

PLANTING PIXELS: AN EXPLORATION OF TUTORIALS IN SELECTED
FARMING SIMULATOR GAMES

By

TAYLOR THOMAS HICKLEN, B.S.

A THESIS

In

AGRICULTURAL COMMUNICATIONS

Submitted to the Graduate Faculty
of Texas Tech University in
Partial Fulfillment of
the Requirements for
the Degree of

MASTER OF SCIENCE

Approved

Courtney Meyers
Chairperson of the Committee

Erica Irlbeck

Todd Chambers

Mark Sheridan
Dean of the Graduate School

December, 2014

Copyright 2014, Taylor Hicklen

DEDICATION

To Zach, who played *Animal Crossing: New Leaf* with me over an entire summer. Our produce-trading strategies formed the basis for my entire thesis. Without you, this document wouldn't exist.

And to Thom, who was there for me every step of the way.

ACKNOWLEDGEMENTS

A thesis is never written in a vacuum, and this one is no exception. I was lucky enough to have people from all over the college and beyond to support me.

First and foremost, I'd like to thank my thesis committee for their time and dedication. Dr. Meyers, thank you for your insight and continual commentary throughout the process. Without your help, my thesis would have remained a tenuous link between agriculture and interactivity. You pushed me to do my very best. Dr. Chambers and Dr. Irlbeck, thank you for bringing different perspectives into my research efforts. Your help and your criticism helped me make this document concise and approachable.

I'd also like to thank my officemates, past and present, for always being there with jokes, ideas, and support. Thank you for giving me invaluable Microsoft Word tips and resources to assist with research. You have cheered me on from day one, and that made a huge difference.

Mom, Dad, and Shelby, thank you for believing in me, even though all of this was completely new to you. You listened through all the long-winded explanations and despairing phone calls. I hope this does you proud.

Thank you to everyone who cheered me on regardless of distance. Nikki and Johanna, thank you for introducing me to a wonderful online community. You have been rooting for me for four years and counting. I have the best fan club a boy could ask for.

Finally, I'd like to thank developers, critics, and researchers within the gaming industry for their insight and inspiration, including Robin Haislett, John Teti, Leigh Alexander, Anna Anthropy, Cara Ellison, Jenn Frank, Stephen Totilo, Brianna Wu, Porpentine, and Kirk Hamilton.

TABLE OF CONTENTS

DEDICATION.....	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT.....	vi
LIST OF FIGURES	vii
I. INTRODUCTION.....	1
Background and Setting.....	1
Importance of Study.....	4
Purpose of Study.....	7
Need for Study.....	8
Limitations of the Study.....	8
Definition of Terms.....	9
II. REVIEW OF LITERATURE.....	12
Games as Cultural Vehicle.....	12
Practical Applications of Simulator Games	13
Simulation Usage Within the Agricultural Industry	15
Content Analysis in Video Games	16
Theoretical and Conceptual Approaches to Game Analysis.....	18
Gameplay Versus Narrative	20
Game-Rules Imitate Life-Rules	21
Classifying Imagery Versus Classifying Activity Patterns	23
III. METHODOLOGY.....	25
Purpose and Objectives.....	25
Research Design.....	26
Data Sources	27
Data Collection Methods	28
Data Analysis.....	28
Trustworthiness.....	30
Researcher Bias.....	31
IV. FINDINGS.....	32

Research Objective One.....	33
Research Objective Two	35
Research Objective Three	37
Research Objective Four.....	41
Research Objective Five	43
Research Objective Six	46
V. CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS	48
Conclusions and Discussion.....	48
Research Objective One.....	48
Research Objective Two	50
Research Objective Three	51
Research Objective Four.....	53
Research Objective Five	54
Research Objective Six	55
Recommendations.....	57
Practitioners	57
Researchers	59
REFERENCES.....	61
APPENDIX.....	71

ABSTRACT

Simulator games hold wide appeal for tapping into experiences that would otherwise be inaccessible to consumers. For some players, information about agricultural practices and equipment is transmitted through farming simulator games. The purpose of this study was to perform a qualitative content analysis using an aesthetic lens on the tutorials of two farming simulation game titles—*Harvest Moon 3D: A New Beginning* and *Farming Simulator 2013: Titanium Edition*. The research 1) described the setting and time period portrayed in the farming simulator tutorials, 2) identified the player's demographic characteristic and physical appearance customization options, 3) identified algorithm-controlled elements, such as pre-scripted events, actions, and characters, 4) described the graphic design of visual elements, 5) classified the available options for farming equipment, crops, and livestock through in-game graphics and interface, and 6) described activities the player has direct control over within the tutorials.

Research found that the selected titles took very different approaches to gameplay and narrative, and these approaches had direct implications for how characters, tools, and settings were depicted. *Farming Simulator 2013: Titanium Edition* depicted agriculture as a modernized system of actions performed by a lone individual, while *Harvest Moon 3D: A New Beginning* portrayed agricultural practices as rural and outdated, but with an interlocking system of people and activities. Recommendations for future research and practice are provided.

LIST OF FIGURES

4.1	The player's introduction to Echo Village	33
4.2	An example of setting in <i>Farming Simulator 2013</i>	35
4.3	Appearance customization options in <i>Harvest Moon 3D</i>	36
4.4	Game-specified player character in <i>Farming Simulator 2013</i>	37
4.5	Dunhill introduces himself during an algorithm-controlled event	38
4.6	Hassan and Niko, characters in <i>Harvest Moon 3D</i>	39
4.7	Hana, a character in <i>Harvest Moon 3D</i>	40
4.8	Emma, a character in <i>Harvest Moon 3D</i>	41
4.9	2D background and 3D characters in <i>Harvest Moon 3D</i>	42
4.10	3D equipment with 2D interface in <i>Farming Simulator 2013</i>	43
4.11	Explanation of how to use the sickle in <i>Harvest Moon 3D</i>	44
4.12	Brands in <i>Farming Simulator 2013</i> tutorial menu text.....	45
4.13	Key prompts for specialized equipment in <i>Farming Simulator 2013</i>	46

CHAPTER I INTRODUCTION

Background and Setting

In an interview with Red Bull Music Academy, Yoko Shimomura, composer for popular video game *Street Fighter II*, remembered a surprising moment during a vacation in Spain. “The kids from the neighbourhood would come in from outside and go straight to the [Street Fighter II] machine and start playing, start fighting. And the Spanish kids were saying, ‘dosukoi’ (a sumo exclamation). At that time I thought it was amazing, and I felt kind of proud. I was really, really happy. I feel happy that so many kids overseas learned that Japanese. I didn’t think that would happen at all” (Dwyer, 2014, para. 43). As evidenced in the interview above, video games have the potential to transmit information to the player that would not otherwise be obtained through day-to-day activities.

In 1982, Microsoft released *Microsoft Flight Simulator* for IBM personal computers. *PC Magazine* contributor Will Fastie (1983) said the program had wide consumer appeal and it was “going to sell its share of IBM PCs, and will certainly sell some color/graphics adapters.” (p. 303). To date, Microsoft has published 12 titles in the series’ 24 year history.

Simulator games hold wide appeal for tapping into experiences that would otherwise be inaccessible to consumers. Today, the term *simulator* is used for in a wide variety of game titles. Conducting a search on Steam (a digital games distribution service) for the word “simulator” produces results that range from transportation-centered titles, such as *Train Simulator*, *Euro Truck Simulator*, and *New York Bus Simulator*, to

the fantastical, such as *Artemis Spaceship Bridge Simulator* and *Starpoint Gemini*. For some players, information about agricultural practices and equipment is transmitted through farming simulator games. One reviewer of *Farming Simulator 2013: Titanium Edition* said “I didn’t really know [too] much about farming and wouldn’t be able to tell you a [piece] of equipment if you asked me about it but after playing the game I began to learn about the equipment and how it was used” (Craig, 2013, para. 1).

Ellington et al. (1982) defined simulation games as “games that have been built around a real-life (or imaginary) situation of some sort” (p. 12). Simulator games adapt the systems of pure simulations and incorporate entertainment elements to appeal to players. Farming simulator game titles like *Harvest Moon* and *Farming Simulator* have been in development since 1996. Farming simulator games maintain a stable, invested fan base, as evidenced by steady sales figures (D’Angelo, 2012; Ishaan, 2014). Farming simulator games are available on a variety of platforms and price points (Table 1.1).

Table 1.1
Top Amazon Results Using the Search Term “Farming Simulator Game” on October 28, 2014 (N=10)

Ranking	Title	Platform	Price (USD)
1	Farming Tractor Simulator 3D	Android phones	Free
2	Farm Tractor Simulator	Android phones	Free
3	Tractor Simulator 2014	Android phones	Free
4	Farming Simulator	Xbox 360, Playstation 3	24.63 – 26.53
5	Farming Simulator	Android phones	1.00
6	Farming Simulator 14	Android phones	2.99
7	Farming Simulator	PC	19.99
8	Farming USA	Android phones	1.99
9	Village Farmer Simulator 3D	Android phones	Free
10	Bus Simulator	Android phones	Free

Video games are becoming subject to more increased inspection and evaluation from both alternative and mainstream critics. The Guardian, a long-running British news publication, gave *Farming Simulator 2014* two out of five stars, citing its “lumbering pace and lack of polish” as unfavorable factors (Freeman, 2014). Others sought to pinpoint the source of the genre’s appeal. A search on Metacritic, a popular review aggregate site, listed 21 critic reviews for *Harvest Moon 3D: A New Beginning*. Robert Rath, a games journalist, described his gradual interest in farming simulator games in a 2012 article for the Escapist. “There was something mesmerizing about the way that combine harvester went back and forth in a perfect grid. Watching it harvest row by row, my mind started to wander in a sort of Zen calm” (Rath, 2012, para.7).

Chang (2012) said that to understand the popularity of farming games, researchers “need to visit by turns the literary, historical, economic, and ecological implications of

these games and the landscapes and processes that they model, beginning with the concept of the pastoral” (p. 238). Chang positioned farming games as a digital extension of pastoral imagery by saying their “technological effacement of human, animal, and environmental labor in many ways simply extends conventional pastoral notions of country life” (p. 241).

Importance of the Study

Video games already reach a wide segment of the American population. According to the Entertainment Software Association’s 2013 report on sales, usage data, and demographics within the gaming industry, approximately “58% of Americans play video games” (Entertainment Software Association, 2013, p. 2). The report also said “the average U.S. household owns at least one dedicated game console, PC, or smartphone” (p. 2) and that total consumer spending on the games industry in 2012 was approximately \$20.77 billion.

The number of console sales is only expected to grow in coming years. Sony’s Shuhei Yoshida hypothesized that the sale of 10 million Playstation 4 consoles is being driven by consumers who did not purchase during the previous console generation (Yin-Poole, 2014). VGChartz (2014) reported approximately five million Microsoft Xbox One sales as of August 23, 2014, while Nintendo’s Wii U sold approximately 7.1 million units.

Simulations are equally capable of providing entertainment and education. Moore et al. (2014) found that using an election-themed simulator game in the classroom

enabled students to “construct meaning through the process of making autonomous decisions and reacting to and reflecting upon the feedback provided” (p. 84). Moore et al. said using simulations spurred the students to become invested in the outcome of their fictional political candidates. Simulation has the unique capability to mix fictional narratives with real life information and concepts, making it a valuable tool for educators and communicators.

Younger consumers are increasingly drawn to more instant and responsive forms of media. As Moore et al. (2014) said, “today’s students play video games; send text messages; surf the internet; and frequent social networking sites” (p. 86). Modern technology provides an unprecedented degree of personalization and engagement—factors that younger consumers have come to expect. This interactive medium possesses a wide reach and interactive elements that uniquely position it to appeal to those not involved in the agricultural industry. The content of these farming simulator games, if researched and used correctly, has the potential to increase an individual’s understanding and awareness of agriculture through play. Agricultural literacy can be defined “as possessing knowledge and understanding of our food and fiber system” (Frick and Miller, 1991, p. 52). Under Frick et al.’s definition, for an individual to be considered agriculturally literate, they need to “be able to synthesize, analyze, and communicate basic information about agriculture” (p. 52).

Although ag literacy initiatives such as Ag in the Classroom and Ag in the Bag incorporate more hands-on, experiential methods, these events require facilities, personnel, and proximity, making them a tricky venture for those in urbanized areas.

Past studies of agricultural literacy in urban youth have indicated that agricultural knowledge in these populations is comparatively low. Pense, Beebe, Leising, Wakefield and Steffen (2006) found that although students in urban and suburban schools possessed general knowledge about agriculture, they “scored much lower in agricultural knowledge than students in rural schools” (p. 14). In another study of urban youth, Reidel, Wilson, Flowers, and Moore (2007) found that while urban students improved on an agricultural knowledge test by 9% after being enrolled in an introductory agricultural education course, pre-test and post-test scores within the population remained low. Hess and Trexler (2011) conducted qualitative research on the agricultural literacy of urban elementary students and found that while students generally knew that food came from plants and animals, they became unsure when asked for specifics. “Informants lacked a basic understanding of food processing, manufacturing, and marketing” (Hess & Trexler, 2011, p. 9). Hess and Trexler suggested that agricultural educators move away from passive student experiences to more participatory ones. Past agricultural literacy studies of urban youth have demonstrated the need for innovative agricultural education efforts. Although traditional participatory experiences could prove more beneficial to the formation of agricultural knowledge, such experiences require both infrastructure and resources. By communicating agricultural experiences through a computer-mediated communication channel, farming simulation games remove some of the barriers preventing urban demographics from engaging in agricultural experiences.

