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THE EFFECT OF CIVICS-BASED VIDEO GAMES ON MIDDLE SCHOOL STUDENTS' CIVIC ENGAGEMENT

by

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A dissertation submitted in partial fulfillment of the requirements
for the degree of Doctor of Education
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ABSTRACT

Democratic theorists argue that democratic institutions thrive when the citizens of the society robustly participate in governance (Galston, 2004; Barber, 2001). A traditional indicator of democratic participation is voting in elections or referendums. However, democratic apologetics posit that humans need to be trained in democratic processes in order to be democratic citizens (Dewey, 1916; Gutmann, 1990; Sehr, 1997; Goodlad, 2001). Citizens need to know not only the protocol of participation, they also need to be trained in the processes of mind (Dewey, 1916; 1927). Educational systems in this country have been the traditional place where democratic training has been vested (Spring, 2001). It seems, though, that the methods that educators are using to train young people fail to meet this challenge as voting rates among the youngest citizens (under 30) have never been higher than slightly more than half of eligible voters in the age group. To remedy this situation, Congress and several private civic-education organizations have called for changing curricular approaches to engage more youth.

One such method that may hold promise is the use of video game technology. The current generation of youth has grown up in a digital world where they have been labeled "Digital Natives" (Prensky, 2001a). They are "tech savvy" and comfortable with their lives being integrated with various forms of digital technology. Significantly, industry research suggests that over 90% of "Digital Natives" have played a video game in the last 30 days, and business is booming to the level that video games pulled in more money than the movie industry did in 2008 (ESA, 2009). As early as the 1970s, educational researchers have looked at the use of video game technology to engage student learning; however, this research has been limited at best. More recently, educational scholars such as James Gee (2003; 2007) and Kurt Squire (2002;

2003; 2006) have sought to make the academic conversation more mature with regard to using video games as a classroom supplement.

This study continues that conversation by using quantitative methods to investigate whether or not different groups of middle school students self-report a greater propensity to be civically engaged as a result of civic-themed video gameplay. The investigator collected data from middle school students who were given access to civic-themed video games to see if there were statistically significant differences in self-reported civic-engagement scores as a result of gameplay. This investigation was conducted at a large, urban middle school in the Southeast region of the United States.

This study and my labor throughout the entirety of my Ph.D. program are dedicated to several people who have always pushed me forward to realize things about myself that I did not have the ability to see on my own. To my parents, Michelle and John, thank you! You were my first teachers and inspired this little "squirt" to achieve the most I can. You instilled in me a passion for what is right and good, and I hope that this process has given me one more tool to fulfill my life's work. To my grandparents, Mike and Antoinette Pagnotti, Rich and Irene Saultz, and Mike and Mabel Prawlocki, thank you! You all worked so very hard to set a solid foundation for me to thrive. You all are the giants that I stand upon the shoulders of. You showed me that hard work and sacrifice lead to accomplishing the impossible. To my truest of friends who have always helped me out, thanks for kicking me in the rear. To my beautiful and wonderful partner in life, Dorianne, thank you! You have to be the most patient and supportive wife a man can ask for. Thank you for believing in me when I doubted myself. Thank you for letting me bounce my ideas off you. Thank you for lending me a supportive ear and giving me sage advice and most of all thank you for giving me the strength to get through this. None of this would have been possible without you and your love. *Te amo mucho, mi amor!* Finally, I'd like to dedicate this all to two very special people—everything I do is for you. To my children, Ethan and Emily, thank you! You both are the best two things that have ever happened to your mother and I. You are our life's brightest light and give me hope for the future. You are the reason *why* this happened, and the thought of a better life for you sustained me over the last 3 years! I love you more than words can say!

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CHAPTER ONE: INTRODUCTION

The Current State of Youth Participation

By their very nature, democratic societies thrive when citizens are actively engaged in the political process. While civic engagement can take on various forms, the research is clear that institutions of democratic society suffer when civic engagement erodes (Galston, 2004; Dalton, 2004; Barber, 2001). Democratic citizens are bound to the rule of law chosen by the will of a majority. If citizens are not part of the processes of governing through sustained and active engagement, the will of the majority is de-legitimized because a true majority did not participate in the decision. Democracy without civic engagement digresses into oligarchy.

When one looks specifically at youth voting behaviors, a traditional measure of civic engagement in United States' society, the results are sobering. Since 1972, voter turnout rates during presidential elections for individuals under 30 have never been higher than 53%. With the exception of the 2008 presidential election, the trend line has been steadily decreasing since 1972 (CIRCLE, 2009). Data for the 2010 mid-term elections indicated national youth voting rates stood at less than 25%, roughly half the turnout of adult voting rates during the same period (CIRCLE, 2011). Less than 10% of people under age 30 were reported by the National Conference on Citizenship to have engaged in civic activities in 2008, while at the grassroots level, local party officials have reported an alarming lack of young citizen engagement (CIRCLE, 2009).

To ensure the health of civic education, the Center for Civic Education and the National Council on the Social Studies have recently joined the U.S. Congress in a renewed call for civic

education. The School Violence Prevention Demonstration Program and the Teaching American History Grant were multimillion-dollar grants funded by Congress through the U.S. Department of Education with a substantial focus on civic education. Although they have since ended, these programs represented a substantial investment by Congress for civic education. As of March of 2012, the U.S. House of Representatives has the Sandra Day O'Connor Civic Learning Act of 2011 deep in committee, a bill that seeks to create a program "awarding competitive grants to nonprofit educational organizations to develop and implement programs that promote civic learning and engagement through instruction, professional development, and evaluations." These programs were all designed to provide teachers the pedagogical and content tools needed to raise student achievement in civic knowledge by making civic-education curricula more engaging for students.

Reaching the Digital Natives

However, getting the attention current generation of students, who Mark Prensky (2001b) labeled the "Digital Native" generation, has required the use of new technologies. Digital Natives are the first United States' generation to grow up surrounded by technology (Prensky, 2001b). This generation has integrated various forms of technology into their daily life and tend to be age 30 and under (Nikirk, 2009). Recognizing the needs of 21st-century learners, the Federal Government reauthorized the Elementary and Secondary Education Act of 2001 (ESEA), with the specific requirement that states expand the use of technology in classrooms to enhance student achievement. By 2005, the number of classrooms in the United States with internet access increased dramatically from just 3% in 1994 to 94%; with student access to a computer nearly 100% (Wells & Lewis, 2006).

With expanded funding and interest, innovative opportunities to reach student learners have emerged. This is in no small part due to the increases in accessibility and improved technological capability. Recently, interest in the use of video games in the K-12 classroom setting has grown. Until very recently, parents and educators alike have been slow to incorporate video games as a classroom pedagogical tool. Gee (2003) asserts that negative social attitudes surrounding video games' use is a result of a lack of understanding regarding the educative value of electronic games. The U.S. Military and private industry have had no such apprehension, evidenced by how widely video games have been included in their training protocols with positive results. (Hays, 2005)

Over the last 50 years, video games have become a cultural and economic phenomena. According to the Entertainment Software Association (2009), the U.S. gaming industry had sales of almost 12 billion dollars in 2008. During the last two months of 2011, the video game *Call of Duty: Modern Warfare 3* set a new record of one billion dollars in sales in just 16 days with 6.5 million copies sold within the first 24 hours of the game's release. For comparison, *Avatar*, the most profitable film of all time, took 17 days to accomplish the same task (Bilton, 2011).

Industry sponsored research published in 2009 by the Entertainment Software Association (ESA) suggests that nearly 50% of United States' households bought a video game in 2010. Video games are hardly just a child's toy anymore—the average age for the "typical" gamer is 35 years old. Interestingly, people over 50 years old make up 25% of the total gaming population, while over 40% are females. Almost three-quarters of United States' citizens, an all-time high, will play a video game this year (Entertainment Software Association, 2009). However, Digital Natives use video games profusely, where it is commonplace that children play (Lenhardt et al., 2008).

The steep growth the industry has encountered has mirrored the level of growth in video games' sophistication and visual complexity since the early 1960s (Kent, 2001). However, for all the vast changes in presentation and interactivity that games have gone through since being little more than a moving pixel on an oscilloscope, they still are games that are "played out graphically within a computing environment" (Rice, 2005). Gonzalo Frasca (2001), refines the definition further, stating that video games are:

> … any forms of computer-based entertainment software, either textual or image-based, using any electronic platform such as personal computers or consoles and involving one or multiple players in a physical or networked environment. (p.4)

Frasca articulates a more comprehensive definition of what a video game is; however, his definition does not speak to the potential of video games as an educational tool. Research examining video games as opportunities to educate has become more prevalent over the last decade and suggests that gaming can be a very powerful tool with which to engage learners in rich, immersive experiences (Annetta, 2008; K. Squire, 2006; Gee, 2003). For this reason and for the purposes of this dissertation, video games or electronic games is defined as computer software played either alone or collaboratively, in an immersive text-based or image-based electronic environment for reasons of entertainment or learning.

Video games may offer new ways for teachers to reach learners of the Digital Native Generation. While research examining the efficacy of video games' use on learning is relatively new in the K-12 educational setting and has mixed results, a fledgling body of evidence suggests that video games offer teachers a powerful tool with which to engage students (Gee, 2007; Squire, 2004; Gee, 2003). Looking specifically at the effect video gameplay has on civic interactivity and the amount of collaboration, discourse, and connections among players, Levine

(2009) and Johnson (2008) conclude that video gameplay has a positive effect on the level of civic interaction demonstrated by student players during gameplay while Lenhart et al. (2008) argue that opportunities for civic interactivity were more equally dispersed across gender, income, race, and achievement levels than in traditional civic-learning experiences.

Statement of the Problem

Theoretically, a democracy needs its citizens to be actively engaged in the political process to ensure the legitimacy of public policy. Research suggests that young citizens are less apt to participate in the political process than their older counterparts in the United States (CIRCLE, 2009 & 2011). John Dewey argued that engagement in democratic life only occurs as a result of meaningful and robust citizenship education (Dewey, 1916). Civic education requires learners to have powerful, relevant experiences where the learner is immersed in challenging and complex educational contexts. The only institution in democratic societies that can reach all citizens is the public education system (Dewey, 1916). It can be argued that this type of citizenship education fails to happen in United States' public schools as a result of high-stakes testing and loss of teachers' job security. However, as technology has become increasingly integral to lives in current United States' society, particularly among members of the Digital Native generation, policy makers have called for an increase in the level of access and use of technology in the K-12 classroom setting to support learning environments. While access to a computer has become nearly universal in public schools around the country, the maturation of the video game medium may offer educators a new tool with which to engage students. In 2008, nearly 90% of Digital Natives played a video game (Lenhardt et al., 2008). The capabilities of video games have become increasingly complex and have become part of mainstream society. As a result, video games may offer those interested in civic education a tool to create the type of

learning experiences that support robust democratic education by promoting student interest in civic education.

Purpose and Significance of Study

The purpose of this study was to understand whether playing video games that coalesce around political themes has a place in the broader context of democratic civic education. The body of literature that quantifies the impact civic-themed video games has on democratic civic education is largely non-existent but needs to be explored as a viable outlet in classrooms. Educational psychologist Marcy Driscoll (2005) has suggested that motivating students to learn is key to the educational process as a way to promote life-long learning. Literature outlining specific ways to encourage motivation proposes that peaking student interest is key (Blumenfeld, Kempler, & Krajcik, 2006). John Keller (1987) developed a model for motivating students throughout the learning process. Central to his theory of developing student motivation is capturing a student's interest during the learning process. This study investigated whether civic-themed video games have the potential to be used as a legitimate pedagogical tool in the civic-education classroom.

The research questions that guide this comparison study were crafted to investigate the impact video games may have on building interest to engage in civic life in different populations in middle school students. Through the use of a survey questionnaire that measures youth civic-engagement, data were gathered to understand the effect civic-based video gameplay has on student interest in civic life as measured by differences in youth civic-engagement scores. Participants in this investigation were given access to video games that allowed the participants to engage in virtual experiences in civics; then the participants were surveyed on indicators of civic engagement using a pretest-posttest design format to compare differences in civic-

engagement scores among different groups of participants. From this data, the investigator was able to ascertain whether the utilization of video games in the civic-education classroom discriminately impacted different groups of students in different ways. Analyzing whether the impact was statistically significant between different groups of participants showed this impact.

This investigation was significant to the body of literature regarding civic education because its intent was to uncover new ways to encourage United States' youth in civic life. It was also significant because the scope of the literature that examines the relationship between civic education and video games, while growing, remains scant. Traditionally, the responsibility to prepare United States' youth for engaged civic life has fallen upon the shoulders of social studies educators (Chiodo and Martin, 2005). Unfortunately, youth voting rates are low when compared to the rest of the voting public (CIRCLE, 2009; 2011), indicating that a problem may exist with the way United States' youth are socialized into civic life (Dewey, 1916). Understanding the effects, if any, that civic-themed video gameplay has on promoting interest in civic engagement among different populations of middle school students allows researchers who are interested in civic education greater insight into the role a technology that captivates an overwhelming majority of United States' youth has in the training of democratic citizens.

