete with fish ponds and bridges, vacant and for sale at L$144,000.
Participating in Groups of a Religious or Mystical Nature

We enrolled our avatar in the Monastery of Felix Meritis, which provided a place to "live," trading in our avatar's street clothes for a black robe, sandals, and the appropriate undergarments. Each research trip to Second Life begins in our monk's cell, in a complex of austere, virtual buildings amid beautiful trees that sway in the virtual wind that constantly blows in SL. In the open-sky auditorium outside the SL Mystical Academy, we recorded a lecture on astrological fire signs, as shown in Figure 3. We also participated in the morning chat circle of the Temple of Ishtar and Inanna (comparable Babylonian and Sumerian goddesses), and received an abridged Sumerian dictionary. At the Irreality Temple Complex we meditated and received I Ching, Tarot, and Rune readings. We also attended a Transhumanist slide show in which Giulio Prisco noted the parallels between his movement and religion, and referred to the idea of computer entrepreneur Ray Kurzweil (1999; cf. Moravec 1988) that humans could become immortal by being translated into avatars living in virtual reality. Prisco commented: "Some of the prospects that used to be the exclusive thunder of the religious institutions, such as very long lifespan, unfading bliss, and godlike intelligence, are being discussed by transhumanists as hypothetical future engineering achievements."

Figure 2
Priest Entering the Stormwind Temple of Light in World of Warcraft
Interviewing Visitors to Religious Sites

So far, we have had better experience doing unstructured interviews than structured ones in SL. Some of the usual formal cues that define a social situation are missing, such as a concrete location and knowledge of who the other person really is, while the informality of SL encourages people to chat. When the conversation permitted, we would ask the visitor why he or she had come to the site. At First Unitarian Universalist Church of SL, a “UU” visitor explained, “I come here a lot; it’s peaceful.” An avatar dressed in a foppish manner and calling himself Lord Christopher Woodward alleged he had come to St. Paul’s Cathedral, “To seek solace... the woman I had begun to love is wedding another. And I do not know how to regain my time or my lands.” Thus, the motives that bring visitors to virtual churches may the same as bring them to material churches, but for some there may be an element of play-acting. An hour-long conversation with a visitor to the SL Yoga Ashram seemed completely sincere. She said her views were influenced by many Eastern traditions, predicted we would live major portions of our lives in SL, and announced, “The spirit soul will be at home in the spiritual sky, beyond time and space.”
CONCLUSION

As a collection of pilot studies, this research has shown not only that the electronic gaming culture contains many elements that are opposed to conventional religion, but also that a loose network of Christian critics uses Internet to warn believers about this situation. We have not attempted to evaluate a random sample of video games, since categories like sports games, games for small children, and realistic military games probably seldom involve religion. However, fantasy games like World of Warcraft often do involve religious or other supernatural themes, typically heterodox or cultic in nature. This is the dominant game category for teenagers, and God of War was the highest-rated game of its year. Clearly, the religious implications of electronic games deserve further study by social scientists.

In-game interaction with non-playing characters is a prototype of the extensive interactions with artificial intelligences all people will be increasingly experiencing in real life (Merrick and Maher 2006). Already, many business and government agencies use crude computerized dialogue systems to provide information over the telephone, and the US military has achieved great successes in the automatic driving of vehicles over complex terrain using computer vision. It will be interesting to see whether ubiquitous artificial intelligence will transform our spiritual conceptualizations of ourselves, including the issue of whether humans possess immortal souls, given that human-like robots presumably do not. Preliminary research on this challenging topic can begin now, using electronic games.

The methods illustrated here can be used to examine many other religion-related topics, and vast amounts of religion-relevant text and other data are freely available online. For example, some aspects of our participant observation work in video games would be analogous to viewing a larger number of religion-related amateur videos on YouTube (www.youtube.com/) or a comparable video archive website. YouTube claims to have about 23,900 videos relating to World of Warcraft, far greater than the 530 involving the word “Protestant,” 5,670 “Catholic,” and 6,450 “Jewish,” but in future one would expect amateur video to offer great scope for religious research. Already, online dating services (e.g. personals.yahoo.com) let people search for mates on the basis of religious compatibility, and mate-seeking is actively carried out in virtual worlds, including Second Life and World of Warcraft. It has been a decade since we ourselves began doing online religious ethnography (Bainbridge, 2000), but the convergence of video games with the Web will greatly increase the opportunities for studying religious culture and society online.

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NOTES

1http://www.christiananswers.net/spotlight/games/platforms.html
2http://www.landoverbaptist.org/
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