Understanding the factors that attract consumers to farming simulator games will allow future agricultural communicators to craft efficient and engaging messages in their

agricultural literacy efforts. Analyzing how interactivity affects the transferal of messages, both intentional and unintentional, will give communicators a reference point for interactive initiatives.

Purpose of the Study

The purpose of this study was to perform a qualitative content analysis using an aesthetic lens on the tutorials of two farming simulation game franchises. Tutorials give players a reasonable expectation of the settings, tools, and activities they will be using throughout the game. Analyzing these tutorials provides a broad overview of game content in a guided, contained setting. This study was guided by the following research objectives:

1. Describe the setting and time period portrayed in the farming simulator tutorials.
2. Identify the player's demographic characteristic and physical appearance customization options.
3. Identify algorithm-controlled elements, such as pre-scripted events, actions, and characters.
4. Describe the graphic design of visual elements.
5. Classify the available options for farming equipment, crops, and livestock through in-game graphics and interface.
6. Describe activities the player has direct control over within the tutorial.

Need for Study

Video gaming is an emergent and steadily growing cultural field. In order to engage with the medium, agricultural communicators first need to understand it. This research addresses AAAE's National Research Agenda (Doerfert, 2011) Priority Two, which states, "related research, education, and outreach activities must continually change to address the new challenges and opportunities brought about by rapidly advancing technologies" and more specifically, "identify potential gaps in knowledge, socioeconomic biases, and other factors that constrain effective communication and educational efforts to various target audiences" (p. 8). Prior studies have conducted content analyses on portrayals of agriculture in film and television (Specht, 2013), but few, if any, have examined the depiction of agriculture in video games. This study is needed because video games are gaining widespread acceptance from consumers, and consequently, more scrutiny from critics. Understanding how this medium operates and communicates information will allow future agricultural communicators further engage with interactive media. As the world population grows more urbanized, farming simulator games could be a good teacher for those who live at a distance from agricultural practices.

Limitations of the Study

This content analysis is limited to *Farming Simulator 2013: Titanium Edition* and *Harvest Moon 3DS: A New Beginning*. These simulator games were selected based on their sales figures and recency. 2012's *Farming Simulator 2013* sold approximately

405,634 copies in its first week, making it the top seller for the November 4, 2012 VGChartz sales report (D'Angelo, 2012). 2012's *Harvest Moon 3D: A New Beginning* sold 81,131 copies at launch despite being limited to Nintendo's 3DS handheld (Ishaan, 2014). Although a newer entry of the Harvest Moon series is available, it has not been made available outside of Japan, excluding it from this study.

The scope of this study was limited to the tutorial segments of *Harvest Moon 3D: A New Beginning* and *Farming Simulator 2013: Titanium Edition*. Since each gameplay experience is dependent on player actions, it is impossible to survey every possible scenario in farming simulator games. Tutorials provide a guided explanation of tools, activities, and actions players will see throughout the rest of the game in a contained environment, allowing researchers to analyze a reasonable portion of gameplay.

Farmville was excluded from the study because its status as a simulation game is under dispute. Chorney (2013) described games such as Farmville as the process in which feedback and reward engage players without providing valuable content, or *gamification*. Chorney cited these characteristics as why some classify Farmville as a social game. Although Farmville incorporates agricultural iconography, its social game structure excluded it from the scope of this study.

Definition of Terms

The terms listed below were operationally defined to fit the scope and descriptive nature of this study.

Aesthetics are how a game “looks, sounds, tastes, and feels...they have the most direct relationship to the player’s experience” (Schell, 2008, p. 42).

Algorithm refers to the “computer program that controls the game, and responds to the player’s input” (Wolf, 2008,p. 24). Not only does the algorithm control graphics and sounds, but also in-game events and computer-controlled players within a game.

Game – According to Juul (2011), games have the following six features: a) rules, b) variable, quantifiable outcomes, c) valorization of outcomes, d) player effort, e) player-attached outcome, and g) negotiable consequences (p. 36).

Gameplay refers to “the players’ actions, strategies, and motives” (Aarseth, 2003, p. 2).

Game-structure refers to “the rules of the game, including the simulation rules” (Aarseth, p. 2).

Game-world refers to “fictional content, topology...level design, textures,” and other aspects (Aarseth, p. 2).

Graphics “involves a changeable visual display on a screen” (Wolf, 2008, p. 24).

Graphical aspects that could be analyzed also include those also found in film, such as lighting, point-of-view, color, and visual design.

Interactivity refers to “what the player does with the interface during gameplay...and what the player’s character is doing on-screen” (Wolf, p. 24). Simply put, interactivity is composed of external actions, such as pushing buttons or moving joysticks, and internal actions, such as the player character running or jumping on-screen.

Interface “is at the boundary between the player and the game” (Wolf, p. 24). It includes both external elements of player input—such as controllers, keyboards, computer mice, screens, and speakers—and internal elements, such as on-screen buttons and menus.

Interior world refers to the “self-contained on-screen world of the game itself” (Wolf, p.2 8) and the player’s involvement with it.

Simulation – According to Hartmann, “*a simulation imitates one process by another process*. In this definition, the term “process” refers solely to some object or system whose state changes in time. If the simulation is run on a computer, it is called a *computer simulation*” (Hartmann, 1996, p. 1).

Simulation games – According to Narayanasamy et al. (2006), simulation games are computer games that “make considerable effort to recreate, to a high degree of verisimilitude, some aspect of the real world (p. 4).

CHAPTER II REVIEW OF LITERATURE

The multimedia aspect of simulator games lends itself well to many different industry applications and research perspectives. This chapter will provide a brief overview of how simulator games have been used and studied, as well as the range of theoretical and conceptual frameworks used.

Games as a Cultural Vehicle

In order to situate games in a wider cultural context, researchers have drawn from other forms of media to form a theoretical basis. Berger (2002) said he thinks “it makes good sense to think of video games as a kind of text that comes in many different genres and blended genres—and thus as an art form—rather than seeing video games as a new medium” (p. 8). Kerr (2006) likened the game industry to the film industry by noting that they have similar promotional business practices and approaches to risk. Kerr said only an estimated three percent of digital games make a profit, and because of this, “publishers tend to commission games that fall into particular generic categories, as in the film industry” (p. 45).

As with every medium, an important aspect of video games is how they fit into the day-to-day activities of their consumers. Analyzing video game usage adds another dimension to the notion of video games as a cultural vehicle. Niman (2013) applied Veblen’s *Theory of the Leisure Class* framework to gain insights into how video games integrated into users’ everyday lives. Applying Veblen’s framework revealed intrinsic and extrinsic motivators for why players viewed completing virtual tasks as

entertainment (Niman, 2013). Video games can be a form of conspicuous consumption, or a display of an individual's social status and relative success. As Niman (2013) stated, "the luxury of wasting time becomes the highest measure of economic success" (p. 33).

Research has also found that this form of conspicuous consumption has the potential to change cultural perceptions. Chen (2013) found that Taiwanese console gamers "identified with Japan more positively than light users" (p. 422), suggesting that Japanese games served as a kind of positive cultural vehicle that fostered more positive attitudes toward Japanese culture (p. 422). Scholars found that video games have the potential to not only transmit messages, but also change perceptions of status and culture through interactivity.

Practical Applications of Simulator Games

Simulation has served as a valuable tool in workplace environments and in research. Hartmann (1996) said "major parts of current research in the natural and social sciences can no longer be imagined without simulations" (p. 1). Hartmann said every discipline has a little potential use for simulations within their research scope. Grüne-Yanoff and Weirich (2010) argued that "simulation is an important new tool for the social scientist" (p.45). Grüne-Yanoff and Weirich highlighted "its dynamic aspects, [and] its ability to compute vast amounts of data" (p. 45) as aspects that set simulation usage apart from other scientific tools. Simulations can be used for representational, predictive, and descriptive means, making them a versatile tool for both the researcher and the practitioner. The results of a simulation cannot be predicted during its construction or

manipulation, which “allows seeing the simulation as an unpredictable and opaque entity, with which one can interact in an experimental manner” (Grüne-Yanoff & Weirich, 2010, p. 26). This unpredictable interaction element distinguishes simulations from experiments or models.

Many different fields have used simulation games as a supplement to existing training. In many cases, simulation is more cost-effective, safe, and versatile than on-site training, making it a viable option for several businesses (Salas et al., 2009). Faria (1998) said “business simulation game usage in academia and in industry has continued to grow over the past [10] years with expectations of further growth” (p. 22). Salas et al. (2009) said simulation-based training has many advantages for management education, including affordability, reduced risk for experimentation, and a reduced time-frame for learning complex strategies.

Researchers have found potential benefits in using simulation games as supplementary material to existing curriculum. Fong (2006) described the Singapore Armed Forces’ initiative to use simulation games with soldiers as a supplement to their existing training. Fong said “the potential of computer games as a cost-effective conduit to motivate and engage a game-savvy generation of soldiers in tactical thinking outside of scheduled simulation sessions has not gone unnoticed among various armed forces” (p. 452). Squire and Barab (2004) described students’ incorporation of simulation games into history lessons as “recursive cycles of failure and revising strategies, which led to frustration, engagement and learning” (p. 505). Simulation games gave students a direct, interactive relationship with complex historical concepts (Squire & Barab, 2004).

In some cases, simulations and the games that arise from them prove as effective as on-site training. Through a review of relevant scholarly literature, Faria and Dickinson (1994) found that 75% of the studies found business simulation games to be superior to other methods of sales management training. Casutt et al. (2014) found that older drivers “practicing to drive in different traffic scenarios using a driving simulator significantly improved their on-road driving performance” (p. 12), citing improving cognition and on-road performance in older adults. Studies of flight simulators also cited improvements. Ortiz (1994) found that a group trained using a computer-based training device “performed significantly better than the control group” (p. 285) during flight of Cessna 150 and 152 aircraft. Dennis and Harris (1998) performed a similar experiment with desktop simulation programs and said “the results clearly show that desktop simulation was beneficial in the initial stages of flight training” (p. 273).

Simulation Usage Within the Agricultural Industry

The agricultural industry has also seen the potential benefits of using simulations in their practice. Simulator games may have future usage in veterinary education as “interest is increasing and there are already several games and virtual reality simulators available in the veterinary curriculum” (de Bie and Lipmann, 2012, p. 19). Past studies have suggested the agricultural industry could also adopt simulator games for supplemental use (Yoo and Kim, 2014). Barreteau et al. (2007) proposed the usage of simulator games to navigate complex and conflicting natural resource management issues. “There is a need for simulation tools to become more interactive to help users

learn collectively about resource dynamics and share a consensual vision about resource management” (Barreteau et al., 2007, p. 187). Barreteau et al. (2007) cited *Shrub Battle*, which “uses board-based interactions to generate natural events in the simulation,” and *Fishbanks*, which uses a computer model “to simulate vegetation dynamics and wildlife dynamics over a virtual landscape” (p. 188).

Although simulation game studies examined the benefits of using simulation games to roleplay environmental issues and test existing conflict management models, few looked at the actual content being presented in these games. The current study will address this gap in understanding in an attempt to broadly describe the content and images found in farming simulator game tutorials.

Content Analysis in Video Games

Content analysis in video games first stemmed from analyses of how video games presented acts of violence. Increased scrutiny of violent arcade games in the 1990s led to more research on video game violence. These studies helped classify and contextualize video game violence in an academic setting using content analysis. These ranged from analyses of how in-game violence is presented and contextualized (Smith, Lachlan, & Tamborini, 2003) to more comparative analyses between video games that were rated “Teen” and their content markers—instances of violence, profanity, and other mature content that helps the Entertainment Software Ratings Board (ESRB) determine the game’s content rating (Haninger & Thompson, 2004). Smith et al. (2003) found that the amount of violence increased with the content rating and that video games with mature

ratings were “more likely to feature violent interactions with human perpetrators” (p. 66). Haninger and Thompson (2004) found that teen-rated video games “contained much more content that warrants an ESRB content descriptor” (p. 863), indicating a discrepancy between ESRB rating descriptors and actual in-game content. Further research sought to describe effects of violence against in-game animals (Chittaro and Sioni, 2012) and moral disengagement factors in first-person shooters (Hartmann, Krakowiak, & Vogel, 2014). Chittaro and Sioni found that “performing aggressive actions against virtual humans and anthropomorphic beings in video games may not necessarily generalize to aggressive actions towards non-human animal species” (p. 237). Their findings suggested that in-game violence may not necessarily serve as a link to real-world aggression. Hartmann et al. (2014) found that “justification of violence and dehumanization are prevalent moral disengagement factors in the narratives and general scenarios of [first-person shooter] games” (p. 327). Their findings suggested that first-person shooter games apply distancing tactics to diminish the perceived severity of in-game violence.

Video game content analysis soon extended beyond the video games themselves. Combs (2010) analyzed acts of violence depicted in video game advertisements and trailers. Miller and Summers (2007) described how genders were given different roles, appearances, and apparel in video game magazines. Ivory (2006) analyzed the frequency of female characters mentioned in online game reviews. Video game content analysis developed from measures of in-game violence to more metatextual analyses of how video game-centered media portrayed violence and gender.

Theoretical and Conceptual Approaches to Game Analysis

With the rising appeal of video games, from the 1970's onward, came a wider range of theoretical approaches to game analysis. Aarseth (2003) identified three types of general elements researchers could find within video games. Gameplay was defined as player actions, strategies, and motives. Game-structure, used interchangeably with game-rules, referred to the algorithm-imposed systems that govern and regulate player activity. Game-world was defined as the lore, landscapes, visual design, and patterns associated with the world depicted in the game. Each came with its own potential types of research perspectives. For gameplay, Aarseth (2003) identified sociology, ethnology, and psychology as a few potential gameplay research perspectives. Game-structure elements lent themselves to inquiries from business, law and computer science research perspectives. Game-world research perspectives drew from art, aesthetics, history, cultural studies, and economics. Aarseth's research found that each element of a video game opened up new sets of research possibilities.