Research Questions

1. Is there a statistically significant difference in the changes to youth civic-engagement self-reported scores between male and female middle school participants who play civics-based video games?
2. Is there a statistically significant difference in the changes to youth civic-engagement self-reported scores among middle school participants of different grade levels who play civics-based video games?
3. Is there a statistically significant difference in the change of youth civic-engagement self-reported scores after playing civic-themed video games among middle school participants with different experience levels of playing video games on their own?

Hypotheses and Null Hypotheses of the Research Questions

1. H_1: A statistically significant difference exists in the changes to youth civic-engagement self-reported scores between male and female middle school participants who play civics-based video games.

   H_o: No statistically significant difference exists in the changes to youth civic-engagement self-reported scores between male and female middle school participants who play civics-based video games.
2. H_2: A statistically significant difference exists in the changes to youth civic-engagement self-reported scores among middle school participants of different grade levels who play civics-based video games.

   H_o: No statistically significant difference exists in the changes to youth civic-engagement self-reported scores among middle school participants of different grade levels who play civics-based video games.

3. $H_{3:}$ A statistically significant difference exists in the change of youth civic-engagement self-reported scores after playing civic-themed video games among middle school participants with different experience levels of playing video games on their own.

   $H_{0:}$ No statistically significant difference exists in the change of youth civic-engagement self-reported scores after playing civic-themed video games among middle school participants with different experience levels of playing video games on their own.

Theoretical Framework

Two theories of learning contributed to the formation of the theoretical framework utilized in this study. Constructivism, as articulated in Jerome Bruner's work *Toward a Theory of Instruction* (1966) provides one element of the framework used in this study. Just as significant to the foundation for the theoretical framework in this study is Seymore Papert's (1993) "bricolage" theory of education.

Constructivism

Central to the constructivist theory of learning is that the educational process is most efficient when it is relevant to the life of the individual learner, provides personal experience with what is being learned, and allows for real-time feedback for the learner involved. It calls for learners to be active participants throughout the learning process, intrinsically motivating them to engage with information in real-world contexts to create meaning based upon their individual perspectives. Much like Dewey's philosophy of education, constructivism is very much a learner-centered theory of education in that it requires the learner to build on individual faculties, past experiences, and new knowledge within context of new learning experiences to negotiate complex educational tasks (Bruner, 1966). It is from these learning experiences that learners

develop deep, personal connections to what they have learned as the information has been interpreted through their own individual lens.

Bricolage

Papert's bricolage theory posits that an "object to think with" relies on the learner to use a frame of reference from past learning experiences to connect information to new learning experiences to enhance learning (1993). This learning theory argues that the whole learning experience is greater than the sum of its parts. It relies on the learner to put pieces of information in new and dynamic ways to promote deep, vibrant learning. The learning process is dependent upon providing learners with concrete connections to information or experiences that have been previously acquired so as to develop new understandings of ideas and concepts that would be very difficult if learned in isolation from each other. This idea closely correlates to the concept of "scaffolding" where information is acquired through the process of "building" upon information that has already been internalized and processed so new paradigms of student learning takes place. This is very similar to what an architect does when he or she designs a building. When designing a building, the architect will create the framework of the structure, the electrical system, water systems, the ergonomics of the structure, and the walls that go up in the building. While each piece of the puzzle so to speak is independent of each other, it is only when all pieces are put together that those pieces become part of something greater than itself: a functional building. In this case the "greater whole" is a deeper connection to civic engagement and the sum of its parts is the civic concepts that are "played" in each of the video games.

In this case, hypothesis testing was done to understand if civics-based video games give participants a relevant, engaging, and content-rich learning environment that enhances middle

school students' interest to be civically engaged. These open-ended, self-directed in-game learning experiences required participants to use prior and new knowledge to complete complex tasks and allowed participants to develop understanding based upon their own context (constructivism) from their experiences in a virtual political landscape. Furthermore, simulated experience with civics-related concepts and tasks via video gameplay may provide participants with an "object to think with" that gives participants the tools they need to develop new understandings of civics to promote a possible increase in participant propensity to be civically engaged. Specifically, did playing and working with the civics concepts in the game result in new paradigms of dynamic learning to promote civic engagement in middle school students (bricolage)?

Operational Definitions

Video games or electronic games: computer software played either alone or collaboratively, in an immersive text-based or image-based electronic environment for reasons of entertainment or learning.

Strategy game: a digital game where the player is in charge of an entity, such as an army, a business, or a civilization, and attempts to shape it.

Turn-based game: a digital game where each participant takes a turn, and any shared processing is done before the next round of play begins. The game's artificial intelligence can be a participant.

Simulation game: a digital game where the loosely defined goals of gameplay require players to interact with and manipulate the environment to complete tasks in a virtual environment where the player is replicating an action that is based upon "real life."

Gamespace: The virtual world of the video game where the player interacts with the game interface.

Gameplay: The act of playing a video game by an individual.

Civic Engagement: the extent that citizens participate in democratic political life. This includes voting, political discussion, political decision-making, participation in community organizations, and volunteerism.

Youth: Young citizens who are under the age of 30. Labeled by Mark Prensky as "Digital Natives." They have grown up with digital technology integrated into their lives.

Democratic Education: Educational training for citizens in a democratic society. This term is interchangeably used with citizenship education and civics education throughout this study.

Organization of Study

This study was organized to describe the full account of the investigation undertaken to examine the research questions. It will consist of five chapters, following established conventions for a study of this type. Chapter One provides an introduction to the study and a rationale regarding its place in social studies education literature. Chapter Two provides insight in to relevant literature that is associated with the general topic of civic education and gaming, focusing specifically on a theoretical explanation of democratic society, the role of civic education in democracies, and the effect video gaming can have in educational contexts. Chapter Three outlines a detailed methodology that was utilized when conducting this investigation to include sampling procedures, data-analysis procedures, sample population, and the procedures of the investigation. Chapter Four discusses the statistical findings after data-analysis procedures were conducted. In Chapter Five, conclusions about the implications of data findings related to the research questions are discussed

CHAPTER TWO: REVIEW OF RELEVANT LITERATURE

Introduction

By almost any measure, there is a crisis due to lack of civic engagement in our democracy. This is especially true amongst our young people. In every modern national election, youth voting rates are much lower than any other age group. Youth attitudes regarding civic participation are abysmal and getting worse. Recently, those concerned with the health of our democracy have taken notice of this lack of engagement, and a renewed call for substantive civic education has occurred over the last decade. However, while new excitement to teach young people about the merits of citizenship and civic education exists, new pedagogical methods to utilize in the classroom have not been discussed. As new technologies come into the classroom, new resources with which to engage students become available. Video games are one such resource. The general purpose of this study was to examine the potential impacts video games have on middle school students' notions of civic engagement in democratic society. The focus of this review of literature provides a theoretical framework to the question "To what extent do video games focused on civics concepts affect self-reported youth civic-engagement in middle school students?" Literature was gathered from physical libraries by searching for "Democracy," "Democratic Education," and "Citizenship or Civics Education." The extensive online databases of ERIC and InformaWorld were also used. The cross-referenced terms used in those search engines were "Civics or Citizenship Education" and "Computer or Video Games." While many articles that deal with "Civics or Citizenship Education" and "Video or Computer Games" separately are available as of April 2012, few focus on both.

The review of relevant literature begins with an examination of what constitutes a democracy, the role that civic education is responsible for, and the characteristics of democratic

education. It continues with a justification of using video games for democratic civic education and their effect in educational contexts. The literature review concludes with a discussion of the social perceptions of video game use and the impact those perceptions have had on their inclusion in educational settings.

A Framework of Democracy

Born in antiquity, democracy was established in Greece approximately 2,500 years ago as a new, reasoned way to organize the politics of the Athenian city-state. Democracy survived in some form on and off for the next 500 years as other Greek city-states and the Roman Republic used scarce elements of Athenian Democracy in their governance. The Roman Republic worked to share power and maintain order among adversarial social classes only to have it perish with the rise of Imperial Rome. Given the contexts of the ancient western world, the notion that common, free men had the power, authority, and duty to participate in the governing process themselves was radical. In the modern age, democracy provided the philosophical foundation from which to establish moral governments that recognize the fundamental nature of humanity and sparked revolutions to codify it. It has been the rallying cry that calls its adherents to three global conflicts in the 20th century. It most recently served as a linchpin to United States' foreign policy for the last decade, and it drives much of the political debate in western societies. It is a term that has become synonymous with western culture and revered so much to the point of being romanticized.

Competing Theories of Democracy

What *is* democracy? The answer to this question can be fleeting, frustrating to articulate, and highly subjective based upon an individual's world view. Goodlad (2001) notes "What may appear at first blush to be rather unambiguous terms reveals itself upon further consideration to be anything but" (p.1). Understanding what is meant by the term *democracy* is essential to any discussion regarding what civic education in a democratic society is.

In its most simple of terms, democracy roughly translates from the original Greek *demokratia* as "rule by the people." It is broadly associated with the idea that political society organizes itself in such a manner as to give citizens the opportunity to have a voice in government. For some, this framework is sufficient, but others maintain it fails to recognize democracy's complex conceptual nature, as it has remained a contested issue that drove the evolution of modern liberal democratic tradition in Western Culture over the last 400 years.

Contemporary democratic philosophy suggests there are two competing conceptual frameworks from which democracy can be understood (Pratte, 1988; Gutmann, 1990; Sehr, 1997). The differences are subtle, centering on the value placed on human nature, the pursuit of individual utilitarianism, notions of public good, to what extent government plays a role in individual lives, and the requirement of individual engagement with government. Each notion of democracy shares philosophical foundations in the European Enlightenment; rooted in the solidly democratic ideal of individualism; and uniquely shape the goals of civic education. Pratte (1988) describes them as *Philosophical Liberalism* and *Philosophical Civic Republicanism*.

Philosophical Liberalism: Old School Democracy

Prior to the 17th century, a nearly five-hundred-year debate regarding the manifestation and origins of political power between monarchs and various citizen groups waged throughout Europe. It wasn't until the decisive events of the Glorious Revolution and the philosophical justification of its merit were published in Locke's *Two Treatises of Government* in 1689 and 1690 that debate was settled. It was in Locke's work that this framework of modern democratic thought first emerged; a result of revolution against tyrannical government (Pratt, 1988, p. 27).

At its core, Philosophical Liberalism is a framework for democracy that requires society to maximize the freedom of individuals and groups to pursue their own interests at the expense of the ordered state. The landmark works of Locke, Rousseau, and Mill provided the philosophical justification for this framework, arguing that man was born free, motivated by self-interest and co-equals with his fellow man in the amount of political power they naturally were able to exercise. Limited democratic governments of consent were moral only to the extent that an individual's "natural rights" were protected from other self-motivated individuals, protected from abusive government invasions, and free to pursue the fruits of freedom; life, liberty, and property (Pratte, 1988, p.29). Government is accordingly viewed by society as a necessary evil, able to exercise authority only to the extent that its citizens grant it power to do so and with as small of footprint possible to carry out its duties. Citizens perceive government that is far removed from them, becoming an obstacle that need only be worked around to pursue private interests. The public good can be guaranteed only to the extent that individual interests are free to be pursued on a grand enough scale that the body politic establishes a peaceful, prosperous social order in spite of government. In this framework of democracy, it is logical to conclude that

citizens need only be civically engaged to the point where their own needs and desires are met within the legal limit of the agreed upon law (Sehr, 1997; p. 17-18). Crafting governments within the context of this conceptual definition was prevalent at the height of the Enlightenment Era, providing the philosophical foundations for revolutionaries on both sides of the Atlantic Ocean. These ideas were especially important to United States' Founding Fathers and continue to resonate in American society given the contexts of the contemporary political debate.

Philosophical Civic Republicanism: 21st-Century Democracy

For much of the last 400 years, philosophical liberalism has been the dominant paradigm in democratic thought. Its primary focus on the individual has provided the impetus for western culture's political and economic dominance since the 17th Century. The framework's reliance on "natural rights" established a philosophical foundation for individuals to pursue unmitigated profit and individualism in pursuit of private interest at the expense of any notion of the public good. However, democratic societies founded on the framework of philosophical liberalism provide few mechanisms with which society is able to moderate the consolidation of economic and political power in the hands of very few individuals. The consequence of such a political and economic paradigm carried through to conclusion is an ever-increasing gap between those with wealth and power and those who struggle to attain it. It breeds inequality and exploitation, becoming an obstacle for individuals to participate in government to secure their own interests (Rosenstone & Hansen, 2003, p.13). This stands in contradiction to the democratic ideals of equality and individual freedom articulated in a liberal framework of democracy. Dewey (1927) argued, "The same forces which have brought about the forms of democratic government, general suffrage, executives and legislators chosen by majority vote, have also brought about

conditions which halt the social and humane ideals that demand the utilization of government…" (p. 109). To address these criticisms, philosophical civic republicanism (PCR), representing a more mature theoretical framework of democracy, emerged to contest philosophical liberalism.

Philosophical civic republicanism's framework is predicated upon the foundation of a sense of a shared community and the need of keeping issues of the public good in focus. It is principled on an Aristotelian understanding of human nature that people are naturally social animals and are only able to understand the individual self as a result of the context of existing in a community (Pratte, 1988, p. 40-41). An individual cannot know what the "self" is without the contrast and sense of community that come from being part of society. Dewey (1916) argued that "A democracy is more than a form of government; it is primarily a mode of associated living of conjoint communicated experience" (p.87).