Kirkpatrick (2011) suggested using a modified aesthetic theory for video game analysis. Kirkpatrick said "it seems natural to refer to 'game worlds' [which] suggests that they have powerful aesthetic properties" (p.12). Individuals use aesthetic theory to conduct a personal evaluation of both beauty and function in more traditional art forms, such as paintings, songs, and literature. Cox and Many (1994) described how a child's aesthetic response to a piece of literature led the child to form deeper connections and insights with the work through the lens of her own personal experience. Rather than simply analyzing the work for information to be retained, the child focused on what

messages the work conveyed to her and related them to past personal experiences. An aesthetic lens encourages the viewer to draw connections to past experiences and other associations, mapping the general feeling evoked to specific features in the text being examined. Repp (1997) performed a similar experiment with 11 different recordings of a quantitatively average musical performance, which only differed in terms of expressive timing and dynamics. Repp gave judges a score sheet with an 11-point scale, and a space to write additional comments. Judges noted strengths and weaknesses of the highest-rated individual performances, but more average performances in terms of dynamics and tempo produced only generalized comments (Repp, 1997). These findings suggested that a higher degree of expression enabled viewers to more accurately describe specific traits and features. Aesthetic theory recognizes that formal and non-formal qualities cannot be easily separated in a body of work.

Given the long history of agricultural depictions in poetry, landscapes, and song, aesthetic theory is uniquely suited for a content analysis of farming simulation games. Boos et al. (1998) studied the poetry of three nineteenth-century Victorian women and found that their poems stemmed from childhood experiences of animal herding, cattle management, and the agrarian lifestyle, incorporating rustic imagery and depictions of natural beauty to address themes of loss and grief. Witkowski (1996) studied American genre painting from 1835 to 1868 and found rural bargaining to be a major theme, tracking its popularity from 1835 onward. Determining the aesthetic qualities that appeal to a non-agricultural audience could lead to more powerful, potent, and accurate agricultural messages within the medium.

Gameplay Versus Narrative

Over the years, researchers have proposed a variety of ways to analyze video games, but came to no definitive conclusion, as the methodology debate continues today. Corliss (2011) provided an overview of the methodological debate within games analysis, outlining past studies and the conflict between ludology, or the study of games, and narratology, the study of narrative. Kirkpatrick (2011) defined ludology as “a branch of game studies...that emphasizes the gameness of video games and rejects attempts to analyse them as ‘narratives’ or texts” (p. 11). In this context, a game study refers to a close formal analysis of a digital game. Corliss (2011) said narratology “emphasizes the textual and intertextual qualities of video games...framing them as digital or interactive narratives” (p. 4). Simply put, narratology uses the methodologies of text analysis, examining the game itself, where the game is situated in a larger cultural context, and how each game relates to and references others. Researchers attempted to prioritize narrative over gameplay (player actions, strategies, and motives), arguing that consumer interest in story is what drives them to gameplay experiences. Ince (2006) positioned narrative as a supplement, not a substitute, for gameplay. “Even the small percentage who buy games for the story is still looking for an enjoyable gameplay experience, because without it, they are unlikely to travel very far into the game” (Ince, 2006, p. 47). The enjoyment of a game’s story hinges on the relative difficulty or ease of its gameplay mechanics. Players have little incentive to advance the narrative if their gameplay experience is a frustrating one (Ince, 2006). Todd (2007) emphasized the importance of narrative as a way to summarize the entirety of the gameplay experience. “As soon as

you start to tell any interested party what your game is about, you're telling its story” (Todd, 2007, p. 42).

Narratologists see “games as stories,” and ludologists see “games as rule-based simulations” (Howard, 2008, p. *xi*). Howard acknowledged the prior debate between narratologists and ludologists, and then proposed a third option. Howard’s idea of quests attempted to position narrative and gameplay as interlocking systems, as opposed to separate entities. Howard proposed that quests, “in which a protagonist or player collects objects and talks to characters in order to overcome challenges and achieve a meaningful goal” (p. *xi*), serve as a bridge between gaming and narrative. In more specific terms, “quests are action that is meaningful to a player on the level of ideas, personal ambitions, benefit to society, and spiritual authenticity” (p. *xiii*). Under Howard’s definition, quests provide narrative-based context and meaning to gameplay, thereby linking them together. Although video game researchers proposed a variety of ways to analyze game content through narrative and gameplay, no unified research perspective prevailed.

Game-Rules Imitate Life-Rules

Despite their simplified and streamlined nature, games often imitate and replicate rules and patterns found in life. Kovalik and Kovalik (2008) found that by playing a card game in conjunction with discussing the need for structure in everyday life, students “had come to realize that our everyday lives can only be normal if we follow the rules established by society” (p. 124).

Mello (2006) said that skills acquired in gaming could be translated into cultural and social capital in other areas, “having application not only in the subculture, but outside as well” (p. 175). Games offer some participants an additional layer of context for their real-life social interactions, giving them a wider concept and knowledge base to work from outside of the role-playing structure. Mello said that respondents reported a deeper knowledge of history, weaponry, and mythology trivia from playing fantasy role-playing games. In addition, respondents indicated an increase in social skills, such as the ability to mediate a social situation, and empathy attributes, such as understanding how others think and anticipating their actions (Mello, 2006).

Gentile et al. (2009) found “evidence for a causal long-term relation between prosocial game play and prosocial behavior” (p. 6). Their findings suggested that just as aggressive games could cause a downward spiral of aggressive behavior, prosocial video games could cause an upward spiral of prosocial behavior. Games have the capability to convey structure, empathy attributes, and prosocial behaviors by imitating societal rules in a virtual environment.

Although the benefits of being exposed to cultural and social concepts through video games can be helpful, these tendencies also have the risk of forming detrimental and addictive behavioral patterns. Haferkamp and Herbers (2012) used the social game *Farmville* as a way to examine user motives. They found that “entertainment, challenge, and escapism were the strongest motives for using the browser game” (p. 214).

Burroughs (2014) found that browser games such as *Farmville* engage users through daily rituals “where players engage with a low level of entry for the purposes of

decompressing and transitioning from the complexities of modernity” (p. 162). Chou and Ting (2003) found that flow experience or “the emotional state embracing perceptual distortion and enjoyment” (p. 663) had a much stronger impact on addiction. Although video games provide users with a safe space to decompress from their day-to-day lives, the factors that make video games so powerful as a teaching tool also have the potential to cause harm through the formulation of addictive behavioral patterns.

Classifying Imagery Versus Classifying Activity Patterns

The act of classification has proven another source of ongoing debate within gaming research. Due to the interactive, visual nature of the medium, researchers have disagreed on which areas of analysis would be most effective. Researchers more closely aligned to film studies favored image classification, defined as “grouping images into (semantically) meaningful categories using low-level visual features” (Vailaya et al., 2001, p. 117). King and Krzywinska (2006) said video games draw from qualities of other forms of media, but still offer characteristics of their own. The authors argued that film study perspectives provide a useful set of tools for formal analysis of video games. King and Krzywinska (2006) referred to formal analysis as the examination of “the precise manner in which sounds and images are organized on the screen” (p. 113) and cited the way images are framed, visual themes, composition, and uses of the passage of time and visual space as a small sample of formal aspects within digital games.

Wolf (2003) analyzed video games as a visual medium and found that they historically rely on abstraction to communicate concepts and ideas to the player. “Even

the most representational games available, or perhaps even imaginable, will always be to some degree an abstraction of the things or situations they are trying to represent or simulate” (Wolf, 2003, p. 64).

Conversely, other researchers argued that the skill-based nature of video games requires a different approach. Film, unlike video games, is not dependent on participation or performance to advance. Fencott et al. (2012) proposed classifying game genres under a different taxonomy than film genres “because of the investment in knowledge and particular skills that is required” (p. 21). Fencott et al. also expressed interest in how different activity patterns allowed researchers to classify and compare game genres in new ways. Fencott et al. found classifying games by the activities the player performs to be more helpful than relying on conventional genre labels. Addressing all the skill-based activities that players undertook in a video game revealed a potential need for a new type of taxonomy in video game classification.

CHAPTER III

METHODOLOGY

Agriculture-centered media is evolving from traditional marketing forms toward something more user-centered and experiential. Farming simulator games rely equally on developer programming and user actions, making them more symbiotic and unpredictable than print or video. This chapter provides this study's purpose and objectives, research design, data sources, data collection methods, and data analysis procedures.

Purpose and Objectives

The purpose of this study was to perform a content analysis with an aesthetic lens on the tutorials of two farming simulation game franchises. Tutorials guide the player through the settings, tools, and activities they will be using throughout the game. Analyzing these tutorials provides a broad overview of game content in a guided, contained setting. This study was guided by the following research objectives:

1. Describe the setting and time period portrayed in the farming simulator tutorials.
2. Identify the player's demographic characteristic and physical appearance customization options.
3. Identify algorithm-controlled elements, such as pre-scripted events, actions, and characters.
4. Describe the graphic design of visual elements.

5. Classify the available options for farming equipment, tools, crops, and livestock through in-game graphics and interface.
6. Describe activities the player has direct control over within the tutorial.

Research Design

This study used a qualitative content analysis with an aesthetic lens to address the research objectives. Aesthetic theory has been used in scholarly research as a way to examine art and culture. Eaton (1998) referred to aesthetic analysis as the ability “to talk openly about subject matter and characters and artists’ intentions and social context—to speak, that is, as if there were something out there and in here that art deals with” (p. 85). Aesthetic theory attempts to place formal elements such as composition, texture, and light in a broader societal and cultural context, adding valuable critical insight to close examination. Herwitz (2008) positioned aesthetic theory as a kind of counter-supplement to more formal methods of analysis. “Formalism wishes to restrict art to a small and closely-defined set of properties: properties of the medium” (Herwitz, 2008, p. 79). Herwitz said formalism becomes difficult when trying to untangle formal properties from non-formal properties. “It is the synergy of these [formal and non-formal features] (however they have been defined) which counts for the art” (Herwitz, 2008, p. 79). Aesthetic theory acknowledges that formal and non-formal features of a work are sometimes difficult to separate from each other. An aesthetic lens charts the perceived expressiveness of a work to the specific features that create that expressiveness. An untrained eye can perceive whether a film is good or bad, but experienced critics can

trace their aesthetic perception of goodness or badness back to individual features of the film, such as composition of shots, use of sound, or characterization.

This study used a qualitative content analysis to obtain rich data that could be related back to users' everyday lives. According to Singletary (1994), qualitative investigation "is guided by the assertions that meaning is both individual and shared, that it comes from interaction with others, and that it is contextual" (p. 267). By extension, content analysis is analyzing the individual, contextual meaning of a work within a medium. Treadwell (2011) said "it is possible to analyze the content of almost any recorded medium" (p. 178). While video games are an interactive medium, they can still be recorded, qualifying them for content analysis. With the interactivity aspect, however, comes increased subjectivity. Fortunately, qualitative research is designed for such subjectivity. Cresswell (2003) asserted that qualitative research was interpretive research and said "the researcher filters the data through a personal lens that is situated in a specific sociopolitical and historical moment" (p.182). Accordingly, this qualitative content analysis was conducted using an aesthetic lens. An aesthetic lens acknowledges that subjective insight allows the critic to make connections to past works and personal experiences, allowing for more substantiated criticism.

Data Sources

Data for this study were collected from two sources: *Farming Simulator 2013: Titanium Edition* and *Harvest Moon 3D: A New Beginning*. *Farming Simulator 2013: Titanium Edition* was obtained via Steam, a digital distribution service for personal

computers. A physical copy of *Harvest Moon 3D: A New Beginning* for the Nintendo 3DS was obtained via a local GameStop retailer.

Data Collection Methods

Data from *Farming Simulator 2013: Titanium Edition* was collected using NVIDIA ShadowPlay, a video-capture program for NVIDIA graphics cards. Video footage of the in-game tutorial was then imported into Adobe Premiere Pro CC 2014, video editing software from Adobe, for close analysis. Once video was imported and rendered, the researcher found frames that aligned most closely with the themes in the codebook and exported them as individual image files.

Data from *Harvest Moon 3D: A New Beginning* was collected using the researcher's iPhone 4S, due to its unobtrusive size and comparable video quality. Due to the handheld nature of the Nintendo 3DS, no native video-capture solution exists for the system. Footage from the iPhone 4S, although low-quality in places, was able to capture both the upper and lower screens of the Nintendo 3DS. Video footage of the in-game tutorial was then imported into Adobe Premiere Pro CC 2014 for close analysis.

Data Analysis

The researcher used Adobe Premiere Pro CC 2014 to conduct frame-by-frame analysis and image file conversion of video footage. A researcher-developed codebook was used to guide close analysis (Appendix). Steps taken to analyze research data were as follows:

1. The researcher captured video footage of each farming simulator tutorial in its entirety.
2. Video footage was imported into Adobe Premiere Pro CC 2014.
3. The researcher used a codebook (Appendix) to guide analysis of tutorial footage.
4. The researcher noted instances in frames that aligned with research objectives.
5. The researcher exported relevant frames of video footage as individual image files.
6. The researcher used individual image files for close qualitative analysis with an aesthetic lens to compile themes, tropes, and narrative techniques used in *Farming Simulator 2013: Titanium Edition* and *Harvest Moon 3D: A New Beginning*.