From this perspective of democracy, individuals existing in a democratic society must think of the needs of society when pursuing self-interest as the fates of the individual and the community are largely are interconnected. Like philosophical liberalism, PCR emphasizes the value of individual liberty, equity, consent, and private interests. However, PCR differs in the requirement that individuals balance private interest with the public good based upon the idea of human dignity and civic virtue (Pratte, 1988, p. 40). De Tocqueville's notion of "Enlightened Self Interest" described this concept in his work *Democracy in America* published in 1835.

> "The Americans, on the other hand, are fond of explaining almost all the actions of their lives by the principle of self-interest rightly understood; they show with complacency how an enlightened regard for themselves constantly prompts them to assist one another and inclines them willingly to sacrifice a portion of their time and property to the welfare of the state." (De Tocqueville, 1835, Vol. 1, Chapt. 8).

Democracy based upon a notion of PCR, therefore, requires citizens to be actively engaged in the governing process to give legitimacy to actions taken by the state or individual with the goal of working toward the public good in the name of social justice (Ochoa-Becker, 2007, p. 17-18). Democratic government operating within the framework of PCR becomes the mechanism, representative of people and the public, through which individuals are protected from others' pursuit of private interest. Instead of being viewed negatively, democratic government within the PCR framework becomes an extension of the individual who is governed by consent, becomes the apparatus of governance for all civically engaged citizens, and deals with the needs of society in an "enlightened" manner.

Education for 21st-Century Democracy

In the new paradigm, one that requires engaged and free citizens to pursue their own private interests with the interests of public good in view, democratic society can rapidly become a messy place. Individuals with competing interests and different perceptions of public good constitute the political process of contemporary democratic society. If there is no underlying social order to this egalitarian political process, society can quickly disintegrate in chaos. Democracy is a "system that requires constant attention to what is right, equitable and just" (Ochoa-Becker, 2007, p.62). History provides a plethora of recent examples of failed states when society does not rise to the task. Unfortunately, human nature may be to blame.

Enlightenment thinkers such as Locke and Rousseau through more modern democratic theorists have long argued humans lack the natural ability to live a life of enlightened "self-governance" based upon shared interests (Dewey, 1916, p.3; Barber, 2001, p.12). Ochoa-Becker (2007) bluntly states that, "No citizen is born with the understandings and abilities for self-governance" (p. xii). Training that requires the development of skill sets necessary for this type

of democratic society becomes the necessary "enabler of democracy" (Barber, 2001; p. 19). Dewey (1916) articulated the institution of public school provides the most efficient means by which to carry out democratic education. Spring (2001) argues that the institution of American public schools was built around this concept in 17th-century New England. Religion and social order were the linchpins of Colonial civic life and provided students with an early curriculum for rigid Puritan life. More recently, a joint report published by The Center for Information and Research on Civic Learning and Engagement (CIRCLE) and The Carnegie Foundation of New York, regarding the status of democratic education, argued that the only institution in United States' society with the capacity to train all citizens is the public education system (Gibson & Levine, 2003).

If the education system ill-prepares citizens with the skill sets needed for engaged democratic life, the consequences to democratic societies are detrimental. Dewey (1916) argued that if schools do not properly train citizens for enlightened self-rule, society digresses into one characterized by ignorance and de-humanizing competition. Individuals would lack the tools to go through the process of being a rational, thinking citizen who is willing to consider the effect of his or her decisions and actions. Rather, decisions would be made out of habit, emotion, or ease without consideration of the consequences. White et al. (2007) more recently offered a sobering assessment regarding the effect of the lack of democratic education.

> "Citizens must understand that there is only one purpose for education in the republic: to educate citizens to know about and participate in issues important to the flourishing of the republic. Everything else flows from this core purpose. Without qualified citizens, there are no individual freedoms, accumulations of private wealth, or innovators creating economic opportunity, and there is not a capable workforce to support businesses and institutions." (White, Van Scotter, Hartoonian & Davis, 2007; p. 230)

If the flame of democracy does not naturally ignite in humans and citizens need to be educated about its tools, what should best practices in democratic education be?

For much of the last century, democratic education scholars have presented ideas regarding this issue. Dewey (1916) notes that proper democratic education requires the learner to see the connections to the learning experience and be rooted in a problem. Furthermore, prior instruction needs to be scaffolded to provide access to necessary background information, which allows the learner to utilize critical thinking skills to come up with a solution. Finally, the learner should have the opportunity to "test his ideas by application, to make their meaning clear and to discover for himself their validity" (p. 163). Dewey's rationale is based upon the idea that democratic life is quite difficult to sustain, requiring training that focuses on the social contexts of the individual and gives learners the opportunity to work through relevant problems before the responsibilities of citizenship are placed upon them.

In a similar call for an experiential form of democratic education, Gutmann (1987) states that democratic education must foster the propensity and ability to participate in democratic life. However, education for democracy needs to be comprehensive, also requiring "the imparting of knowledge and instilling emotional along with intellectual discipline" (p. 91). She argues that schools need to operate democratically to some degreeto give students ownership over their school community and fixing the real world issues that face their community. Again, the idea is that democratic education needs to focus on giving the learner the tools in which to engage in democratic life by giving students access to the information, thinking skills, a stake in community-based problems, and the ability to affect problem outcomes.

Sehr (1997, p. 89) offers a school-wide framework of democratic education. His framework has five attributes, which mirror the desires of previous democratic education

scholars. He notes that schools should create for students "opportunities to explore their interdependence with others and nature." Schools should encourage the study of society-wide problems that are antithetical to the democratic principles of equality and non-exploitation. Pedagogical practices should include "discussion, debate, and action on public issues." Students should be encouraged to "examine and evaluate critically the social reality in which they live" which allows educators to foster "students' capacities for public democratic participation." He argues that these elements of democratic education need to be implemented systemically in order to be an effective means with which to train students to be democrats.

In a revised edition of her earlier work with Shirley Engle, Ochoa-Becker (2007, p.39) argues that the "democratic citizen must be a vigorous thinker, a competent decision maker and an active participant who supports equitable conditions for all people…." She advocates that education for democracy has to be more far-reaching than fragmented facts about government and the political process. Rather it should be based upon "teaching that nurtures…a reasoned commitment to democratic principles with emphasis on equity, freedom and self-governance." Furthermore, she posits the central coalescing theme of democratic education should focus on developing the ability of students to make sound decisions in real world situations. Ochoa-Becker's vision of democratic education encourages an active, broad-based education. Its focus should fall on developing the tools needed for democratic citizenship by promoting a comprehensive understanding of the democratic political system and methods with which citizens participate in society.

While there is some differentiation in the terminology, a clear pattern emerges in the literature. Education for democracy calls for more than "covering a curriculum" so to speak. Rather, democratic education requires a sustained effort on the part of schools to give citizen

trainees a comprehensive framework of knowledge and thinking skills that are required to face the difficult issues that democratic societies face. Furthermore, democratic education must allow learners to immerse themselves in the real and relevant problems inevitably created in democratic life.

For the better part of a century, this mode of democratic training has been the ideal put forth by some of the best democratic philosophers. Unfortunately, public schools have done a poor job implementing the ideal. Citizenship education has been relegated to a single semester course in K-12 education, where it once was the focus of up to three courses as recently as 40 years ago (Gibson & Levine, 2003, p. 5). The report on the Civic Mission of Schools (2003) posits that the erosion of democratic education is a result of a few factors. Classroom time and resources have been allocated to the needs of high-stakes testing in reading and math, leaving little time for formal civics training. Budget deficits have also taken a toll on school based-civics activities while the threat of lawsuits and the loss of job security have forced many classroom teachers to de-emphasize the experiential and controversial aspects of rigorous democratic training.

However, advances in computer technology may offer educators an effective means with which to provide the democratic learner with a safe environment to develop and practice the skills needed for democratic life.

Using Video Games for Experiential Civic Education

As mentioned previously, scholars have long held that powerful and sustained learning occurs when learning is steeped in experience. Video games can be a powerful tool for educators to create immersive experiences (Deubel, 2007). Jensen (2008) asserts that video games offer more than just entertainment, rather they have become "...artificially intelligent spaces where

people collaborate, problem solve, read, strategies, communicate, participate, and act together both inside and outside a game....” Simpson (2008) contends that video games offer superior learning experience possibilities when compared to traditional classrooms as they are “...empowering, motivating, individualized differentiated learning environments with set rules which value the efforts of the individual child.”

Research concentrating on the unique aspects of learning with video games has focused on the mechanics of learning rather than on measureable outcomes. In the past decade, the innovations have become so profound in gaming technology that game designers are able to create entire interactive environments in which players must negotiate a series of complex tasks. No longer are players passively following a static story line, where a singular path will warrant success. Video games are so sophisticated that they have become a modern “choose your own adventure” story with open-ended problems that affect the outcome of a player’s experience (Shaffer, Squire, Halverson, & Gee, 2005). What is unique about learning with a video game is players learn so by doing, not by passively reading or theorizing (Squire, 2006). Shaffer, Squire, Halverson & Gee (2005) contend “video games are important because they let people participate in new worlds. They let players think, talk and act in new ways. Indeed, players come to in inhabit roles that are otherwise inaccessible to them” (Shaffer, Squire, Halverson & Gee, 2005, p. 105). Much of the research focusing on video games to teach argues the benefits of immersive environments to teach content in situated contexts, where players engage in learning experiences just for the pleasure of doing so (Brown, 2008; Gee, 2007; Jenkins & Squire, 2003; Squire, DeVane, & Durga, 2008; Squire, 2003).

One area of scholarly research being pursued is the use of Sid Meier’s *Civilization* titles to teach students world history concepts in classrooms. Teaching social studies to students is a

daunting task, due to the need to "present students with thousands of years of developments across all civilizations without being western-centric" (Jenkins & Squire, 2003, p. 13). He argues that the use of these types of video games allow teachers to present historical thinking to students in ways that are experiential and student-centered. This dynamic allows for deeper understanding of content and can develop appreciation for significant events in history. (Squire, 2003). What has emerged in the last 5 years is the beginning of a practical framework for video game inclusion in social studies classrooms with which teachers can justify video games' use to skeptics and engage students in higher-order thinking. Now students can do a multitude of tasks that were beyond the scope of classrooms just a generation ago. Squire (2003b) argues that students can replay history to experience it from an immersive perspective. They can revise history to explore alternative outcomes to gain insights into important events. They can also become producers of content by actively engaging the artificial world the game experience offers.

Social Contexts of Video Games in Educational Settings

Video games have been in existence for nearly fifty years and have been extensively utilized by the military and private industry for training purposes, with demonstrated success (Hays, 2005; McCann, 1975). In contrast, educators have been slow to embrace video games as an educative medium due to the cultural debate that has emerged regarding their effect on children (Presnky, 2001a). Gee (2003) proposes that three dominant perspectives linger regarding gaming within the context of mainstream culture: hostility, lack of understanding, and skepticism. Squire (2002) argues that video games have become part of contemporary social discourse by conservatives in the greater context of contemporary culture wars; indeed, much

attention has been given to studying the social, behavioral, and physical effects video games have on young people.

Prensky (2001b) asserts that much of the media coverage directed at video games for the last thirty years has been negatively skewed. Negative press coverage regarding gaming may have reached a pinnacle at the turn of the century. Reports broadcast on CNN and posted on their website on April 21, 1999, just two days after the Columbine school shooting, linked the actions of the two teenaged gunmen to their play of the video games. An article posted April 23, 1999, on the website Salon.com had the headline "Doom, Quake and Mass Murder," where a discussion of the violent nature of the style of game the gunmen preferred ensued. Subsequently, in a Reuters article, published April 4, 2001, Attorney General John Ashcroft suggested that *Dope Wars*, a text-based video game should be implicated as cause for the unusually high number of school shootings.

Academic research has been less sensationalistic studying the psychological and social effects video games have on young people. The literature indicates the debate is ongoing.

Anderson and Dill (2000) suggest that "violent video game play was positively related to increases in aggressive behavior" and "students who reported playing more violent video games over a period of years also engaged in more aggressive behavior in their own lives." Furthermore, they state "…we believe that the present results confirm that parents, educators, and society in general should be concerned about the prevalence of violent video games in modern society, especially given recent advances in the realism of video game violence" (Anderson & Dill, 2000). These arguments are a result of data gathered from their mixed-mode study that found gamers engaged with video games with an element of violence were more likely to inflict "virtual" punishment on fellow gamers than gamers who played non-violent video

games. Furthermore, participants were “more likely” to express aggressive behaviors in the “real” world than those who did not play violent video games.

Earlier, a study conducted by Roe and Muijs (1998) reported that heavy video game usage was linked to lower academic achievement, lower levels of social interaction, and less positive perceptions of social integration, stating “... such use is associated with negative rather than positive outcome in terms of academic achievement, self-esteem and sociability.” Their study also articulated new potential dangers focusing on anti-social outcomes when playing video games. Citing previous research linking negative social habits to heavy VCR use to watch violent and pornographic films, they argue that “...VCR use reported in these studies was very much a peer group activity, computer game playing seems to be more of a private, individual activity,” suggesting that video game players tend to be loners, isolated from a sense of community. Regarding self-esteem, Roe and Muijis (1998) present a nuanced argument. They posit that the sense of gratification from victorious gameplay may raise self-esteem, but that players will be conditioned to seek out computer interactions rather than social interactions.