This qualitative content analysis with an aesthetic lens sought to place the tutorials of these two farming simulator games within a larger societal and cultural context. While simply identifying the parts of a farming simulator and how they function conveys a general sense of how farming simulator games operate, aesthetic analysis attempts to describe how they intersect and cohere. Farming simulator games are comprised of nested systems, and merely identifying them gives no impression of how these systems interact with each other. Ducasse (1997) said “the critic traces his evaluation of the object he is judging to the specific features that make it for him predominantly pleasing or displeasing” (p. 343). Consequently, this study sought to describe the aesthetic features of farming simulator tutorials, and through such aesthetic content analysis, provide both subjective and substantial criticism of both selections.

Trustworthiness

In a qualitative study, trustworthiness ensures that research findings are reliable enough to be used by scholars (Lincoln & Guba, 1985). Lincoln and Guba (1985) described four aspects researchers must use to establish trustworthiness: credibility, transferability, dependability, and conformability.

Credibility, also referred to as truth value, ensures that results are accurate and truthful. Patton (1999) suggested “using multiple perspectives or theories to interpret the data” (p. 1193) in order to acquire credible data within qualitative analysis. By combining qualitative content analysis with principles of aesthetic theory for a research lens, this study used both objective and subjective perspectives to inform results and establish credibility. Including information about researcher bias and prior experience also established credibility within the study

Transferability, also referred to as applicability, ensures that methods in this study can be replicated by future scholars in differing conditions. Krefting (1991) defined transferability as “the degree to which the findings can be applied to other contexts and settings or with other groups” (p. 219). This study included detailed descriptions of data sources and collection methods to ensure transferability of the findings.

Dependability, also referred to as consistency, ensures that replication of the study within a similar context will produce similar findings. According to Krefting (1991), being able to ascribe variations in data to a specific source is a way to establish dependability within qualitative research. This study used an aesthetic lens to trace

findings back to specific features of the selected tutorials; therefore, establishing dependability within the context of the study.

Confirmability, according to Shenton (2004), is where steps are taken “to help ensure as far as possible that the work’s findings are the result of the experiences and ideas of the informants, rather than the characteristics and preferences of the researcher” (p. 72). According to Shenton (2004), “detailed methodological description enables the reader to determine how far the data and constructs emerging from it may be accepted” (p. 72). To establish confirmability, this study included detailed methodological descriptions in addition to subjective analysis, including explanatory screenshots pulled from raw data.

Researcher Bias

I have extensive prior experience with video games, both on game consoles and personal computers. With this experience comes familiarity with tropes, techniques, and controller methods within the medium. However, I do not possess the same degree of experience with farming simulator games. I have played *Farming Simulator 2013: Titanium Edition* for a prior research study about in-game brand representations (Hicklen, 2014), but prior to this study, I had not completed the in-game tutorials. While I have played prior entries in the Harvest Moon franchise on my Nintendo 3DS handheld, I had not completed the tutorial sequence for *Harvest Moon 3D: A New Beginning* prior to this study.

CHAPTER IV

FINDINGS

The purpose of this study was to perform a qualitative content analysis with an aesthetic lens on the tutorials of two farming simulation game titles. This content analysis was performed in order to determine what agricultural elements and themes were present in tutorials of farming simulator games.

To accomplish this purpose, the following research questions guided this study:

1. Describe the setting and time period portrayed in the farming simulator tutorials.
2. Identify the player's demographic characteristic and physical appearance customization options.
3. Identify algorithm-controlled elements, such as pre-scripted events, actions, and characters.
4. Describe the graphic design of visual elements.
5. Classify the available options for farming equipment, tools, crops, and livestock through in-game graphics and interface.
6. Describe activities the player has direct control over within the tutorial.

The tutorial for *Harvest Moon 3D: A New Beginning* was built into the main storyline, and introduced the player to the setting, characters, actions, and events through mostly narrative. The tutorial section for *Farming Simulator 2013: Titanium Edition* introduced the player to specific gameplay actions through 11 different specific scenarios, from cultivating a field to harvesting crops.

Research Objective One

Research objective one sought to describe the setting and time period portrayed in the farming simulator tutorials. For the purposes of this study, setting refers to the specified location in which the game takes place. Time period refers to the specified year, decade, or chronology in which the game takes place.

As shown in Figure 4.1, *Harvest Moon 3D: A New Beginning* set its tutorial in Echo Village, a struggling “settlement surrounded by mountains” (Natsume Inc. & Marvelous AQL, 2012). The time period was not specified, but the appearances of characters (Figures 4.5, 4.6, 4.7, 4.8) and the usage of in-game tools (Figure 4.11) suggested a more rural and outdated setting and time period.

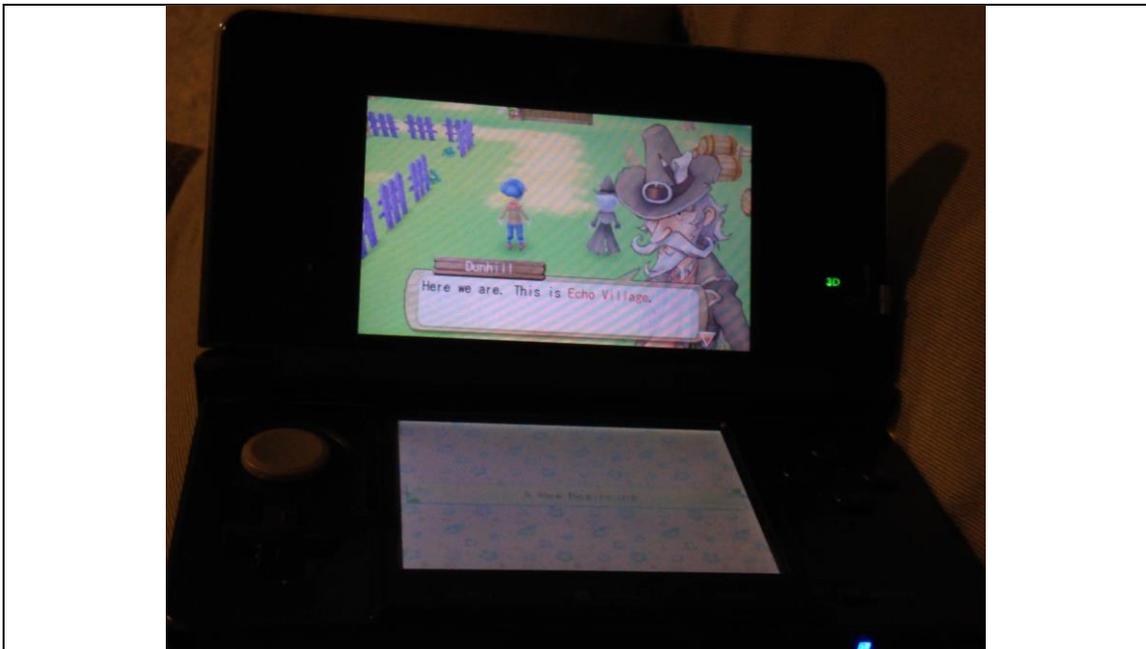


Figure 4.1. The player’s introduction to Echo Village in *Harvest Moon 3D: A New Beginning*.

Harvest Moon 3D: A New Beginning conveyed setting through text descriptions, character dialogue, and visual elements. In-game exposition positioned Echo Village as a struggling community “once home to many people and full of life” (Natsume Inc. & Marvelous AQL, 2013). The local innkeeper decided to migrate to another city with his son shortly after the player’s arrival and said “there’s no point in an inn with no one coming to stay” (Natsume Inc. & Marvelous AQL, 2013). Dunhill, the player’s guide throughout the tutorial, provided a similar assessment and said “the falling number of people means there’s no work, and that drives more people away” (Natsume Inc. & Marvelous AQL, 2013). The in-game map displayed during the tutorial showed the player that buildings and people were sparse, with only five or six structures spread across the right side of the map.

In the 11 tutorials of *Farming Simulator 2013: Titanium Edition*, neither the setting nor the time period was specified. As shown in Figure 4.2, the inclusion of both rural imagery and modern technology suggested that the game was set closer to the present day. The game featured pastoral imagery and a constant stream of moving cars but did not explicitly state the setting or time period.



Figure 4.2. An example of setting in *Farming Simulator 2013: Titanium Edition*

Research Objective Two

Research objective two sought to identify the player's demographic characteristics and physical appearance customization options within the selected farming simulator tutorials.

As shown in Figure 4.3, *Harvest Moon 3D: A New Beginning* provided the player with many customization options, including gender, name, birthday, skin tone, facial features, hairstyle, hair color, eye color, and apparel. The player character always remained visible from the game's third-person perspective. The customization options were heavily stylized due to their bright colors and material textures.

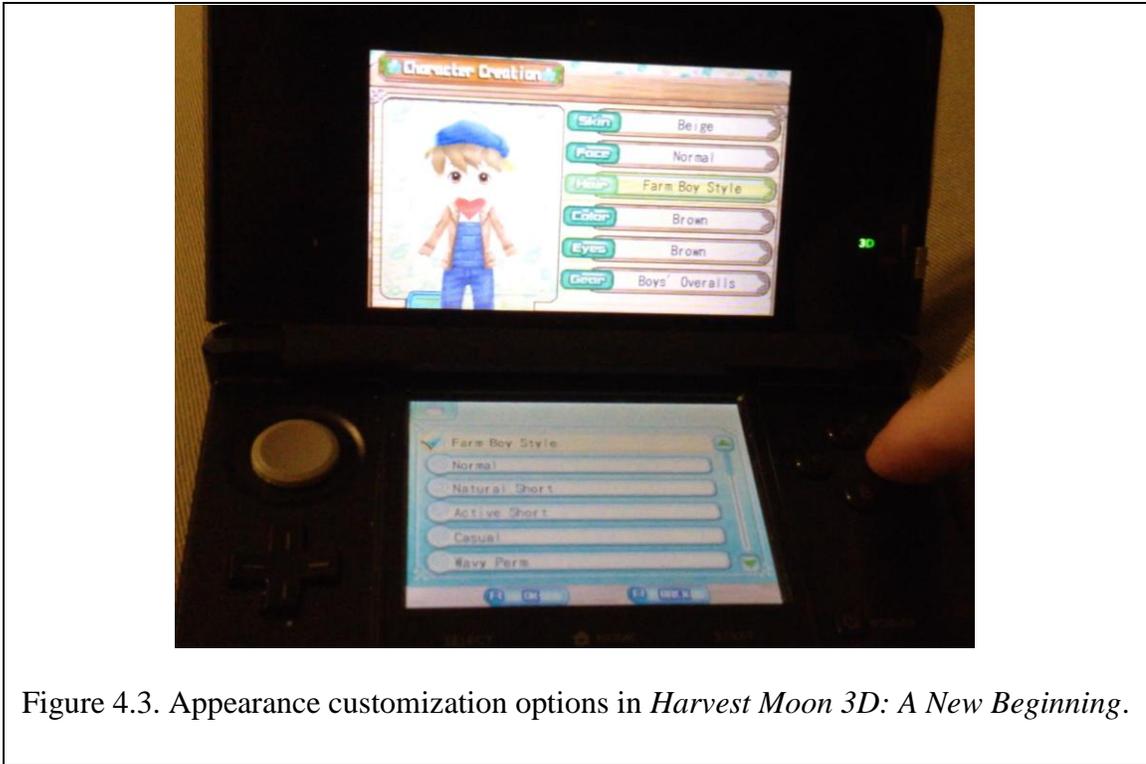


Figure 4.3. Appearance customization options in *Harvest Moon 3D: A New Beginning*.

Farming Simulator 2013: Titanium Edition used game-specified demographic characteristics and physical appearance options. As shown in Figure 4.4, the game-specified player character was a Caucasian male in a cap, plaid shirt, and overalls. No name or birthday was provided for the game-specified player character. In order to have the player character visible, the character had to be operating equipment. When operating equipment, the camera shifted from first-person to third-person, allowing the player to shift the camera to see the player character's appearance.



Figure 4.4. Game-specified player character in *Farming Simulator 2013: Titanium Edition*.

Research Objective Three

Research objective three sought to identify algorithm-controlled elements, such as pre-scripted events, actions, and characters. For the purposes of this study, an event refers to any pre-scripted occurrence that involves two or more characters. An action refers to any task that requires direct input from the player and goes beyond advancing in-game text. A character refers to any person depicted in the game that has a major role. *Harvest Moon 3D: A New Beginning* frequently used algorithm-controlled elements, including events, actions, and characters to moderate the pace of the in-game tutorial. When the player first started the tutorial, the game algorithm guided the player character's movements. Dunhill, an algorithm-controlled character and guide, entered from off-screen and promptly fainted. Only after the faint did the algorithm cede control

to the player, allowing him to move his character to Dunhill and interact with him. The rest of the tutorial proceeded in a similar fashion, using algorithm-controlled elements to provide context to player-controlled actions.

Algorithm-controlled events mostly involved computer-controlled characters introducing themselves to the player. Algorithm-controlled actions included movement and dialogue. For the purposes of this study, movement refers to player input relocating their game character on a screen. Dialogue refers to a pre-scripted conversation that takes place between two or more characters. Five algorithm-controlled characters were shown in the tutorial of *Harvest Moon 3D: A New Beginning*. 1) Dunhill, as shown in Figure 4.5, is a resident of Echo Village who guides the player throughout the tutorial. He is shown wearing a tattered cowboy hat.

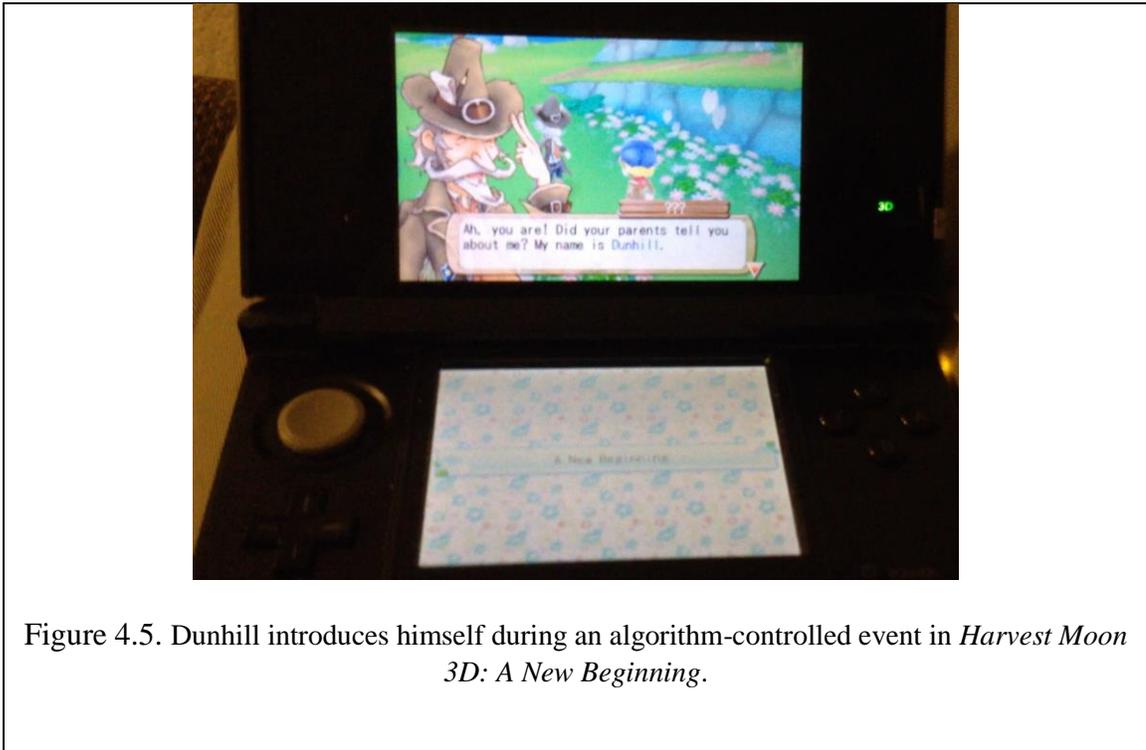


Figure 4.5. Dunhill introduces himself during an algorithm-controlled event in *Harvest Moon 3D: A New Beginning*.

2) Hassan and Niko are a father and son who are leaving town due to financial woes. As shown in Figure 4.6, they can be seen wearing red hats and vests.

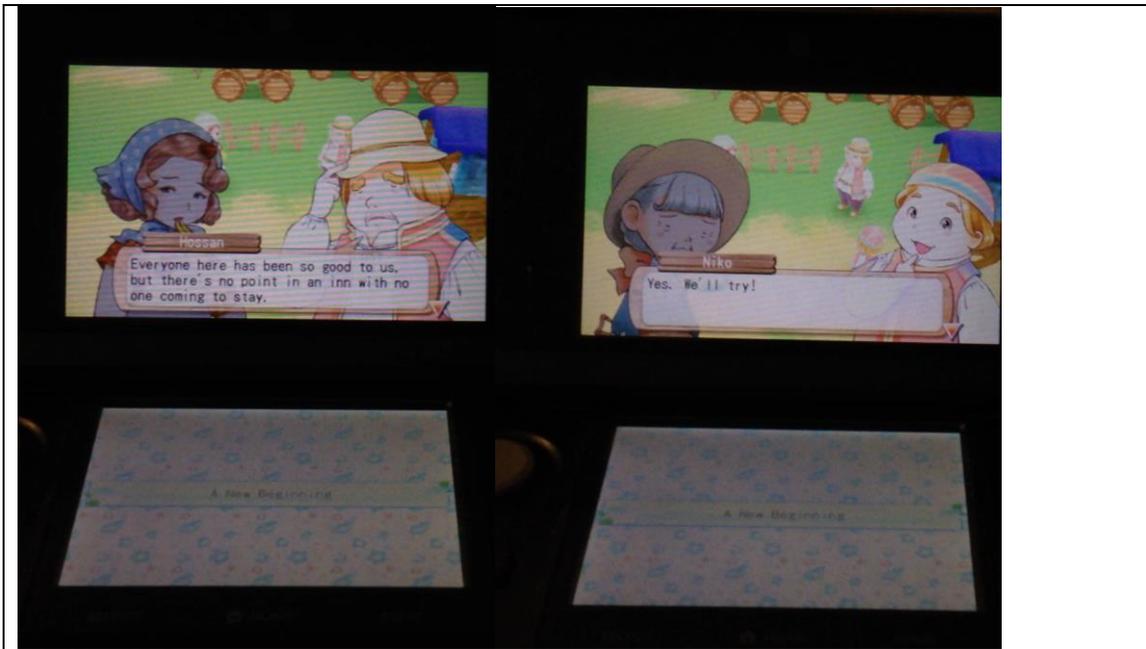


Figure 4.6. Hassan and Niko, characters in *Harvest Moon 3D: A New Beginning*.

3) Hana is an older woman and the owner of the general store in Echo Village (Figure 4.7). She wears a wide-brimmed hat and a ribbon.

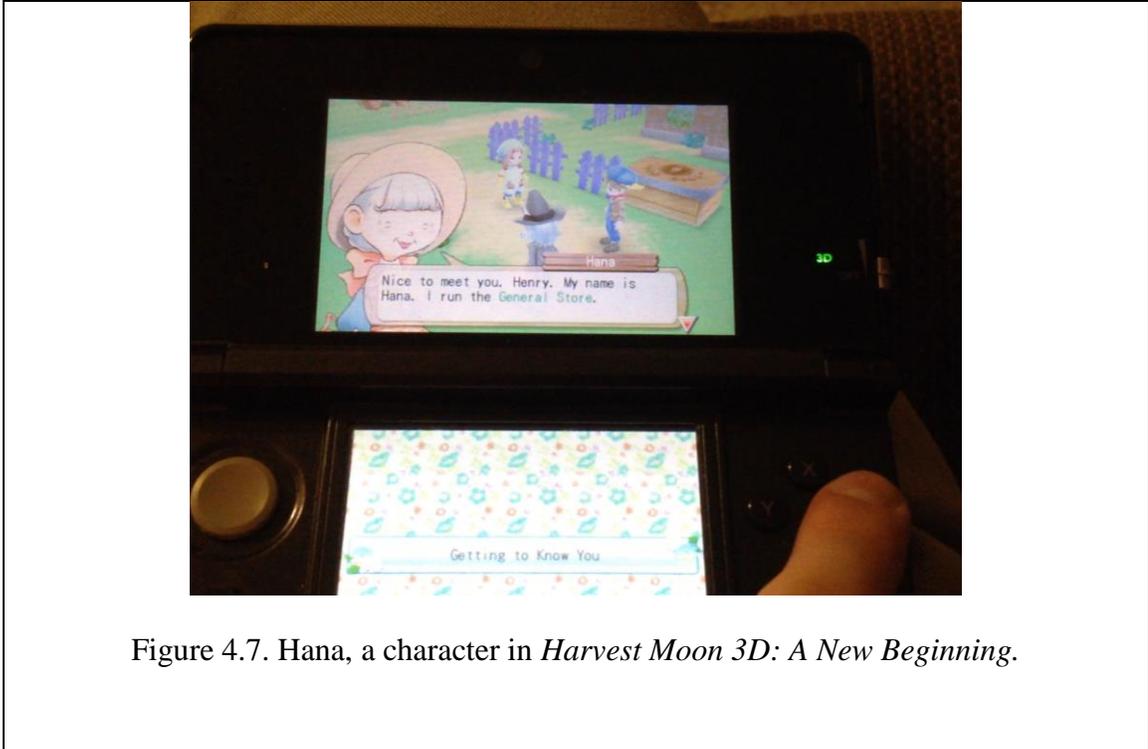


Figure 4.7. Hana, a character in *Harvest Moon 3D: A New Beginning*.

4) Emma can ship items the player obtains (Figure 4.8). She has her hair in a blue bonnet and is wearing yellow gloves.

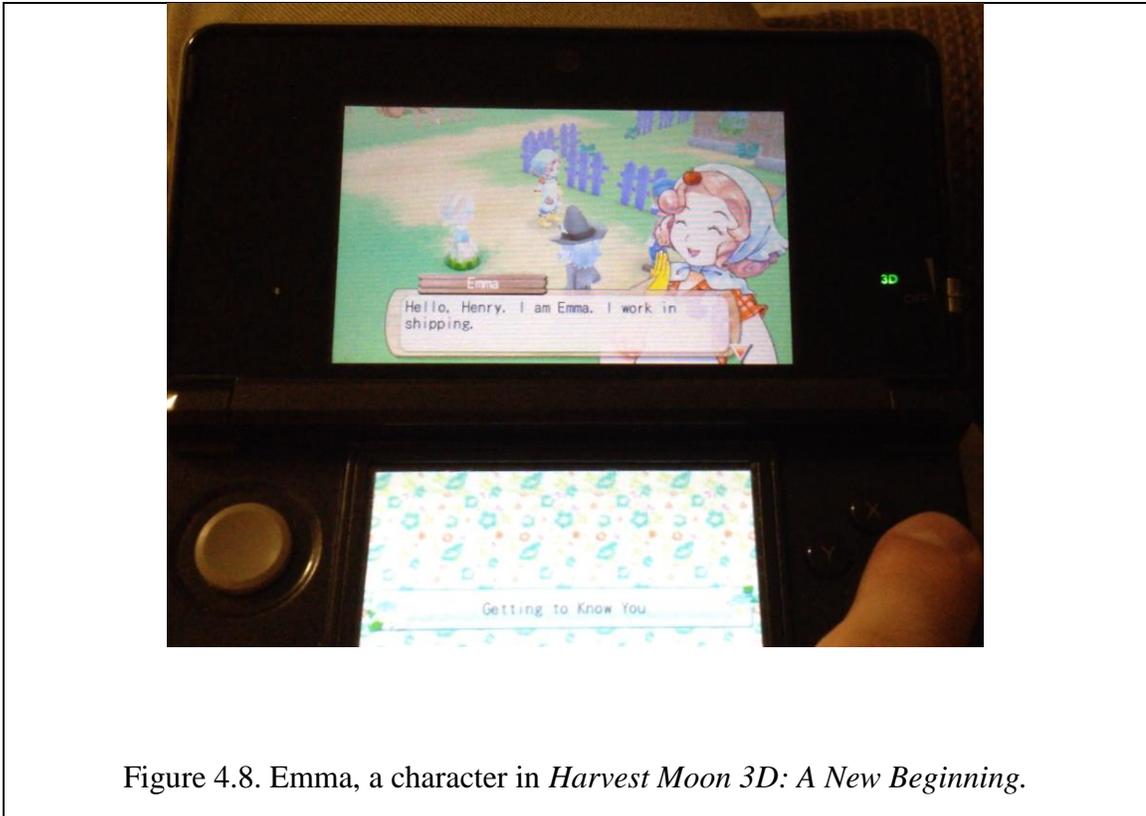


Figure 4.8. Emma, a character in *Harvest Moon 3D: A New Beginning*.

Farming Simulator 2013: Titanium Edition used algorithm-controlled cars to simulate passing drivers. It otherwise let the player maintain all control outside of loading screens. The tutorial contains no other visible human characters.

Research Objective Four

Research objective four sought to describe the graphic design of visual elements such as text panels, character portraits, and gameplay graphics in farming simulator tutorials.

Harvest Moon 3D: A New Beginning used both two-dimensional and three-dimensional graphics (Figure 4.9). Two dimensional graphics are flat and have no depth.

Three-dimensional graphics possess depth. Three-dimensional graphics, such as characters, buildings, and objects, were predominant, but two-dimensional graphics were used during dialogue sequences and explanations.

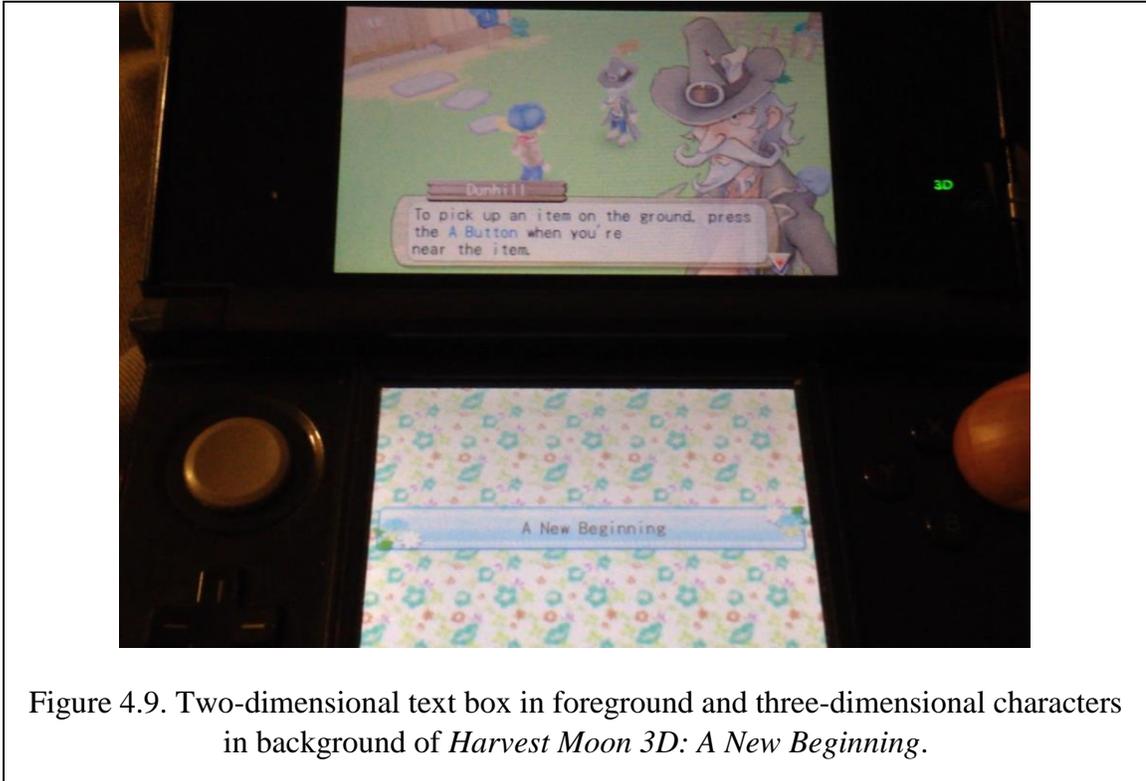


Figure 4.9. Two-dimensional text box in foreground and three-dimensional characters in background of *Harvest Moon 3D: A New Beginning*.