Several studies regarding the effects of video game use on risk-taking behaviors generally suggest a negative causal association. Bosworth (1994) proposes that video game players are more likely to engage in negative behaviors such as drug use and have a higher frequency of reported depression when compared to their peers who did not play video games. More recently, Padilla-Walker et al.. (2009) found that “... video game use was linked to greater drug use, drinking behaviors, and lower relationship quality with friends and parents, while violent video game use was associated with more sexual partners and lower relationship quality with friends and parents” and “...violent video game use by men was linked to more drinking behaviors. For women, video game use was associated with lower self-worth, and both video games and violent

video games were associated with lower perceived social acceptance." They propose that the negative effect of video gameplay on social relationships and self-perceptions may have profound implications, stating "..a direct result of video game use may be the development of an unhealthy identity that includes participation in risk behaviors," summing their argument with the claim that "...rather than being a benign way to spend one's time, extensive video game use may negatively impact development."

Some recent literature has added competing viewpoints. Articles by Levine (2009) and Johnson (2008) argue that video gameplay, even games with some violent content, can have positive social effects on the player. Levine's 2009 qualitative case study reported that as school aged children were given to access to a "...safe, noncommercialized space to play video games" where they were able to establish connections with other players and work through problems without adult supervision or violence. In this case, video games were the catalyst by which young people were able to engage in positive social behavior such as peer discussion and deliberation. Johnson (2008) claims that playing a Massively Multiplayer Online Role Playing Game (MMORPG), even those with some violent elements, provide opportunities for players to demonstrate social behavior that is collaborative, productive, and civil. Johnson argues that players engage in written public discourse as a result of group play, they participate in the gaming development process, and they effectively become active online citizens to change their experience.

A significant amount of research has tied video games and negative behavioral patterns to each other. This may be able to explain why educational institutions have been slow to adopt video games as a pedagogical tool. However, as video games become more acceptable within the

broad context of society as evidenced by their widespread use, research arguing for their inclusion in the educational setting has increased.

Empirical Findings of Achievement in Educational Contexts

Research pertaining to traditional educational institutions has been mixed to date. There have not been many research studies that ascertain the effect video games have on academic achievement in school contexts. The research that has been conducted does give reason for optimism.

Koran and McLaughlin (1990) examined the difference in math student achievement between teaching methods that used drill exercises and video game applications and found that video games under-performed. They state, "It could be concluded then that drill was slightly more effective at increasing the students' ability at performing the basic multiplication facts than the game"; however, the video game had the effect of fewer classroom disturbances as a result of students independently playing (Koran & McLaughlin, 1990). Wiebe and Martin (1994) researched the effect an "edutainment"-based video game had on student performance related to geography. Using the title *"Where in the World is Carmen Sandiego?"* they examined fifth-grade and sixth-grade students in a pretest-posttest research design. Their findings suggested that there were no differences in student academic achievement based upon the use of video game as evidenced by similar posttest results in a control group (Wiebe & Martin, 1990). Using a pretest and posttest analyzed with an ANCOVA statistical procedure, Din and Calao (2001) investigated math achievement in kindergarten-aged children using math-based video games. While the number of participants was relatively small (n=47), the results indicated "…both classes made slight improvement in math over an 11-week time span. However, the experimental group did not gain significantly more in math than the control group did." More recently, however, Virvou,

Katsionis and Manos (2005) suggested that there is a positive relationship between academic performance and video game use in classroom settings. Using geography-based video games as a treatment, they asserted that students who used the utilized the game showed increased academic performance on a geography posttest when compared to students who did not use the game component to learn.

Analysis of achievement related to military knowledge and application has flourished in the last decade and has shown a more positive relationship between achievement and video game use. To teach Navy trainees how to operate submarine periscopes, the U.S. Navy designed and tested a video game that simulated operational complexities of submarine equipment. Data suggested that trainees who were exposed to the video game use were more likely to demonstrate competency than trainees who were not exposed (Garris, Ahlers, & Driskell, 2002). Using flight simulator video games to train fighter pilots by the U.S. Military also showed strong positive results when training pilots to keep focused (Gopher, Weil, & Bareket, 1994).

In a meta-analysis review of literature, Hays (2005) specifically focused on empirical support for the use of video games to facilitate achievement performance. He concluded that research examining video game effect on achievement is split and that design flaws plague some of the research. Hays (2005) also suggests that video games can result in higher academic achievement, but results are largely contextualized and that video games may not work in every situation. Furthermore, video games use should be augmented with instruction support focusing on feedback and deliberation (Hays, 2005).

CHAPTER THREE: RESEARCH METHODS

The purpose of this study was to understand if civic-themed video games have an effect on middle-school student civic-engagement. Educators largely overlook video games as a teaching resource in American public schools (Prensky, 2001a, Squire, 2004). Teachers are using models and methods of instruction that often fail to provide powerful, engaging experiences that the "Digital Native" student seeks. This quantitative study examined the effect of civics-based video gaming on different groups of middle school students in order to understand if this technology has a role in supporting student motivation to be more engaged in civic life. Research questions were designed to quantify student interest as measured by self-reported scores of youth civic engagement at a large U. S. public middle school in the Southeastern United States. This chapter describes the study design and methodology, detailing the population sample, instrumentation for the study, the video games and the reason they were chosen, the research questions and their identified variables, data collection and analysis procedures, limitations of the study, and threats to validity and viability of the study.

Research Design and Methodology

This study's research questions required hypothesis testing and was more robustly analyzed with quantitative methodology by providing measurable data regarding changes in mean self-reported civic engagement as a result of gaming. The gold standard in research design calls for the implementation of a true experimental design, with randomized treatment and control groups to measure the effect or impact of phenomena (Cambell and Stanley, 1966). However, this study was conducted in a working school where the researcher was ethically obligated to cause the least amount of impact on the student-learning environment and did not have full control on the randomization of sampling. As such, the research design of this study

was quasi-experimental in nature, explicitly using a Comparison Group Design (CGD). Lomax (1996, p. 292) suggests that when the researcher loses the ability to randomly choose a sample from the population due to the environment or the nature of the study, it is considered quasi-experimental.

Variables of the Research Questions

Research Questions

1. Is there a statistically significant difference in youth civic-engagement self-reported scores between male and female middle school participants who play civics-based video games?

The Independent Variable for this research question is the participant's gender (male and female). Changes between pretest and posttest participant self-reported youth civic-engagement measured by the instrument utilized in this study are the Dependent Variable for this research question.

2. Is there a statistically significant difference in youth civic-engagement self-reported scores among middle school participants of different grade levels who play civics-based video games?

The Independent Variable for this research question is participant's middle school grade level (Sixth, Seventh, and Eighth). The change between pretest and posttest participant self-reported youth civic-engagement measured by the instrument utilized in this study is the Dependent Variable for this research question.

3. Is there a statistically significant difference in the change of youth civic-engagement self-reported scores after playing civic-themed video games among middle school participants who spend more time playing video games outside of the classroom?

The Independent Variable for this research question is the amount of time that students play video games outside of school per week (0-1 Hours, 1-5 Hours, 5-10 Hours, 10-15 Hours, 15 or More Hours). Changes between pretest and posttest participant self-reported youth civic-engagement measured by the instrument utilized in this study are the Dependent Variable for this research.

Analysis Procedures

Quantitative tests were run with participant data to test the hypothesis. The quantitative analysis tests that were conducted to test the hypothesis for all research questions were a One Way ANOVA. This procedure allowed the researcher to determine whether there is any statistically significant differences among the changes of mean self-reported civic-engagement scores in populations of students based upon the one independent variable that is utilized in each of the research questions. Richard Lomax (1996, p. 198) argues for utilization of this statistical procedure over Independent T tests, due to its propensity to reduce a Type I error while maintaining mean testing rigor in mean testing. Follow up ANOVA and any Post Hoc procedures to deepen the check for statistical significance tests were conducted to understand where significance, if any, lies.

Participant Demographics and Sampling Procedures

Participant Demographics

This study was administered in a large, urban middle school in the Southeastern United States, located within district with a diverse student population and metropolitan area of over one million people. The population of the school is highly diverse in terms of ethnicity and socio-economic status. The school has a free or reduced lunch rate of nearly 90% and a mix of ethnicities and races, the predominant being Latinos from the Caribbean with a large contingent of White, Black, and Asian students. The sample population was representative of the school and community at large. The population sample for this study was 68 students at the middle school. This sample size was chosen specifically to minimize a type II error in case of participant study mortality.

The sample population consisted of 41 male and 27 female participants. The racial/ethnic make-up of the sample population were 49 Latinos, 12 Whites, 2 Black, 2 Asian, and 3 self-reported as "other." Twenty-one students were in sixth grade, twenty-four were in seventh grade, and twenty-three were in eighth grade. The sample population does not perfectly match the overall distribution of students at the middle school; however, the study required using a convenience sample due to it taking place in a fully operational school.

Sampling Procedures

Ideally, participants to be included in the study would be randomly sampled from the general population of students. However, it was not possible to randomly assign participants to the sample without interfering with the normal educational environment of a working middle school, as pulling participants out of their regularly scheduled classes to participate in the study

would interrupt their learning experiences relative to the rest of their classmates. To overcome this challenge, the population sample consisted of 68 volunteers students who signed up for a before/afterschool program course, where video gameplay was offered. Roughly 20% of the student population actively participates in the afterschool program that runs for a total of three hours designated before and after school each day. The population of students in the after school program mirrors the general population of the school.

The before/after school program provides students a safe, supervised environment where students are able to participate in various extracurricular and academic activities. In order to maintain an active status in the program, students are obligated to maintain their attendance in the activities that they sign up for. The study was offered as an activity for students to participate in. Any student who signed up for the program to play were allowed to play the games to encourage as many students who wanted to sign up for the opportunity to play civics-based video games. This helped to ensure a more robust sample size for randomization and data collection by encouraging as many students as possible to sign up for the activity rather than limiting to only ones who are randomly sampled.

Instrumentation

The goal of this study was for the researcher, using data gathered from a survey, to understand if a new potential medium of citizenship education, specifically video games, affects different groups of middle school students' self-reported civic engagement . However, nearly all of the more recent survey instruments that measure individual student engagement with reliable psychometrics are geared for participants that are above legal voting age or looked at concepts that are closely related to civic engagement in young people like political attitudes or values. In

2007, researchers at the Center for Information and Research on Civic Learning and Engagement (CIRCLE), a highly regarded Civic Education Think Tank located at Tufts University, developed a survey instrument that is specifically designed to look at civic engagement amongst 12-18 year olds (Flanagan, Syvertsen and Stout, 2007). Some items were adapted from an existing body of fragmented surveys looking at civic engagement in youth and adults, while other items were created for the new instrument. Researchers reported all items were included based upon the "theoretical relevance to the constructs measured," which in this case is civic engagement (Flanagan et al., 2007, p.2).

The Civic Engagement Measurement Survey (CEMS) was developed using data collected from nearly 2000 social studies students from Northeastern schools around the 2004 Presidential Campaign and Election Season. Participants were asked to self-report on a wide variety of items that rated a participant's current level of civic engagement and beliefs about their future civic engagement just before and after the 2004 Presidential Election. The CEMS is designed to measure fourteen different themes that the researchers at CIRCLE identified as realistic components of civic engagement among youth ages 12-18 (Flanagan et al., 2007). The fourteen constructs measured by the CEMS include civic behavior, views of elected officials and government, conventional forms of civic engagement, alternative forms of civic engagement, political efficacy, views of equality and justice, types of citizenship, parents civic engagement, political conversations with others, values, media consumption and perceptions, school climate, personal beliefs, and civic knowledge. Internal consistency measures were employed to ensure that items measured the desired civic-engagement constructs (Flanagan et al., 2007). Each item on the CEMS was reported by the researchers to have a Cronbach's Alpha coefficient of greater

than .7, which is considered to be the threshold for internal reliability for research replication purposes (Nunnaly, 1978).

Video Game Selection and Correlation to Survey Instrument

Several video games were used in this study to give students an array of video games that are based around civics concepts. All games are easily available, are simulation-based, and expose players to civic education concepts dealing with local, state, federal, and international issues. The issues and concepts covered in gameplay align with the civic-engagement themes measured with the survey instrument. Alignment to the instrumentation, age appropriateness, and consumer accessibility were the criteria used for choosing the video games used in the study. The games chosen to use in the study will be *Commander in Chief*, *Sim City 4: Deluxe Edition*, and *Civilization IV*.

Commander in Chief

Commander in Chief is a simulation game published by Interactive Gaming Software (IGS) company in 2008. Gameplay requires players to assume the role of a head of state of any country that was in existence as of January 1, 2009. In this study, participants were limited to assuming the role of the president of the United States. In this geo-political simulator, players are given the ability to control many different aspects of a nation from the perspective of the head of state. The game is highly interactive as the player must negotiate a complex network of social relationships with competing interest groups, political adversaries and allies, simulated citizen groups, and foreign dignitaries to achieve a goal that is pre-designed or to maintain political power for as long as possible in a “sand-box” gameplay, where players play with no pre-set goal.

The player can set monetary policy through various institutions that strongly correlate to present day executive departments in the U.S. and regulatory agencies. If a player wants to change tax rates to promote certain initiatives, the player must negotiate with non-playable characters in the legislative branch to ensure final passage. Negotiations will be bound to the political forces, by way of party affiliation or simulation public opinion, that are pulling on the computer controlled characters in the game. The player also has the ability to set national policy initiatives that, if not popular with the public, could cause citizen protests. This game offers players a highly immersive environment within the context of a modern United States' presidency and allows for experiences that deal with a multitude of topics outside the institution of the presidency. The game requires players to assess, evaluate, and synthesize civic-related knowledge to be successful at solving problems in the game that modern societies face.

One criticism of note is that the game has an extensive tutorial that needed to be completed and understood before players could use the options in gameplay to the fullest extent. While the gameplay interface is very user friendly, requiring only clicks of a mouse, there are choices in gameplay that are highly nuanced and specialized for specific actions that players can choose. The tutorial takes about 1-2 hours to be completed; however, players were able to access the tutorial throughout gameplay.

Correlation to Civic-Engagement Measurement Survey

1. The effect of citizen political engagement on the political process
2. The effect of elected official policy stance on voter preference
3. The role of political parties
4. The impact of special interest groups on the political process
5. Seeing political issues from differing perspectives

6. The value of public policy on society
7. Political efficacy

Sim City 4: Deluxe Edition

Electronic Arts, Inc. originally published *Sim City 4* in 2003. *Sim City 4: Rush Hour* was developed in 2005 as a supplement to the 2003 edition and added additional features to the game. They were packaged together as *Sim City 4: Deluxe Edition*. Gameplay puts the player in the role of a mayor of a fledgling town and necessitates players to plan the layout of a city, develop a plan for infrastructure and service management for the "citizens" that move to the city, and negotiate or make policy choices with non-playable characters that affect the game experience. The game allows players to gain a micro-level perspective of society. Control to create and manipulate inputs is only granted over the immediate domain of a city. This "god-mode" interactive simulation game requires that players negotiate complex problems in real time as the game unfolds. There is no set way to "win" *Sim City 4*, and games can be indefinite. However, if the city is in financial ruin or players fail to settle the issues that arise as a result of various competing interest groups that exist in the simulated city, they will be "removed" from office.

Each open-ended choice a player makes has in-game consequences, much like local public choices have in the real world. An example of this is the very realistic competing interests that often tug public policy choices the player must make throughout the game. Very early in the game, a decision must be reached regarding the methods the city will produce energy to power commercial buildings, transit systems, homes, and public services in the city. Building a coal-fired power plant is much cheaper and energy production intense than a solar power plant.

However, the tradeoff is higher pollution, fewer happy citizens, and a lower propensity for high-technology jobs that develop in the city.

A more obvious example regards tax rates. Players can set the tax rates based upon different industry types, commerce type or residential affluence. If players want to discourage manufacturing intense industry and encourage clean tech industry, one method at a player's disposal is tax the dirty industry more and the clean industry less. This policy choice must also be supported with a robust public education system that spans all the way through to college for the citizens. High tech industry requires high tech employees who need to be educated. This type of multilevel approach to developing a dynamic, balanced, and financially sound simulated society is at the heart of *Sim City 4: Deluxe Edition*.

Correlation to Civic-Engagement Measurement Survey

1. The effect of citizen political engagement on the political process
2. The effect of elected official policy stance on voter preference
3. The impact of special interest groups on the political process
4. Seeing political issues from differing perspectives
5. The value of public policy in society
6. Political efficacy

Civilization IV

Published by Firaxis Studios in 2005, *Civilization IV* (*Civ IV*) is a turn-based strategy games that allows players to simulate the advance of a primitive civilization through the course of human history. While *Sim City 4*, gives players a micro-level view and control over a game space, *Civ IV* requires players to approach a society's needs and problems in a game space with a

macro-level perspective. Players ideally control infrastructure and public policy at a society-wide level. Players set resource allocations for technological progress, food management, production, and economic output goals for an entire civilization that represents separate cities and unique regions in the game space. Power to control the political, economic, and social institutions of society rests squarely with the player. Players can organize a democratic society with free-market economic foundations by making active, methodic choices throughout the game. Players can also choose to create a communist society that prescribes to the Islamic faith.

The gameplay experience is highly customizable to individual players, with players choosing from a variety of routes to negotiate the game space. As the game progresses, the game space and gameplay experience becomes increasingly complex and consequence-based. What makes this game such a powerful experience is that the default setting at the macro-level is one that is not conducive to successful outcomes in the game. Using their best judgment to achieve goals, players must actively make choices that have real consequences.

Correlation to Civic-Engagement Measurement Survey

1. The effect of citizen political engagement on the political process
2. The value of public policy in society
3. Political efficacy

Data Collection and Researcher Role

Data Collection

To collect data regarding student civic engagement, IRB approval for human subjects from both the local school district and the University of Central Florida was obtained prior to any data-collection procedures. The participants for the study were a convenience sample who

signed up for a before/after school program course where the civics-based video gameplay will be offered. The before/after school program is a local government-funded program where adult counselors offer students supervised academic tutoring or physical activities for 1.5 to 2 hours before and after school. Students have a large variety of opportunities to choose from and have the choice to attend only before school, only after school, or both timeframes. The program is offered five days a week, allowing for a grand total of roughly 7.5 to 20 hours of contact time per week. The afterschool program coordinator and the school's principal were highly supportive of offering students in the afterschool program an opportunity to play civic-based video games and provided trained camp counselors and access to computers as needed. Participants in the before/afterschool program had to have parent/guardian informed consent prior to acceptance into the afterschool program course.

After IRB and informed consent was approved, participants were given the CEMS after the fourth nine-week period of school began. This date in the school year was explicitly chosen because it falls near the point where student mobility substantially dropped off and after state-mandated testing was completed, freeing up the computers. The CEMS was given in a semi-private atmosphere where students had ample time and conditions conducive to complete the CEMS with no input from peers. Participants' scores were tallied, recorded, and safely stored for later comparison.

Participants were granted access to a computer lab consisting of 27 school computers with copies of all three video games used in this study on them for four weeks. As there were not enough computers for all participants in the treatment group to play at one time, participants were placed on a schedule that brought one grade-level per day into the lab. This gave participants a minimum of 15 hours and maximum of 25 hours of total gaming time. Afterschool

counselors were available to students to help with technical problems and to assist students in navigating the game interface. Afterschool counselors were not able to give student suggestions, hints, or ideas in how to manipulate the gamespace as it would have threatened the integrity of the study. As these games were commercially produced, 25 hours of gameplay experience was more than enough to master manipulating the gamespace environment.

The first 15 hours of gameplay was structured, requiring 5 hours of gameplay for each game in the study to be experienced by the participants. The first game required was *Sim City 4: Deluxe Edition*. This was the easiest game to master and simplest in terms of gameplay experience. Next, *Civ IV*, was introduced to participants as it required a more robust learning curve. The extensive tutorial gave players a good foundation from which to work, but was a more complex game to master. Finally, the last 5 hours of structured play was spent on *Commander in Chief*. This game was the most difficult and complex of the games in this study. The tutorial simplifies the game controls, but understanding how a video game works and how to manipulate a game interface are essential background information for one who begins to play this game. Playing the other two games first provided good practice and familiarity opportunities for participants. After participants completed the 5 hours of structured play for each game, they were free to play the games of their choice. To track the amount of time spent playing and the type of game played, participants were given a timesheet to record their gaming time. After each session in the lab, participants had to have the adult counselor sign off on the hours spent playing and the game played to ensure accuracy of reporting. The researcher kept participant timesheets in a locked area to safeguard the data.

Upon completion of the four weeks of gameplay, participants were re-given the CEMS so the two data sets could be compared for quantitative analysis. The CEMS was given to

participants in a semi-private venue, free from input of their peers and under no time constraints. Participants maintained their enrollment in the afterschool program, but the specific course was no longer offered. This was done to ensure confidence that data from outside the scope of the study was not included in the study.

Researcher Role

The researcher is a seventh-grade civics teacher and social studies trainer at the middle school where the study took place. Some of the researcher's own classroom students participated in the study. To ensure internal reliability of the study, the researcher did not directly oversee participants in the study and did not discuss the implications, purpose, or nature of the study with faculty, staff. or students except in instances where guidance was needed to implement the study or maintain the integrity of the study. Rather, the researcher trained the afterschool counselors so they understood what procedures they were to follow and maintained oversight throughout the study. At no point did the researcher work with participants in the study. The researcher strictly adhered to this to maintain the integrity of the study.

Limitations and Threats to Validity

First, participant access to the video gameplay experience was limited to a sample population of 68 students and may not be representative of students in the general public at U.S. public schools. Secondly, the video games used for this study were designed specifically to entertain consumers, not educate students in a classroom setting. Another significant limitation is the convenience sampling procedures used to populate the treatment group. Participants that were included in the treatment group voluntarily signed up for the before/afterschool program course. It was likely that those that voluntarily signed up for the course have had more

experience manipulating video game environments and more receptive to receiving the underlying educational value of the game than someone from the general population.

Threats do exist in a study of this nature. A significant threat to the study is the "closeness" the researcher has to participants in both the control and treatment groups. Every effort was made to maintain researcher independence to the study to control for this threat. At no point did the researcher discuss the nature, implications, or purpose of the study with faculty, staff, parents, or students unless doing so was called for in the research design. Furthermore, participant mortality was a concern in a large, urban school district, where students often move in and out of classrooms because of relocation. To mitigate this potential threat, a large population sample was used to ensure excess participants are available in the case that population mortality became a concern.

CHAPTER FOUR: RESULTS

The purpose of this study was to understand if there was a statistically significant difference regarding the mean changes of self-reported civic-engagement scores among different groups of middle school students who play of civic-themed video games. Its significance to the field of education focuses on the potential for video games to be utilized as a new pedagogical tool in civic education classrooms as any innate discrimination between different populations of students needs to be understood. Three research questions were offered in the first chapter. (1) Is there a statistically significant difference in the changes to youth civic-engagement self-reported scores between male and female middle school participants who play civics-based video games? (2) Is there a statistically significant difference in the changes to youth civic-engagement self-reported scores among middle school participants of different grade levels who play civics-based video games? and (3) Is there a statistically significant difference in the change of youth civic-engagement self-reported scores after playing civic-themed video games among middle school participants who spend more time playing video games outside of the classroom?

Hypothesis testing for all three research questions was done using the data collected from the CEMS instrument. The data were obtained from analyzing the pretest-posttest change in CEMS scores, an indication of civic engagement. To come up with a score for comparison, values for each question on the Likert-scale-based CEMS were given a numerical value of "1-5" if there were 5 possible responses, a value of "1-3-5" if there were 3 options and "1" or "5" if it was a yes or no answer. If a participant responded with "I Don't Know" they were given a "0," as being unaware of something indicates little civic engagement. The higher number responses corresponded to a more positive notion of civic engagement or strength of conviction about an issue. After the responses were recoded into a numerical form, the responses for each question

were added up as an overall composite score and by grouped questions that corresponded to each of the eight civic-engagement constructs for a construct score. If one were to add up the change in scores for each civic-engagement construct for each participant, it would correspond to the composite score. For example, if a participant had changes in civic-engagement construct scores of -15, 23, -2, 45, 15, -29, 5, 33, the change in the composite score is 75.

Sixty-eight students out of nearly three hundred in the afterschool program volunteered to be participants in this study. The participants were given four weeks in the Spring of 2012 to complete the minimum of 15 hours of gameplay time outlined in the procedures described in Chapter Three. Chapter Four presents the statistical findings that are associated with each of the research questions. The results were reported by first reiterating the alternative and null hypothesis for each question; then a description of the quantitative data-analysis procedures was used, followed by the decision reached based on the results of the data analysis.

Overall Effect on Civic Engagement

Before each individual hypothesis is tested, it is prudent to determine what the general magnitude of the effect on civic-engagement video games had between pretest and posttest administrations of the CEMS. The question to be investigated is "Is there a statistically significant difference in self-reported civic-engagement scores as a result of civic-themed video games play?" While it is not a formal research question, the results of this question provide a basic understanding of the effect civic-themed video games had on these participants in the context of this study. Given that there is no control group to compare results to due to the nature of this study's design, knowing what the general effect video games had on civic engagement gives a baseline from which to understand the data moving forward as the formal hypothesis testing was conducted. To analyze the results, a paired Sample T Test was utilized to compare

the results of the pretest and posttest administrations of the CEMS to participants. These results that are reported are based upon the composite pretest score and the composite posttest score.

Decision

A Paired Sample T Test procedure was used to see if a statistically significant difference existed between participant self-reported civic-engagement levels from the pretest and posttest administrations of the CEMS. Lomax (1996) posits that this procedure is best suited to capture significant differences in mean scores when the same population (paired) has been tested twice (pretest and posttest). The results of the statistical procedure indicate that there was no significant difference between the self-reported civic-engagement scores of participants between the pretest and posttest administrations of the CEMS. Looking at the mean scores of all 68 participants who took the CEMS (see Table 1), there was a 3.6 point decrease in civic-engagement scores on the posttest of the CEMS. As such, the results of the T-Test in Table 2 indicate that there was not a significant difference (P Value= .585) in the total civic-engagement self-reported scores between the Pretest (M=186.72) and the Posttest (M=183.12). Again, while this is not one of this study's formal research questions, it does provide a baseline from which to view the rest of the data as formal hypothesis testing moving forward in this dissertation. This result suggests that effect of video gameplay on civic engagement within the context of this study makes participants report slightly *worse* civic-engagement levels.