Farming Simulator 2013: Titanium Edition also used a mixture of two-dimensional and three-dimensional graphic elements. Two-dimensional graphics were utilized for some crop textures, as well as interface messages and icons, as shown in Figure 4.10. Three-dimensional graphics were used to portray all other elements within the 11 tutorial sequences of *Farming Simulator 2013: Titanium Edition*.



Figure 4.10. Three-dimensional equipment with two-dimensional potato textures, icons, and interface text in *Farming Simulator 2013: Titanium Edition*.

Research Objective Five

Research objective five sought to classify the available options for farming equipment, tools, crops, and livestock through in-game graphics and interface.

During its tutorial section, *Harvest Moon 3D: A New Beginning* referred to crops and tools only. Farming equipment and livestock were not shown or specified. As shown in Figure 4.11, the tutorial referred to potatoes, tomatoes, rice, and fodder as plants that could be grown. Tools specified during the tutorial included a hammer, axe watering can, hoe, and sickle (Figure 4.11). The tutorial also described how to use fertilizer to aid plant growth.

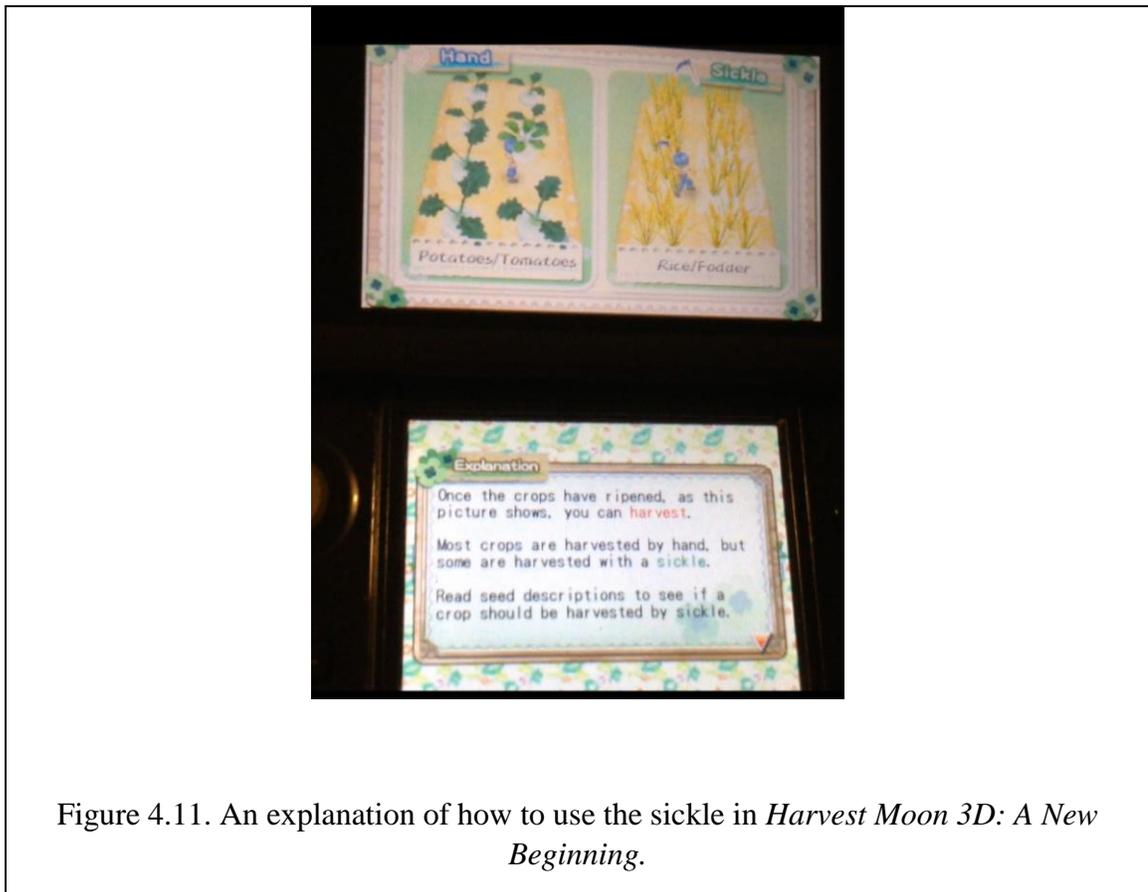


Figure 4.11. An explanation of how to use the sickle in *Harvest Moon 3D: A New Beginning*.

The 11 tutorials of *Farming Simulator 2013: Titanium Edition* identified Case, Krone, Deutz-Fahr, Arcusin and Amazone as specific brands of farming equipment through both menu text and in-game imagery (Figure 4.12). For the purposes of this

study, menu text refers to the short description of each scenario on the screen where the player makes his or her selection.

The tutorial also specified the type of equipment being used through menu text and in-game interface text (Figure 4.12). Interface text refers to text seen in-game that is meant to inform the player. For most farming simulators, vehicle speed, key commands, and alert messages are examples of interface text.

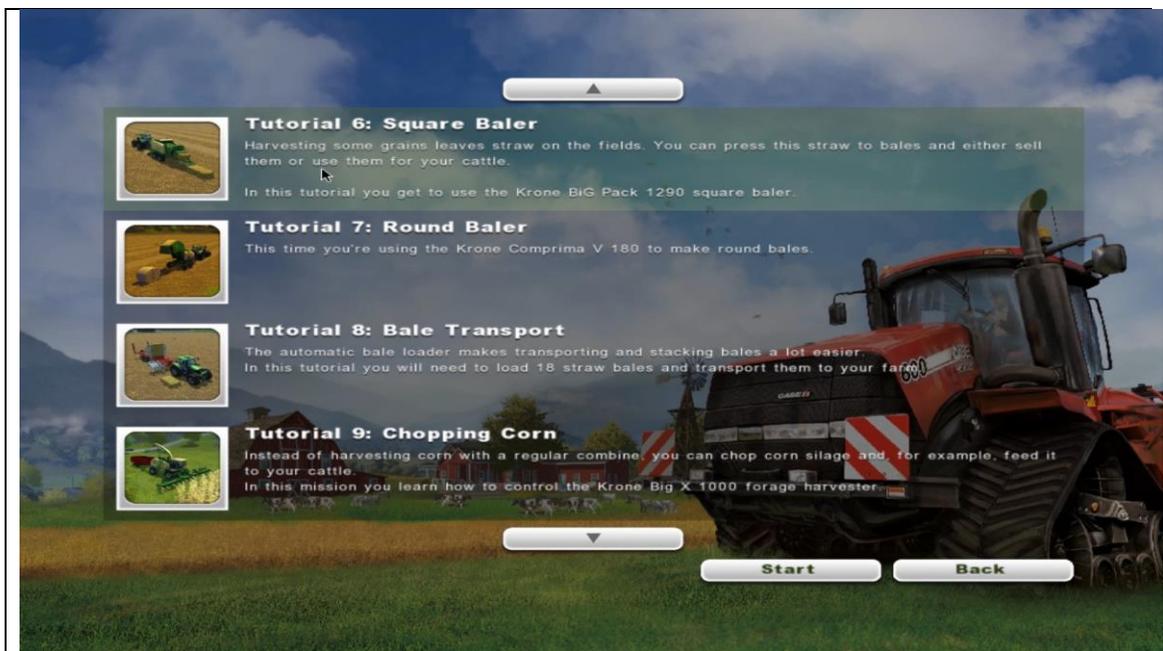


Figure 4.12. *Farming Simulator 2013: Titanium Edition* identifies brands in its tutorial menu text.

Equipment was depicted as having individualized and specialized usage through the game interface (Figure 4.13). Each tutorial scenario required different equipment attachments and configurations, and the key prompts for the player reflected that.

Farming equipment was not depicted as one-size-fits-all. Crops depicted in the tutorial included canola, grains, corn, and potatoes, as specified through the loading screen text and in-game pictorial icons. No tools or livestock were depicted in *Farming Simulator 2013: Titanium Edition*'s 11 tutorials.



Figure 4.13. An example of key prompts for specialized equipment in *Farming Simulator 2013: Titanium Edition*.

Research Objective Six

Research objective six sought to describe activities the player has direct control over within the tutorial. In the tutorial of *Harvest Moon 3D: A New Beginning*, these activities included walking, picking up items, managing inventoried items, cooking, storing items, reading tutorials, looking up monthly events, changing clothes, sleeping,

checking assets, recording save data, playing records, picking herbs and fruit, catching wild animals and insects, buying items, and talking to algorithm-controlled characters.

Activities the player had direct control over in the 11 tutorials of *Farming Simulator 2013: Titanium Edition* included plowing fields, sowing fields, harvesting crops, attaching equipment, lifting and lowering equipment, unfolding equipment, cultivating fields, pressing, loading and unloading bales, chopping corn, and driving.

CHAPTER V

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

The interactive, user-dependent nature of video games allows for a lot of variation and interpretation within the medium. While farming simulator games are modeled from real-life farming systems, the individual interpretation of those systems can often be quite different from the source material. This chapter will provide conclusions and discussion for the study's research objectives. It also contains recommendations for future scholars and practitioners.

Conclusions and Discussion

Even in this small selection of farming simulator games, each title strikes a different balance between story and gameplay. These farming simulator games may appear to have similar parts, but they took different approaches with their source material. For some players, farming simulator games are their only point of contact with the agricultural industry. As Chen (2013) noted, a player's interaction with cultural content found in gameplay narratives can lead to more positive associations with that culture. However, other researchers cautioned that player interaction with farming simulation games could lead to harmful, reductive stereotypes or addictive behavioral patterns (Chang, 2012; Chou & Ting, 2003).

Research Objective One

Research objective one sought to describe the setting and time period portrayed in the selected farming simulator tutorials. The two titles analyzed took different

approaches to portraying setting in their tutorials. *Harvest Moon 3D: A New Beginning* established setting through expository text and algorithm-controlled events and characters (Figures 4.1, 4.5, 4.6, 4.7, and 4.8). This finding correlated with Corliss' (2011) definition of narratology, which frames games "as digital or interactive narratives" (p. 4). *Harvest Moon's* tutorial was designed to be the expository phase in a traditional three-act story structure by making sure that characters, setting, and themes were established before introducing the player to more complex gameplay aspects. *Farming Simulator 2013: Titanium Edition* did not explicitly establish setting or time period due to the prioritization of gameplay over narrative. It favored setting up scenarios for the player to perform actions in over attempts at world building or characterization. These findings corresponded most with Ince (2006), who said the enjoyment of a game centers on the difficulty or ease of its gameplay.

Neither title explicitly established time period through narrative or gameplay techniques, but in-game context clues helped situate these titles into a chronology. *Harvest Moon 3D: A New Beginning* used character avatars and in-game tools to situate the village of Echo Valley in the technological past. Characters used popular signifiers of rural life in their apparel choices, including cowboy hats, bonnets, and wide-brimmed straw hats (Figures 4.5, 4.7, 4.8). These tropes were used to further themes of economic struggle within a more traditional agrarian lifestyle. This finding corresponded with Boos et al.'s (1998) analysis of three Victorian-era poets. They found that all three used agrarian-based natural imagery to tap into deeper themes. *Harvest Moon 3D: A New Beginning* used ideas and themes common in traditional pastoral imagery. While these

provided inexperienced players with reference points, they also reinforced reductive stereotypes about the agricultural industry. *Farming Simulator 2013: Titanium Edition* juxtaposed modern equipment and rural landscapes to suggest that, while not completely modernized, the title skewed more toward present-day equipment and techniques (Figure 4.2). By providing action with little narrative context, the title aligned most closely with Kirkpartick's (2011) explanation of ludology, which "emphasizes the gameness of video games and rejects attempts to analyse them as 'narratives' or texts" (p. 11). The *Farming Simulator* tutorials produced no effort toward establishing setting, characters, or themes. Instead, the tutorial sequences began with the player in the middle of a field and provided no guidance as to where to start.

The two tutorial sequences analyzed in the study had conflicting approaches to video game construction—one favoring narrative, but with little player action, and the other favoring gameplay, but at the loss of characterization or context.