Table 1: Pretest and Posttest Composite Scores on the CEMS Instrument

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest Composite Score	68	122	329	186.72	41.191
Posttest Composite Score	68	96	272	183.12	39.888

Table 2: Paired Samples T Test Comparing the Results of Composite Pretest and Posttest

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
	Pretest Composite Score - PostTest Composite Score	3.603	54.206	6.573	-9.518	16.724	.548	67	.585

At first glance, the data suggest that civic-themed video games have no effect or a slightly negative effect on civic engagement. However, it is not known how these results would compare to participants who were given the CEMS Instrument without playing video games in a control group. It is important to have this information as a lens to view moving forward through the results and discussions of formal hypothesis testing that sought to understand how the self-reported civic engagement of different groups of participants compared to each other.

Hypothesis 1

Alternative Hypothesis:

H_1: A statistically significant difference exists in the changes to youth civic-engagement self-reported scores between male and female middle school participants who play civics-based video games.

Null Hypothesis:

H_o: No statistically significant difference exists in the changes to youth civic-engagement self-reported scores between male and female middle school participants who play civics-based video games.

Decision

An Analysis of Variance (ANOVA) procedure was utilized to compare the mean changes in youth civic-engagement self-reported scores between male and female middle school participants. This test was chosen for its propensity to accurately compare the variance of the means of the Dependent Variable in the sample population (Lomax, 1996). In this case, looking specifically at the cumulative changes in mean scores across all eight civic-engagement constructs, the data, outlined in Tables 3 and 4, indicates that there is not a statistically significant difference (P Value=.859) between the changes in mean youth civic-engagement self-reported scores of male (M= -4.56) and female (M= -2.15) participants at a .05 alpha level.

Table 3: Descriptive Statistics of the Changes in Composite Scores on the CEMS Instrument of Female and Male Participants

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Female	27	-2.15	45.758	8.806	-20.25	15.95	-89	103
Male	41	-4.56	59.652	9.316	-23.39	14.27	-192	106
Total	68	-3.60	54.206	6.573	-16.72	9.52	-192	106

Table 4: ANOVA Procedure Results Comparing the Changes in Composite Scores Between Female and Male Participants on the CEMS Instrument

Between Groups	94.774	1	94.774	.032	.859
Within Groups	196773.505	66	2981.417		
Total	196868.279	67			

Since the data utilized for initial analysis was indicative of the cumulative changes to scores across all eight indicators of civic engagement measured by the CEMS, it is clear that there is no significant difference in the changes to overall levels of civic engagement between male and female participants. However, to reach a more confident decision, a deeper look into the changes in mean youth civic-engagement self-reported scores was conducted for each of the civic-engagement constructs. This follow-up procedure allowed for a more detailed account of the effect video gameplay can have on civic engagement. An ANOVA procedure was utilized for each of the eight civic-engagement constructs comparing the mean change for each construct between males and females. As outlined in Tables 5 and 6, follow-up data-analysis procedures indicate that no statistically significant difference in mean scores occurs between male and female participants across any of the eight civic-engagement constructs. Quantitative analysis procedures show that the differences between male and female participants had P values at higher than .253 at an alpha level of .05 for all eight civic-engagement constructs. As such, data-analysis procedures give ample evidence to confidently support a decision to fail to reject the null hypothesis.

Table 5: Descriptive Statistics for the Changes in Score for Each Civic-Engagement Construct Measured on the CEMS Instrument for Female and Male Participants

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Political Conversation	Female	27	-.33	4.992	.961	-2.31	1.64	-9	8
	Male	41	-.37	4.592	.717	-1.82	1.08	-9	10
Civic Behavior	Female	27	-1.93	13.556	2.609	-7.29	3.44	-43	25
	Male	41	1.44	17.726	2.768	-4.16	7.03	-30	55
Student Assessment	Female	27	4.85	14.738	2.836	-.98	10.68	-31	31
	Male	41	2.27	20.113	3.141	-4.08	8.62	-55	51
Civic Engagement Tradition	Female	27	-.15	4.614	.888	-1.97	1.68	-9	11
	Male	41	.02	5.194	.811	-1.61	1.66	-11	13
Civic Engagement Alternative	Female	27	3.19	14.342	2.760	-2.49	8.86	-27	40
	Male	41	-.22	16.746	2.615	-5.51	5.07	-38	38
Political Efficacy	Female	27	-4.48	9.204	1.771	-8.12	-.84	-19	13
	Male	41	-1.76	9.731	1.520	-4.83	1.32	-25	19
Equality and Justice	Female	27	.33	7.601	1.463	-2.67	3.34	-12	14
	Male	41	-.37	7.459	1.165	-2.72	1.99	-20	16
Family Civic Engagement	Female	27	-.07	3.637	.700	-1.51	1.36	-8	7
	Male	41	-.41	4.272	.667	-1.76	.93	-12	9

Table 6: ANOVA Procedure Results Comparing the Changes in Each Civic-Engagement Construct Score Between Female and Male Participants Measured by the CEMS Instrument

		Sum of Squares	df	Mean Square	F	Sig.
Political Conversation	Between Groups	.017	1	.017	.001	.978
	Within Groups	1491.512	66	22.599		
	Total	1491.529	67			
Civic Behavior	Between Groups	184.330	1	184.330	.701	.405
	Within Groups	17345.949	66	262.817		
	Total	17530.279	67			
Student Assessment	Between Groups	108.661	1	108.661	.329	.568
	Within Groups	21829.456	66	330.749		
	Total	21938.118	67			
Civic Engagement Tradition	Between Groups	.485	1	.485	.020	.889
	Within Groups	1632.383	66	24.733		
	Total	1632.868	67			
Civic Engagement Alternative	Between Groups	188.710	1	188.710	.752	.389
	Within Groups	16565.098	66	250.986		
	Total	16753.809	67			
Political Efficacy	Between Groups	120.919	1	120.919	1.332	.253
	Within Groups	5990.302	66	90.762		
	Total	6111.221	67			
Equality and Justice	Between Groups	7.958	1	7.958	.141	.709
	Within Groups	3727.512	66	56.477		
	Total	3735.471	67			
Family Civic Engagement	Between Groups	1.888	1	1.888	.116	.734
	Within Groups	1073.803	66	16.270		
	Total	1075.691	67			

Hypothesis 2

Alternative Hypothesis:

H_1: A statistically significant difference exists in the changes to youth civic-engagement self-reported scores among middle school participants of different grade levels who play civics-based video games.

Null Hypothesis:

H_o: No statistically significant difference exists in the changes to youth civic-engagement self-reported scores among middle school participants of different grade levels who play civics-based video games.

Decision

Differences in mean scores (see Table 7) between sixth-, seventh-, and eighth- grade participants were compared using an ANOVA quantitative data-analysis procedure. The data, outlined in Table 8, showing the cumulative changes of all eight civic-engagement constructs measured by the CEMS, indicated that there is no statistically significant difference (P value = .869) in the changes to mean youth civic-engagement self-reported scores among sixth- (M = 1.52), seventh- (M = -6.88), and eighth- (M = -4.87) grade participants at a .05 alpha level.

Table 7: Descriptive Statistics for Changes in Composite Score Measured by the CEMS Instrument for Sixth-, Seventh-, and Eighth-Grade Participants

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Sixth	21	1.52	69.669	15.203	-30.19	33.24	-192	103
Seventh	24	-6.88	46.442	9.480	-26.49	12.74	-89	86
Eighth	23	-4.87	47.357	9.875	-25.35	15.61	-84	106
Total	68	-3.60	54.206	6.573	-16.72	9.52	-192	106

Table 8: ANOVA Procedure Results Comparing the Changes in Composite Scores Among Sixth-, Seventh-, and Eighth-Grade Participants on the CEMS Instrument

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	845.808	2	422.904	.140	.869
Within Groups	196022.472	65	3015.730		
Total	196868.279	67			

Since the data utilized for initial analysis was indicative of the cumulative changes to scores across all eight indicators of civic engagement measured by the CEMS, it is clear that there is no significant difference in the changes to overall levels of civic engagement between sixth-, seventh-, and eighth-grade participants. However, to provide a more detailed account of how civic engagement is affected by video gameplay, resulting in a more confident decision regarding hypothesis two, a follow up ANOVA data-analysis procedure was conducted on each of the indicators of civic engagement by grade level. As outlined in Tables 9 and 10, follow-up data-analysis procedures indicate some interesting results. There were no statistically significant differences in mean scores occurring among sixth-, seventh-, and eighth-grade participants across seven of the eight civic-engagement constructs (P values > .077). However, there was a statistically significant difference in the change between mean scores (6th M = 2.19, 7th M = -

1.29, 8th M = 1.70) regarding political conversation (P value = .010) at an alpha level of .05. For a more robust analysis of the data, a Scheffe Post Hoc (See Table 11) procedure was conducted to understand where the statistically significant difference lies. It was discovered that the difference in scores lies in the relationship between sixth-grade participants and the seventh- and eighth-grade participants (P values < .05). Sixth-grade participants had small, but significantly higher mean change in scores after playing civic themed video games. There were no statistically significant differences between changes in seventh- and eighth-grade participant scores (P value > .05). Given the totality of the information, the decision was made to fail to reject the null hypothesis.

Table 9: Descriptive Statistics for the Changes in Score for Each Civic-Engagement Construct Measured on the CEMS Instrument for Sixth-, Seventh-, and Eighth-Grade Participants

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Political Conversation	Sixth	21	2.19	4.739	1.034	.03	4.35	-8	9
	Seventh	24	-1.29	4.563	.931	-3.22	.64	-9	10
	Eighth	23	-1.70	4.072	.849	-3.46	.07	-9	8
Family Civic Engagement	Sixth	21	-.43	4.249	.927	-2.36	1.51	-12	7
	Seventh	24	.58	3.682	.752	-.97	2.14	-6	8
	Eighth	23	-1.04	4.106	.856	-2.82	.73	-8	9
Equality and Justice	Sixth	21	-1.90	7.911	1.726	-5.51	1.70	-20	12
	Seventh	24	-1.21	7.163	1.462	-4.23	1.82	-11	12
	Eighth	23	2.74	6.811	1.420	-.21	5.68	-8	16
Political Efficacy	Sixth	21	-2.00	10.440	2.278	-6.75	2.75	-25	18
	Seventh	24	-4.00	10.026	2.047	-8.23	.23	-19	19
	Eighth	23	-2.39	8.441	1.760	-6.04	1.26	-15	13
Civic Engagement Alternative	Sixth	21	5.10	18.163	3.963	-3.17	13.36	-28	40
	Seventh	24	2.25	13.904	2.838	-3.62	8.12	-27	32
	Eighth	23	-3.65	14.807	3.087	-10.06	2.75	-38	38
Student Assessment	Sixth	21	2.33	20.123	4.391	-6.83	11.49	-55	31
	Seventh	24	.67	16.191	3.305	-6.17	7.50	-33	35
	Eighth	23	6.91	18.246	3.804	-.98	14.80	-19	51
Civic Behavior	Sixth	21	4.52	19.646	4.287	-4.42	13.47	-30	55
	Seventh	24	-1.13	16.369	3.341	-8.04	5.79	-43	31
	Eighth	23	-2.65	11.730	2.446	-7.72	2.42	-22	25
Civic Engagement Tradition	Sixth	21	-.38	5.792	1.264	-3.02	2.26	-11	11
	Seventh	24	.83	5.538	1.130	-1.51	3.17	-10	13
	Eighth	23	-.65	3.214	.670	-2.04	.74	-7	6

Table 10: ANOVA Procedure Results Comparing the Changes in Each Civic-Engagement Construct Score Among Sixth-, Seventh-, and Eighth-Grade Participants Measured by the CEMS Instrument

		Sum of Squares	df	Mean Square	F	Sig.
Political Conversation	Between Groups	198.463	2	99.232	4.988	.010
	Within Groups	1293.066	65	19.893		
	Total	1491.529	67			
Family Civic Engagement	Between Groups	31.758	2	15.879	.989	.378
	Within Groups	1043.933	65	16.061		
	Total	1075.691	67			
Equality and Justice	Between Groups	283.268	2	141.634	2.667	.077
	Within Groups	3452.203	65	53.111		
	Total	3735.471	67			
Political Efficacy	Between Groups	51.742	2	25.871	.278	.759
	Within Groups	6059.478	65	93.223		
	Total	6111.221	67			
Civic Engagement Alternative	Between Groups	886.282	2	443.141	1.815	.171
	Within Groups	15867.527	65	244.116		
	Total	16753.809	67			
Student Assessment	Between Groups	486.292	2	243.146	.737	.483
	Within Groups	21451.826	65	330.028		
	Total	21938.118	67			
Civic Behavior	Between Groups	621.199	2	310.599	1.194	.310
	Within Groups	16909.080	65	260.140		
	Total	17530.279	67			
Civic Engagement Tradition	Between Groups	29.365	2	14.682	.595	.554
	Within Groups	1603.503	65	24.669		
	Total	1632.868	67			

Table 11: Scheffe Post Hoc Test Results Comparing the Mean Difference Among Sixth-, Seventh-, and Eighth-Grade Participant Political Conversation Score

(I) What is your grade level?	(J) What is your grade level?	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Sixth	Seventh	3.482*	1.333	.039	.14	6.82
	Eighth	3.886*	1.346	.020	.51	7.26
Seventh	Sixth	-3.482*	1.333	.039	-6.82	-.14
	Eighth	.404	1.301	.953	-2.86	3.66
Eighth	Sixth	-3.886*	1.346	.020	-7.26	-.51
	Seventh	-.404	1.301	.953	-3.66	2.86
*. The mean difference is significant at the 0.05 level.						

Hypothesis 3

Alternative Hypothesis:

A statistically significant difference exists in the change of youth civic-engagement self-reported scores after playing civic themed video games among middle school participants with different experience levels of playing video games on their own.

Null Hypothesis:

No statistically significant difference exists in the change of youth civic-engagement self-reported scores after playing civic-themed video games among middle school participants with different experience levels of playing video games on their own.

Decision

Differences in mean scores among participants who spent more time playing any type of video games outside of the school setting were compared using an ANOVA quantitative data-analysis procedure. The data, outlined in Table 12 and 13, indicated the cumulative changes of all eight civic-engagement constructs measured by the CEMS indicated that there is a

statistically significant difference (P value = .003) in the changes to mean youth civic-engagement self-reported scores between those who spend different amounts of time playing video games on their own at a .05 alpha level. The mean change is scores are: 0-1 Hours (M = -28.17); 1-5 (M = -32.56) ; 5-10 Hours (M= -8.10); 10-15 Hours (M=25.74) and 15 or More Hours (M=36.60).

Table 12: Descriptive Statistics for Changes in Composite Score Measured by the CEMS Instrument for Participants with Different Levels of Experience Playing Video Games on Their Own

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
0-1 Hours Per Week	6	-28.17	31.726	12.952	-61.46	5.13	-72	24
1-5 Hours Per Week	18	-32.56	53.830	12.688	-59.32	-5.79	-192	53
5-10 Hours Per Week	20	-8.10	40.764	9.115	-27.18	10.98	-87	57
10-15 Hours Per Week	19	25.74	54.908	12.597	-.73	52.20	-89	106
15 or More Hours Per Week	5	36.60	57.413	25.676	-34.69	107.89	-55	93
Total	68	-3.60	54.206	6.573	-16.72	9.52	-192	106

Table 13:ANOVA Procedure Results Comparing the Changes in Composite Scores Among Participants with Different Levels of Experience Playing Video Games on Their Own on the CEMS Instrument

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	43550.317	4	10887.579	4.474	.003
Within Groups	153317.962	63	2433.618		
Total	196868.279	67			

A Scheffe Post Hoc test (See Table 14) was conducted to see where the statistical significance difference in scores lie. It was discovered that a statistical difference among participants who play outside video games between 1-5 hours per week and those who play 10-15 hours per week (P Value = < .05) existed. There were no other statistically significant differences in scores among participants who play other amounts of time per week outside of school (P Value > .05).

Table 14:Scheffe Post Hoc Test Results Comparing the Mean Difference of Composite Scores Among Participants with Different Levels of Experience Playing Video Games on Their Own

(I) Video Game Play	(J) Video Game Play	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0-1 Hours Per Week	1-5 Hours Per Week	4.389	23.255	1.000	-69.41	78.19
	5-10 Hours Per Week	-20.067	22.963	.942	-92.94	52.80
	10-15 Hours Per Week	-53.904	23.102	.258	-127.22	19.41
	15 or More Hours Per Week	-64.767	29.872	.330	-159.56	30.03
1-5 Hours Per Week	0-1 Hours Per Week	-4.389	23.255	1.000	-78.19	69.41
	5-10 Hours Per Week	-24.456	16.028	.677	-75.32	26.41
	10-15 Hours Per Week	-58.292*	16.226	.018	-109.78	-6.80
	15 or More Hours Per Week	-69.156	24.938	.118	-148.30	9.98
5-10 Hours Per Week	0-1 Hours Per Week	20.067	22.963	.942	-52.80	92.94
	1-5 Hours Per Week	24.456	16.028	.677	-26.41	75.32
	10-15 Hours Per Week	-33.837	15.804	.343	-83.99	16.32
	15 or More Hours Per Week	-44.700	24.666	.517	-122.98	33.58
10-15 Hours Per Week	0-1 Hours Per Week	53.904	23.102	.258	-19.41	127.22
	1-5 Hours Per Week	58.292*	16.226	.018	6.80	109.78
	5-10 Hours Per Week	33.837	15.804	.343	-16.32	83.99
	15 or More Hours Per Week	-10.863	24.795	.996	-89.55	67.82
15 or More Hours Per Week	0-1 Hours Per Week	64.767	29.872	.330	-30.03	159.56
	1-5 Hours Per Week	69.156	24.938	.118	-9.98	148.30
	5-10 Hours Per Week	44.700	24.666	.517	-33.58	122.98
	10-15 Hours Per Week	10.863	24.795	.996	-67.82	89.55

*. The mean difference is significant at the 0.05 level.

Mean scores were statistically significant across two of the eight civic-engagement constructs measured by the CEMS instrument. Specifically, the Civic Behavior and Political Efficacy (See Table 15 and 16) constructs had significantly different changes in mean scores (P Value = < .05). A Scheffe Post Hoc Test was conducted to see where the difference in change in

mean scores lie within the groups for these two constructs. For the Civic Behavior construct, the data concluded that the difference lies between the group that plays the most outside of school (15 of More Hours) and those who play the least (0-1 hours, 1-5 hours, and 5-10 hours) with P Values less that .05. The same Post Hoc test was conducted on the Political Efficacy construct where it was found the group that played the 1-5 hours had a statistically significant different change in mean score when compared to those who played 10-15 hours (See Tables 17 and 18). Given that there was a statistically significant difference in the changes in mean scores based upon the amount of time the participants spent playing video games on their own, the alternative hypothesis can be accepted.

Table 15: Descriptive Statistics for the Changes in Score for Each Civic-Engagement Construct Measured on the CEMS Instrument for Participants Levels of Experience Playing Video Games on Their Own

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Civic Behavior	0-1 Hours Per Week	6	-11.50	7.148	2.918	-19.00	-4.00	-20	0
	1-5 Hours Per Week	18	-2.89	18.314	4.317	-12.00	6.22	-43	32
	5-10 Hours Per Week	20	-4.30	10.854	2.427	-9.38	.78	-22	22
	10-15 Hours Per Week	19	5.26	13.589	3.117	-1.29	11.81	-15	31
	15 + Hours Per Week	5	22.80	19.829	8.868	-1.82	47.42	3	55
Student Assessment	0-1 Hours Per Week	6	-1.33	12.420	5.071	-14.37	11.70	-15	17
	1-5 Hours Per Week	18	-.22	22.856	5.387	-11.59	11.14	-55	35
	5-10 Hours Per Week	20	2.60	14.358	3.211	-4.12	9.32	-21	27
	10-15 Hours Per Week	19	9.95	17.209	3.948	1.65	18.24	-13	51
	15 + Hours Per Week	5	-1.00	20.881	9.338	-26.93	24.93	-23	33
Civic Engagement Tradition	0-1 Hours Per Week	6	-1.17	4.491	1.833	-5.88	3.55	-9	4
	1-5 Hours Per Week	18	-1.28	5.655	1.333	-4.09	1.53	-11	8
	5-10 Hours Per Week	20	.05	3.776	.844	-1.72	1.82	-7	10
	10-15 Hours Per Week	19	.63	5.387	1.236	-1.97	3.23	-8	13
	15 + Hours Per Week	5	2.80	5.263	2.354	-3.73	9.33	-3	10
Civic Engagement Alternative	0-1 Hours Per Week	6	-1.00	8.485	3.464	-9.90	7.90	-9	10
	1-5 Hours Per Week	18	-5.72	16.287	3.839	-13.82	2.38	-38	24
	5-10 Hours Per Week	20	-.25	12.519	2.799	-6.11	5.61	-24	27
	10-15 Hours Per Week	19	7.00	18.022	4.134	-1.69	15.69	-19	40
	15 + Hours Per Week	5	11.60	15.388	6.882	-7.51	30.71	-5	29
Equality and Justice	0-1 Hours Per Week	6	-1.33	3.983	1.626	-5.51	2.85	-5	6
	1-5 Hours Per Week	18	-2.39	7.868	1.854	-6.30	1.52	-20	12
	5-10 Hours Per Week	20	-2.05	7.075	1.582	-5.36	1.26	-14	10
	10-15 Hours Per Week	19	3.42	7.136	1.637	-.02	6.86	-10	16
	15 + Hours Per Week	5	4.20	7.563	3.382	-5.19	13.59	-6	12

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Political Efficacy	0-1 Hours Per Week	6	-7.50	7.176	2.930	-15.03	.03	-14	5
	1-5 Hours Per Week	18	-8.94	7.025	1.656	-12.44	-5.45	-25	3
	5-10 Hours Per Week	20	-1.05	8.494	1.899	-5.03	2.93	-14	14
	10-15 Hours Per Week	19	.58	9.946	2.282	-4.21	5.37	-18	19
	15 + Hours Per Week	5	4.60	11.171	4.996	-9.27	18.47	-8	18
Family Civic Engagement	0-1 Hours Per Week	6	-.67	3.011	1.229	-3.83	2.49	-6	3
	1-5 Hours Per Week	18	-2.11	4.813	1.134	-4.50	.28	-12	5
	5-10 Hours Per Week	20	-.25	3.492	.781	-1.88	1.38	-7	9
	10-15 Hours Per Week	19	1.53	3.702	.849	-.26	3.31	-6	8
	15 + Hours Per Week	5	-.20	2.950	1.319	-3.86	3.46	-5	3

Table 16: ANOVA Procedure Results Comparing the Changes in Each Civic-Engagement Construct Score Among Participants with Different Levels of Experience Playing Video Games on Their Own

		Sum of Squares	df	Mean Square	F	Sig.
Civic Behavior	Between Groups	4438.317	4	1109.579	5.339	.001
	Within Groups	13091.962	63	207.809		
	Total	17530.279	67			
Student Assessment	Between Groups	1293.926	4	323.481	.987	.421
	Within Groups	20644.192	63	327.686		
	Total	21938.118	67			
Civic Engagement Tradition	Between Groups	84.252	4	21.063	.857	.495
	Within Groups	1548.615	63	24.581		
	Total	1632.868	67			
Civic Engagement Alternative	Between Groups	2113.248	4	528.312	2.273	.071
	Within Groups	14640.561	63	232.390		
	Total	16753.809	67			
Equality and Justice	Between Groups	507.478	4	126.869	2.476	.053
	Within Groups	3227.993	63	51.238		
	Total	3735.471	67			
Political Efficacy	Between Groups	1363.995	4	340.999	4.525	.003
	Within Groups	4747.226	63	75.353		
	Total	6111.221	67			
Family Civic Engagement	Between Groups	123.293	4	30.823	2.039	.100
	Within Groups	952.398	63	15.117		
	Total	1075.691	67			

Table 17: Scheffe Post Hoc Test Results Comparing the Mean Difference Between Participant Political Behavior Score with Different Levels of Experience Playing Video Games on Their Own

(I) Video Game Play	(J) Video Game Play	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0-1 Hours Per Week	1-5 Hours Per Week	-8.611	6.796	.807	-30.18	12.95
	5-10 Hours Per Week	-7.200	6.710	.885	-28.49	14.09
	10-15 Hours Per Week	-16.763	6.751	.201	-38.19	4.66
	15 or More Hours Per Week	-34.300*	8.729	.007	-62.00	-6.60
1-5 Hours Per Week	0-1 Hours Per Week	8.611	6.796	.807	-12.95	30.18
	5-10 Hours Per Week	1.411	4.684	.999	-13.45	16.27
	10-15 Hours Per Week	-8.152	4.742	.569	-23.20	6.89
	15 or More Hours Per Week	-25.689*	7.287	.021	-48.82	-2.56
5-10 Hours Per Week	0-1 Hours Per Week	7.200	6.710	.885	-14.09	28.49
	1-5 Hours Per Week	-1.411	4.684	.999	-16.27	13.45
	10-15 Hours Per Week	-9.563	4.618	.378	-24.22	5.09
	15 or More Hours Per Week	-27.100*	7.208	.012	-49.97	-4.23
10-15 Hours Per Week	0-1 Hours Per Week	16.763	6.751	.201	-4.66	38.19
	1-5 Hours Per Week	8.152	4.742	.569	-6.89	23.20
	5-10 Hours Per Week	9.563	4.618	.378	-5.09	24.22
	15 or More Hours Per Week	-17.537	7.246	.224	-40.53	5.46
15 or More Hours Per Week	0-1 Hours Per Week	34.300*	8.729	.007	6.60	62.00
	1-5 Hours Per Week	25.689*	7.287	.021	2.56	48.82
	5-10 Hours Per Week	27.100*	7.208	.012	4.23	49.97
	10-15 Hours Per Week	17.537	7.246	.224	-5.46	40.53

*. The mean difference is significant at the 0.05 level.