Research Objective Two

Research objective two sought to identify the player's demographic characteristic and physical appearance customization options. The tutorials analyzed in this study further highlighted their approach to farming simulation through their character customization options. In *Harvest Moon 3D: A New Beginning*, players were given a wide variety of customization options for their avatar (Figure 4.3). The inclusion of these options increased the likelihood that players would create an avatar to which they could personally relate. The structure for possible player empathy aligns these findings with

Mello (2006), whose respondents reported that role-playing games helped them further develop empathy attributes. The inclusion of extensive character customization options in *Harvest Moon* suggested a marked interest in player empathy toward characters and scenarios. *Farming Simulator 2013: Titanium Edition* provided players with a game-specified character, a Caucasian male in a plaid shirt and overalls (Figure 4.4). The lack of customization options reinforced that the title was gameplay-centered. This finding corresponded with Kirkpatrick's (2011) definition of ludology, as the game-specified character rejected attempts at player narrative. *Farming Simulator* preselected the attributes of the player character, limiting capacity for customization, and consequently, player identification and empathy.

Research Objective Three

Research objective three sought to identify algorithm-controlled elements, such as pre-scripted events, actions, and characters. The tutorial section of *Harvest Moon 3D: A New Beginning* used a wide range of algorithm-controlled events, characters, and actions to establish predominant themes and introduce players to gameplay tools (Figures 4.1, 4.9, 4.11). This guided approach aligned most closely with King and Kryzwinska (2006), who analyzed video games from film study perspectives. The algorithm-controlled elements allowed for deliberate pacing, composition, and passage of time within the tutorial, which are corresponded formal elements of digital games (King & Kryzwinska, 2006). The tutorial of *Harvest Moon 3D: A New Beginning* offered a personalized, compelling narrative, but it was often handicapped by its frequent use of pre-scripted

events and actions to drive the story along, such as Hassan and Niko's departure in Figure 4.6. The few instances of farming-centered instruction within the tutorial settled for guidance instead of letting the player take control. The instances of player agency were relegated to more day-to-day moments, such as cleaning up the player's property or taking a stroll into the forest. Although the amount of actual gameplay felt a bit lacking, this tutorial did a good job of establishing the activities and themes within.

The tutorial section of *Farming Simulator 2013: Titanium Edition* had few algorithm-controlled elements. The player character was under player control at all times, but algorithmically-controlled cars drove on the roads adjacent to the field where each tutorial takes place. Equipment operation and actions were under player control within the confines of the tutorial scenario, as depicted in key prompts displayed during gameplay (Figure 4.13). This player-guided approach aligned most closely with Fencott et al. (2012), who said that the skill-based nature of game progression should be taken into consideration when conducting analysis. The algorithm-guided approach of *Harvest Moon 3D: A New Beginning* lent itself more readily to film studies taxonomies, while the player-controlled tutorial in *Farming Simulator 2013: Titanium Edition* suggested that a skill-based classification system would prove more effective. Fencott et al. (2012) said video games differ from other mediums because of their dependence on player skill in order to advance. Consequently, classifying farming simulator games by genre would not retain the individual nuances found in player activity-based classification.

Research Objective Four

Research objective four sought to describe the graphic design of visual elements in farming simulator tutorials. *Harvest Moon 3D: A New Beginning* primarily used three-dimensional graphics. Two-dimensional graphics were used for character portraits during dialogue and interface elements (Figure 4.9). The graphics of *Harvest Moon 3D: A New Beginning* were heavily stylized, relying on bright colors, cartoonish characters, and simple geometrical forms. These findings aligned most closely with Wolf (2003), who found that games historically rely on abstraction to transmit concepts and ideas. *Harvest Moon*'s use of apparel, for example, conveyed player expectations about the agrarian lifestyle by using cowboy hats, bonnets, and other popular signifiers (Figure 4.5, 4.8).

Farming Simulator 2013: Titanium Edition favored three-dimensional elements over two-dimensional ones. Two-dimensional elements were reserved for the interface and certain crop textures, such as potatoes. While *Farming Simulator 2013: Titanium Edition* used bright colors, the use of light, texture, and more complex geometrical forms skewed the title's graphics toward realism.

Each title's approach to gameplay carried over to how graphics and interface were utilized. Each title used a mixture of two-dimensional and three-dimensional graphics, but for different purposes. *Harvest Moon* used two dimensional elements to add expression to otherwise flat character models through portraits and text boxes (Figure 4.5, 4.6, 4.7, 4.8). *Farming Simulator* used two-dimensional interface graphics to convey only necessary information to the player (Figure 4.12, 4.13).

Research Objective Five

Research objective five sought to classify the available options for farming equipment, tools, crops, and livestock through in-game graphics and interface. *Harvest Moon 3D: A New Beginning* did not provide equipment or livestock options within its tutorial, but it did introduce tools and crops. Tools were specified through a combination of interface text and in-game graphics. Tools included or mentioned during the in-game tutorial included a hammer, axe, hoe, sickle (Figure 4.11), watering can, and fertilizer. The tools appeared dated due to their in-game portrayal and usage. While Echo Village was depicted as having a general store and a shipping system, the tools used carry no trace of modernization or mechanization and presented an outdated and reductive portrayal of agricultural practice. This finding aligns with Wolf's (2003) research, which stated that "even the most representational games available, or perhaps even imaginable, will always be to some degree an abstraction of the things or situations they are trying to represent" (p. 64). *Harvest Moon's* presentation of agricultural tools provides an archaic view of the industry to consumers who might not be knowledgeable about agriculture. Crops depicted within in-game graphics and explanations included potatoes, tomatoes, and rice. Crops were portrayed as stylized due to their simple geometry and colors (Figure 4.11).

Farming Simulator 2013: Titanium Edition tutorials featured brand-specific equipment with specialized uses and modern applications. Equipment brand was intermittently specified through interface text on loading screens, but was consistently conveyed through in-game imagery. The detailed geometry, textures, and uses of the

equipment within *Farming Simulator 2013: Titanium Edition* made it appear more modern and realistic than *Harvest Moon*. Both tutorial descriptions and in-game interface elements designated specialized uses for the farming equipment used in-game. Crops were realistically depicted due to their complex geometric composition. However, the in-game tutorials did not depict or specify tools and livestock throughout the duration. Crops, while finely detailed in shape and texture, did not always behave as they should, considering their tendency to vanish into thin air once they came into contact with virtual equipment. As Wolf (2003) put it, “even the most representational games available, or perhaps even imaginable, will always be to some degree an abstraction of the things or situations they are trying to represent” (p.64). Regardless of whether these titles were gameplay-centered or narrative-centered, both tutorials surveyed used some amount of abstraction in their portrayal of tools, crops, or equipment.

Research Objective Six

Research objective six sought to describe activities the player has direct control over within the tutorial. In *Harvest Moon 3D: A New Beginning*, player actions centered on movement, interaction, and item management. In the tutorial, the player was able to perform basic gameplay options, such as walking, picking up and storing items, and recording gameplay progress. Players could address their character’s fundamental needs by cooking and sleeping. More agribusiness-oriented tasks were available, such as looking up monthly events, talking to algorithm-controlled characters, checking tutorials and assets, buying items, picking herbs, and catching wild animals. *Harvest Moon*

presented the player with a wide range of potential actions during the tutorial. Despite the guided nature of *Harvest Moon 3D: A New Beginning*, the range of activities available for players made it seem less restrictive and confined. The findings in research objective six tied closely to Fencott et al. (2012) who found activity-based classification of video games to be more descriptive than traditional signifiers. The activities portrayed in *Farming Simulator* provided players with a narrow and specialized selection of process-related activities. Classification by traditional genre signifiers yields none of the specific description found in activity-based inquiries.

In *Farming Simulator 2013: Titanium Edition*, the player had direct control over a more narrow set of process-centered activities. These included plowing fields, sowing fields, harvesting crops, attaching equipment, lifting and lowering equipment, unfolding equipment, cultivating fields, pressing, loading and unloading bales, chopping corn, and driving. Although *Farming Simulator 2013: Titanium Edition* was a good source of detailed, realistic gameplay, realism combined with the relative lack of information for the player could be a hindrance. Most of the attached equipment in the tutorial stages had a maximum speed. If the player exceeded that speed, the player was told to stay within the recommended cruise control level. If the player continued to exceed the maximum equipment speed after that warning, the equipment detached from the player's vehicle. Unfortunately, the tutorial did not instruct the player how to operate the in-game cruise control. This researcher had to look up the controls on an online forum in order to make any significant progress. *Farming Simulator 2013: Titanium Edition* has an admirable dedication to pure gameplay, but sometimes that comes at the expense of necessary

information. Due to the focus on gameplay, no options for customization or interaction with algorithm-controlled elements were available. While *Farming Simulator 2013: Titanium Edition* offered more in the way of rich, detailed gameplay, the narrow focus and lack of interaction with other characters made the experience feel empty.

The findings in research objective six tied closely to Fencott et al. (2012) because classifying each tutorial in terms of activity led to deeper insights in terms of interactivity and genre. *Harvest Moon 3D: A New Beginning* depicted the agricultural industry as a system, not an individual, by including numerous characters that performed different tasks and assisted players in their endeavors. By not including other human characters, *Farming Simulator 2013: Titanium Edition* portrayed agriculture as a set of narrow actions undertaken by a lone individual, not a system of interlocked people and tasks.

The two farming simulator games selected for this study implemented very different approaches toward balancing gameplay and narrative. This divide mirrors the methodological debate surrounding video games (Corliss, 2011; Kirkpatrick, 2011; Ince, 2006; Todd, 2007). Is the key element narrative, gameplay, or something else entirely? For researchers and players alike, there are no easy answers to that question.

Recommendations

Practitioners

Video games have been gaining in popularity since the 1970's. As of last year, more than half of Americans play video games (Entertainment Software Association, 2013). As games become available on more platforms and devices, that number will

most likely continue to grow. For some people, farming simulation games will be their only point of contact with the agricultural industry. Farming simulator games take time and patience, which makes it easy for them to transmit perceptions of the agricultural industry over a period of weeks, months, even years.

The researcher recommends that practitioners not only become informed about the video gaming industry, but also attempt to engage with it. The expanding community of independent developers and publishers are looking for something that will differentiate their title in a crowded market. For farming simulator games, that differentiating factor could be your practical knowledge and expertise. Farming simulators could be incorporated into agricultural literacy initiatives to demonstrate broad agricultural processes through virtual interaction, as opposed to the traditional guided tour. For hobbyist farmers, farming simulator games could be a way to portray the deeper intricacies of the agricultural industry in a way that is interactive and personally relevant. Farming simulator games could be used as a supplement for other existing resources for beginning farmers, such as Start2Farm.gov and Beyond the Farm Gate. As Craig (2013) demonstrated, farming simulator games provide inexperienced users with a familiar reference point for an unfamiliar subject. Practitioners should exercise caution when implementing farming simulator games as an agricultural literacy tool. By using them as a conversation starter as opposed to a substitute for agricultural education, practitioners should be able to address the reductive, outdated stereotypes and the streamlined actions that farming simulators portray.

The ideal farming simulator would include a balanced mix of narrative and gameplay, but the economic realities and time constraints of the game development industry rarely allow for the rigorous play testing a perfect ludonarrative balance necessitates. Consequently, most titles tend to skew one way or the other.

Researchers

Although this study attempts to describe some of the foundational elements within tutorials of farming simulator games, the results are limited. This researcher recommends that future scholars replicate this study using different farming simulator games and research perspectives. Video gaming is not just one medium. It is an amalgam of image and text and interaction. Only by incorporating a multitude of methodological approaches will we find the foundational elements of this medium.

Future research should focus on conducting more in-depth activity classification on other preexisting farming games. This has the dual benefit of describing action as opposed to subject matter, and it provides more of a historical aspect to a relatively nascent topic of research. Conducting activity classification research on the first farming simulator games could prove enlightening.

Another area of research is to investigate ludonarrative dissonance—or the disconnect between the narrative a game presents and the actual gameplay—in farming simulator games. This research would probe a bit deeper into the ways simulators simplify and streamline inherently complex processes.

Lastly, this researcher recommends investigating the localization processes involved in bringing farming simulator games to the United States. When video games that originate in non-English-speaking countries are made for sale in the United States, they usually undergo a rigorous translation process. This is referred to as localization, and it requires more than translation of language. Localizers also have to make sure that in-game events, characters, and actions do not rely too heavily on understanding of specific cultural traditions and customs. Understanding what is lost and what is gained in this lengthy process could prove beneficial to future researchers who are interested in how cultural concepts are transmitted.

Future scholars should foster interdisciplinary partnerships and research in computer sciences, electronic communications, and programming. There is no single, unified theory for media research, and as technology continues to evolve, communication methods will too. Many of these computer-mediated technologies have complex underlying systems to unpack, and in order to gain insight into computer-mediated communication, scholars first need to have a firm grasp on the structure and mechanics of computers. Understanding the technical aspects and limitations of farming simulator games could provide some of the reasoning for the genre's open-ended structure.

REFERENCES

- Aarseth, E. (2003, May). Playing Research: Methodological approaches to game analysis. *Proceedings of the Digital Arts and Culture Conference*. Presented at Digital Arts and Culture Conference, Melbourne.
- Barreteau, O., Le Page, C., & Perez, P. (2007). Contribution of simulation and gaming to natural resource management issues: an introduction. *Simulation & Gaming*, 38(2), 185-194.
- Berger, A. A. (2002). *Video games: A popular culture phenomenon*. New Brunswick, NJ: Transaction Publishers.
- Boos, F., Campbell, E., Stevenson, J., & Macpherson, M. (1998). "We Would Know Again the Fields...": The Rural Poetry of Elizabeth Campbell, Jane Stevenson, and Mary Macpherson. *Tulsa Studies in Women's Literature*, 325-347.
- Burroughs, B. (2014). Facebook and FarmVille A Digital Ritual Analysis of Social Gaming. *Games and Culture*, 9(3), 151-166.
- Casutt, G., Theill, N., Martin, M., Keller, M., & Jäncke, L. (2014). The drive-wise project: driving simulator training increases real driving performance in healthy older drivers. *Frontiers in aging neuroscience*, 6. 1-14.
- Chang, A. Y. (2012). Back to the virtual farm: Gleaning the agriculture-management game. *Interdisciplinary Studies in Literature and Environment*, 19(2). 237-252.
- Chen, C. Y. (2013). Is the video game a cultural vehicle? *Games and Culture*, 8. 408-427.

- Chittaro, L., & Sioni, R. (2012). Killing non-human animals in video games: A study on user experience and desensitization to violence aspects. *PsychNology Journal*, 10(3), 215-243.
- Chorney, A. I. (2013). Taking the game out of gamification. *Dalhousie Journal of Interdisciplinary Management*, 8, 1-14.
- Chou, T. J., & Ting, C. C. (2003). The role of flow experience in cyber-game addiction. *CyberPsychology & Behavior*, 6(6), 663-675.
- Combs, S. B. (2010). *Video games and violence: A content analysis of print advertisements and internet trailers* (Doctoral dissertation, The University of Alabama TUSCALOOSA).
- Corliss, J. (2011). Introduction: The social science study of video games. *Games and Culture*, 6(1), 3-16.
- Cox, C., & Many, J. E. (1992). Toward an understanding of the aesthetic response to literature. *Language Arts*, 69, 28-33.
- Craig, R. (2013, December 16). [Review of the video game Farming Simulator 2013: Titanium Edition]. Review posted to <http://steamcommunity.com/id/VRuSHMaSTeR/recommended/220260/>
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage.

- D'Angelo, W. (2012, November 4). Weekly Sales Analysis, 27 October - Farming Simulator, Medal of Honor. Retrieved from <http://www.vgchartz.com/article/250520/weekly-sales-analysis-27-october-farming-simulator-medal-of-honor/>
- de Bie, M.H., & Lipman, L.J.A. (2012). The use of digital games and simulators in veterinary education: an overview with examples. *Journal of veterinary medical education*, 39(1), 13-20.
- Dennis, K. A., & Harris, D. (1998). Computer-based simulation as an adjunct to ab initio flight training. *The International Journal of Aviation Psychology*, 8(3), 261-276.
- Doerfert, D. L. (2011). National research agenda: American Association for Agricultural Education's research priority areas for 2011-2015. Lubbock, TX: Texas Tech University.
- Drugaş, M. (2014). Educational video games in the middle: parents, psychologists, gamers. A pilot study. *Romanian Journal of School Psychology*, (13), 25-41.
- Dwyer, N. (2014, September 18). Interview: Street Fighter II's Yoko Shimomura. Retrieved September 28, 2014, from <http://www.redbullmusicacademy.com/magazine/yoko-shimomura-interview>
- Entertainment Software Association. (2013). *Essential facts about the computer and video game industry: sales, demographic, and usage data*. [Fact sheet]. Retrieved from https://www.theesa.com/facts/pdfs/ESA_EF_2013.pdf
- Faria, A. J. (1998). Business simulation games: Current usage levels—An update. *Simulation & Gaming*, 29(3), 295-308.

- Faria, A. J., & Dickinson, J. R. (1994). Simulation gaming for sales management training. *Journal of Management Development*, 13(1), 47-59.
- Fastie, W. (1983, January). [Review of the flight simulator *Microsoft Flight Simulator*, 1983]. *PC Magazine*, 1(7), 303-307.
- Fencott, C., Clay, J., Lockyer, M., & Massey, P. (2012). *Game invaders: The theory and understanding of computer games*. Hoboken, NJ: John Wiley & Sons.
- Fong, G. (2006). Adapting COTS games for military experimentation. *Simulation & Gaming*, 37(4), 452-465.
- Freeman, W. (2014, July 19). Farming simulator 2014 review-one for the virtual mucking out devotees. *The Guardian*. Retrieved from <http://www.theguardian.com/technology/2014/jul/20/farming-simulator-14-review-lumbering-vita>
- Frick, M. J., Kahler, A. A., & Miller, W. W. (1991). A definition and the concepts of agricultural literacy. *Journal of Agricultural Education*, 32(2), 49-57.
- Gentile, D. A., Anderson, C. A., Yukawa, S., Ihori, N., Saleem, M., Ming, L. K., & Sakamoto, A. (2009). The effects of prosocial video games on prosocial behaviors: International evidence from correlational, longitudinal, and experimental studies. *Personality and Social Psychology Bulletin*. 35. 752-763.
- Grüne-Yanoff, T., & Weirich, P. (2010). The philosophy and epistemology of simulation: a review. *Simulation & Gaming*, 41(1), 20-50.

- Haferkamp, N. and Herbers, M.R. (2012). What if Bourdieu had played FarmVille? Examining users' motives for playing the browser game FarmVille in relation to socio-demographic variables. *Publizistik*, 57, 205-223.
- Haninger, K., & Thompson, K.M. (2004). Content and ratings of teen-rated video games. *Jama*, 291(7), 856-865.
- Hartmann, S. (1996). The world as a process. In *Modelling and simulation in the social sciences from the philosophy of science point of view* (pp. 77-100). AA Dodrecht, Netherlands: Kluwer Academic Publishers.
- Hartmann, T., Krakowiak, K.M., & Tsay-Vogel, M. (2014). How violent video games communicate violence: A literature review and content analysis of moral disengagement factors. *Communication Monographs*, (ahead-of-print), 1-23.
- Herwitz, D. A. (2008). *Aesthetics: key concepts in philosophy*. London: Continuum.
- Hess, A., & Trexler, C. (2011a). A qualitative study of agricultural literacy in urban youth: what do elementary students understand about the agri-food system? *Journal of Agricultural Education*, 52(1), 1-12.
- Hicklen, T. (2014). *Analyzing in-game branding within Farming Simulator 2013: Titanium Edition*. (Unpublished manuscript). Texas Tech University, Lubbock.
- Howard, J. (2008). *Quests: Design, theory, and history in games and narratives*. Wellesley, MA: AK Peters.
- Ince, S. (2006). *Writing for video games*. London: A&C Black.

- Ishaan. (2014, March 7). A Closer Look at Harvest Moon's Growing Sales In Recent Years - Siliconera. Retrieved from <http://www.siliconera.com/2014/03/07/closer-look-harvest-moons-growing-sales-recent-years/>
- Ivory, J. D. (2006). Still a man's game: Gender representation in online reviews of video games. *Mass Communication & Society*, 9(1), 103-114.
- Juul, J. (2011). *Half-real: Video games between real rules and fictional worlds*. Cambridge, MA: MIT Press.
- Kerr, A. (2006). *The business and culture of digital games: Gamework and gameplay*. Thousand Oaks, CA: Sage.
- King, G., & Krzywinska, T. (2006). 7 Film studies and digital games. *Understanding Digital Games*, 112.
- Kirkpatrick, G. (2011). *Aesthetic theory and the video game*. Manchester: Manchester University Press.
- Kovalik, L.M., & Kovalik, D.L. (2008). A lesson learned through gaming. *Simulation & Gaming*, 39(1), 118-125.
- Krefting, L. (1991). Rigor in qualitative research: The assessment of trustworthiness. *American journal of occupational therapy*, 45(3), 214-222.
- Lincoln, Y. S. and Guba, E.G. (1985). *Naturalistic inquiry*. Thousand Oaks, CA: Sage.
- Mello, H. L. (2006). Invoking the avatar: Gaming skills as cultural and out-of-game capital. In J.P. Williams, S.Q. Hendricks, & W.K. Winkler (Eds.) *Gaming as Culture: Essays on Reality, Identity, and Experience in Fantasy Games*, 175-195. Jefferson, NC: McFarland & Company, Inc.

- Miller, M. K., & Summers, A. (2007). Gender differences in video game characters' roles, appearances, and attire as portrayed in video game magazines. *Sex roles, 57*(9-10), 733-742.
- Moore, C. D., Beshke, C. A., & Bohan, C. H. Simulations and games in the civics classroom. *Social studies research and practice, 9*(2), 77-88.
- Narayanasamy, V., Wong, K. W., Fung, C. C., & Rai, S. (2006). Distinguishing games and simulation games from simulators. *Computers in Entertainment (CIE), 4*(2), 9.
- Natsume Inc. & Marvelous AQL. (2012). Harvest moon 3D: A new beginning. [Nintendo 3DS video game]. Japan: Natsume Inc.
- Niman, N. B. (2013). The allure of games toward an updated theory of the leisure class. *Games and Culture, 8*(1), 26-42.
- Ortiz, G. A. (1994). Effectiveness of PC-based flight simulation. *The International Journal of Aviation Psychology, 4*(3), 285-291.
- Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health services research, 34*(5 Pt 2), 1189-1208.
- Pense, S., Beebe, J., Leising, J., Wakefield, D., & Steffen, R. (2006). The agricultural literacy of urban/suburban and rural twelfth grade students in five Illinois high schools: an ex post facto study. *Journal of Southern Agricultural Education Research, 56*(1), 5-17.

- Rath, R. (2012, October 4). The Passion of the Garbage Truck. Retrieved August 28, 2014, from <http://www.escapistmagazine.com/articles/view/features/9954-The-Passion-of-the-Garbage-Truck.2>
- Reidel, J., Wilson, E., Flowers, J., & Moore, G. (2007). Effects of an introductory agricultural education course on agricultural literacy and perceptions of agriculture in urban students. *Journal of Southern Agricultural Education Research*, 57(1). Retrieved from <http://pubs.aged.tamu.edu/jsaer/pdf/Vol57/57-01-082.pdf>
- Repp, B. H. (1997). The aesthetic quality of a quantitatively average music performance: Two preliminary experiments. *Music Perception*, 14(4), 419-444.
- Salas, E., Wildman, J. L., & Piccolo, R. F. (2009). Using simulation-based training to enhance management education. *Academy of Management Learning & Education*, 8(4), 559-573.
- Schell, J. (2008). *The Art of Game Design: A book of lenses*. Burlington, MA: Morgan Kaufman Publishers.
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for information*, 22(2), 63-75.
- Singletary, M. W. (1994). *Mass communication research: Contemporary methods and applications*. New York and London: Longman.
- Smith, S.L., Lachlan, K., & Tamborini, R. (2003). Popular video games: Quantifying the presentation of violence and its context. *Journal of Broadcasting & Electronic Media*, 47(1), 58-76.

- Specht, A. (2013). *A Social Semiotic Discourse Analysis of Film and Television Portrayals of Agriculture: Implications for American Cultural Memory*(Doctoral dissertation, Doctoral dissertation, Texas A&M University. Available electronically from <http://hdl.handle.net/1969.1/149524>).
- Squire, K., & Barab, S. (2004, June). Replaying history: Engaging urban underserved students in learning world history through computer simulation games. In *Proceedings of the 6th international conference on learning sciences* (pp. 505-512). International Society of the Learning Sciences.
- Todd, D. (2007). *Game design: from blue sky to green light*. Ann Arbor, MI: Taylor & Francis.
- Treadwell, D. (2013). *Introducing communication research: Paths of inquiry*. Thousand Oaks, CA: Sage.
- Vailaya, A., Figueiredo, M. A., Jain, A. K., & Zhang, H. J. (2001). Image classification for content-based indexing. *Image Processing, IEEE Transactions on*, 10(1), 117-130.
- Video Game Charts, Game Sales, Top Sellers, Game Data - VGChartz. (2014, August 23). Retrieved September 5, 2014, from http://www.vgchartz.com/#graph_menu
- Witkowski, T. H. (1996). Farmers bargaining: buying and selling as a subject in American genre painting, 1835-1868. *Journal of Macromarketing*, 16(2), 84-101.
- Wolf, M. J. (2003). Abstraction in the video game. *The video game theory reader*, 1, 47-65.

- Yin-Poole, W. (2014, August 19). Tomb Raider, Vita's no-show and the mystery of 10m PS4 sales. Retrieved August 27, 2014, from <http://www.eurogamer.net/articles/2014-08-19-tomb-raider-vitas-no-show-and-the-mystery-of-10m-ps4-sales>
- Yoo, H. S., & Kim, S. W. (2014). Virtual Farmers Training: Realistic Simulation with Amusements using Historic Simulation and Game Storyline. *International Journal of Multimedia and Ubiquitous Engineering*, 9(5), 121-130.

APPENDIX
CODE BOOK

Title	Additional description	
A. SETTING		
1. Is the location specified?		
1A. If so, where?		
2. Is the time period specified?		
2A. If so, when?		
B. PLAYER		
3. Is player gender specified?		
3A. If so, is it player-specified or game-specified?		
4. Is player appearance specified?		
4A. If so, is it player-specified or game-specified?		
C. GRAPHICS		
5. Are in-game graphics two-dimensional, three-dimensional, or both?		
6. Are graphics realistic or stylized?		
D. EQUIPMENT		
7. Is brand of equipment specified?		
7A. If so, is it specified through interface text, in-game imagery, or both?		
8. Is type of equipment specified?		

8A. If so, is it specified through interface text, in-game imagery, or both?		
9. Does the equipment look dated or modern?		
10. Is the equipment depicted as specialized or general usage?		
10A. If so, is it specified through interface text, in-game imagery, or both?		
E. TOOLS		
Are tools (rakes, hoes, watering cans, etc.) used or shown?		
If so, which ones?		
Do the tools look dated or modern?		
Title		Additional description
F. CROPS		
Which crops are depicted in the tutorial? List each.		
Are they specified through interface text, in-game imagery, or both?		
Do crops look realistic or stylized?		
G. LIVESTOCK		
What kinds of livestock are depicted in the tutorial? List each.		

Are they specified through interface text, in-game imagery, or both?		
Do livestock look realistic or stylized?		
H. ACTIVITIES		
What activities does the player directly engage in? List each.		
What activities does the player indirectly engage in? List each.		