Table 18: Scheffe Post Hoc Test Results Comparing the Mean Difference Between Participant Political Efficacy Score with Different Levels of Experience Playing Video Games on Their Own

(I) Video Game Play	(J) Video Game Play	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0-1 Hours Per Week	1-5 Hours Per Week	1.444	4.092	.998	-11.54	14.43
	5-10 Hours Per Week	-6.450	4.041	.638	-19.27	6.37
	10-15 Hours Per Week	-8.079	4.065	.421	-20.98	4.82
	15 or More Hours Per Week	-12.100	5.256	.271	-28.78	4.58
1-5 Hours Per Week	0-1 Hours Per Week	-1.444	4.092	.998	-14.43	11.54
	5-10 Hours Per Week	-7.894	2.820	.112	-16.84	1.06
	10-15 Hours Per Week	-9.523*	2.855	.034	-18.58	-.46
	15 or More Hours Per Week	-13.544	4.388	.061	-27.47	.38
5-10 Hours Per Week	0-1 Hours Per Week	6.450	4.041	.638	-6.37	19.27
	1-5 Hours Per Week	7.894	2.820	.112	-1.06	16.84
	10-15 Hours Per Week	-1.629	2.781	.987	-10.45	7.20
	15 or More Hours Per Week	-5.650	4.340	.791	-19.42	8.12
10-15 Hours Per Week	0-1 Hours Per Week	8.079	4.065	.421	-4.82	20.98
	1-5 Hours Per Week	9.523*	2.855	.034	.46	18.58
	5-10 Hours Per Week	1.629	2.781	.987	-7.20	10.45
	15 or More Hours Per Week	-4.021	4.363	.931	-17.87	9.82
15 or More Hours Per Week	0-1 Hours Per Week	12.100	5.256	.271	-4.58	28.78
	1-5 Hours Per Week	13.544	4.388	.061	-.38	27.47
	5-10 Hours Per Week	5.650	4.340	.791	-8.12	19.42
	10-15 Hours Per Week	4.021	4.363	.931	-9.82	17.87

*. The mean difference is significant at the 0.05 level.

CHAPTER FIVE: DISCUSSION

The general purpose of this study was to investigate whether civic-themed video games have a place in an educator's toolbox in a civic-education classroom. More explicitly, the focus of this study was to understand if interest in civic engagement was impacted differently among different groups of students in a middle school setting via the play of civic-themed video games. The groups of students investigated were gender and grade-level specific. The three research questions will be discussed individually, followed by sections of recommendations based upon the totality of the research, areas of future research needs, limitations of the study, and a summary.

Research Question 1

> *Is there a statistically significant difference in youth civic-engagement self-reported scores between male and female middle school participants who play civics-based video games?*

Research question one was designed to determine if male and female participants' interest in being civically engaged responds to civic-themed video gameplay in different ways. Data were gathered from comparing the change in pretest and posttest scores on the CEMS survey instrument that measured the interest of being civically engaged. The results from hypothesis testing for research question one suggests that playing civic-themed video games does not impact boys and girls in substantially different ways in terms of interest in being civically engaged. This supports the conclusions of Schafer et al. (2002), Gee (2003, 2007) Squire (2004), Deubel (2007), and Annetta (2008) in that video games can be used as a pedagogical tool to reach different learners. A closer look at the distribution of change of mean scores reveals that there was a wide variability for both females and males (See Table 1), which would confirm the results of statistical analysis. What is interesting is that even though there was nearly a 300-point

swing in the variance in the changes from pretest to posttest scores for males and over 200 points for females, the overall mean changes were under -5 points.

It was, however, a bit concerning that overall mean changes in civic-engagement scores were very small and negative in the participant sample. It is difficult to know for sure why there was a consistent, negative effect on civic engagement as measured by the CEMS. The most likely cause for slightly negative outcomes is that participants when taking the CEMS instrument for the first time had little experience thinking about concepts related to their own civic engagement. When re-taking the instrument at the end of their video gameplay experience, thus being more comfortable with the general topic of civic engagement, it may have caused the participants to be more discerning with their responses, resulting in a consistently lower self-reported score on the CEMS. It should be noted that this conclusion was reached based upon the researcher's own professional experience dealing with middle school students in the classroom and should be confirmed with further research. What is encouraging, however, is that participants' mean change in scores for composite score and individual civic-engagement constructs did so with consistency. It is for these reasons that the null hypothesis for research question one was not rejected.

This conclusion is important to the field of civic education, because it suggests that the immersive, simulation effect of video games does not discriminate against students of either gender sitting in a classroom. This supports the general framework of constructivism and bricolage theories of education offered by Dewey (1916), Bruner (1966), and Papert (1993) respectively. It does so in that relevant, self-directed, immersive learning experiences can be a universal tool that does not discriminate against different groups of students.

This information is also critical because of the reality of the current contexts of U.S. public education. It would be unethical for a classroom teacher to choose a pedagogical method that is exclusively for one gender or another. The reality is as the move toward teacher proofed, universal curriculums is made and education budgets shrink due to a flailing economy, administrators and educators need to be sure that learning tools affect as many students in classrooms as possible. While it is not yet known whether video games can be used to positively influence interest in civic engagement for middle school students, one can conclude that based upon the contexts of this study, civic-themed video games do not significantly impact the male and female middle students in substantially different ways regarding self-reported civic-engagement interest.

Research Question 2

Is there a statistically significant difference in the changes to youth civic-engagement self-reported scores among middle school participants of different grade levels who play civics-based video games?

Research question two was designed to determine if learners across different ages and maturity levels had different changes in civic-engagement outcomes as a result of video gameplay. Data was gathered from measuring the change in participant self-reported civic-engagement scores from the pretest and posttest CEMS instrument results. This was first done for changes across a composite score on the CEMS and then by each individual civic-engagement construct.

The results of hypothesis testing for research question two suggests that video gameplay does not affect civic-engagement interest in sixth-, seventh-, or eighth-grade students in statistically significant different ways. The changes in mean composite score for all three grade levels was small compared to the variability in scores (See Table 5). There was, however, a

statistically significant difference in the Political Conversation civic-engagement construct self-reported scores. It can almost certainly be explained by understanding the nature of differences between the curriculums offered at this school in sixth, seventh, and eighth grade. The seventh- and eighth-grade social studies curricula are ripe with opportunity to discuss political topics, while the sixth-grade material has little to no obvious connections to contemporary political topics. It makes sense that participants who have had minimal formal civic education in an academic setting might report a higher interest in engaging in civic discourse as a result of a virtual experience in the video game. When one recalls Chapter 3, the games that were part of this study were chosen due to their ability to align with the civic-engagement constructs measured by the CEMS. In doing so, participants were able to gain virtual experiences with civic activity. In this case, sixth-grade participants, the youngest and least experienced in terms of civic education, demonstrated a statistically significant difference with their seventh- and eighth-grade counterparts about showing interest in discussing politics with their peer, parents, and other adults (See Table 9). This should be encouraging to those interested in civic education. However, using this data, there is no way to ascertain if the changes in political conversation scores between sixth-, seventh- and eighth-grade participants were due to video gameplay or being exposed to the general topic of civics for the first time in a school setting as was the case for sixth-grade participants. Most likely, video games became the impetus for increased awareness of political conversation, which in turn positively affected reported interest in civic engagement for sixth graders. Given that there was no statistical significant difference in cumulative changes in scores based upon grade level and that the significant differences for political conversation were most likely caused by being exposed to new academic content, the decision was reached to fail to reject the null hypothesis.

While there was no increase in overall civic engagement reported between the pretest and posttest administrations of the CEMS, the changes in both composite score and by individual civic-engagement construct among the different grade levels were statistically insignificant. The implications of this data mean that video games do not discriminate in their effect on middle-school participant interest in civic-engagement levels based upon grade level. The overall mean changes in scores for participants in each grade level were narrow in comparison (See Table 7). This is significant because differences in maturity between sixth- and eighth-grade students can be vast. The methods to reach out to sixth graders often time differ than methods to engage eighth graders. To have a pedagogical tool that has the possibility to reach an 11-year-old in the sixth grade and 15-year-old in the eighth grade speaks to non-discriminatory nature of video games as educational tools to engage "Digital Natives" as suggested by Prensky (2001a.b), Squire (2003; 2006), Gee (2003; 2007) and Deubel (2007).

It is also important because significant one-time costs associated with the acquisition of the technology to bring video games' use to students can be distributed over all middle-school grade levels. Traditional curricular costs are often grade- or content-specific, thus not able to be mitigated across the entire population of middle school students. While computer hardware costs are often shared among the entire student body, curricular software programs tend to be much like their traditional counterparts, grade- and content-level specific. Within the specific context of this study, this does not seem to be the case. Administrators at the school and district level may find it easier to justify the cost of this educational tool, as civic education should be the goal of all social studies classrooms.

Research Question 3

Is there a statistically significant difference in the change of youth civic-engagement self-reported scores after playing civic-themed video games among middle school participants with different experience levels of playing video games on their own?

Research question three was designed to understand whether prior video gameplay experience impacts how middle school participants respond to civic-themed video games in showing interest in being civically engaged. It determines whether prior experience with the learning systems employed by all video games, as described by Gee (2007), have an effect on the potential to utilize the technology in academic settings for civic education. Data used for hypothesis testing for research question three was gathered from participant self-reporting the amount of time spent playing video games on their own in a week, then comparing the means in the changes in mean composite scores from the CEMS instrument from the pretest to posttest. The same procedure was done across each civic-engagement construct.

The data show that there was a significant difference in the mean changes in civic-engagement scores based upon the amount of time participants spend playing video games. Post Hoc testing revealed that the changes in mean scores were statistically significant for those who played 1-5 hours and for those who played 10-15 hours. The significant difference lies between those participants who have the most outside experience playing video games and those who have the least. The results of data testing suggest that those who have more experience playing video games of any type on their own had a more positive change in score than those who had less outside video gameplay experience (See Tables 12 and 13).

Looking more specifically at significance across each construct, participants also reported significant differences for political behavior and political efficacy. Post Hoc testing regarding interest in political behavior concluded that there are differences based upon the amount of

outside experience playing video games. Participants who reported that they spent more time playing video games in general had more positive differences regarding interest in taking political action generally speaking. Post Hoc testing regarding interest in political efficacy revealed different results, in that difference lies in those who have the most experience playing video games and those who reported only spending 1-5 hours on their own.

The data show that those who have more experience playing video games tend to report a higher interest in being civically engaged after being exposed to civic-themed video games. It is interesting that, in the context of this study, those positive changes occurred in two very important areas in civic engagement, the interest to take political action (civic behaviors) and the belief that the individual can affect change (political efficacy). It is likely that these changes in those participants who report having more experience playing video games had a reduced learning curve to overcome when they started to play, resulting in more time to internalize the learning experience with better quality. Relative to the results of hypothesis testing for research question three, this means that players who were able to have deeper experiences making choices and seeing how those choices affect other facets of the gameplay environment generally reported higher interest in civic engagement in real world contexts after playing those civic-themed games. This is tremendously important because it suggests that if video games are to be introduced into the classroom, a familiarity with the general protocols of video gameplay has to exist already or be built into the classroom environment for the technology to be effective. Video games, regardless of type or purpose, have user interfaces built in that require the user to manipulate. While the specifics may be unique to the individual game, they almost always share the same premise: moving, making choices, and dealing with information and the propensity to "build on" skill sets toward more complexity. It makes sense that if enough experience were

gained in playing video games, being able to more quickly “learn” to be an active gamer would be less difficult.

These positive outcomes tied to more experience playing video games are important to the field of civic education. The point of this study was to find out how video games build interest to be active democratic citizens in different populations of middle-school-aged youth. In research question three, the most concrete evidence that there are differences in how diverse groups of middle school students respond to video games is provided. It is clear, based upon this data, that the virtual space of video games has the potential to provide engaging, immersive environments for players to simulate experience in civic activity if students have more experience playing video games in general. This affirms that Squire (2004), Gee (2007), and others interested in video games as a teaching tool were right to conclude that video games are learning environments where the learner can be set free to experience within them. It also gives credence to the notion that video games can be used as a way to motivate middle school learners toward civic engagement. That participants were able to experience civic life and their influence in the gamespace and then transfer the worth of that influence into real world positive changes regarding interest in being civically engaged speaks to the potential impact of video games as a tool for civic education. Dewey (1916) made the call for experiential learning so that real world experience could be built into curriculum in an immersive learning environment. Based upon this data, video game environments might be fit to be used as a learning environment that Dewey made the case for so long ago.

From Outside the Fishbowl

This study was designed to be a quantitative study that used numbers and variables to understand how middle school-aged participants were affected in terms of their interest in civic engagement after playing civic-based video games. As a teacher at the school where this study was conducted, the researcher found it was utterly impossible to totally remove himself from what was going on in the computer labs where the study took place. While the researcher took every precaution not to negatively affect the integrity of the study, there were several occurrences where it was vital that he went into the room when students were participating in the study. Also, there were several students who were part of the sample population that were in the researcher's class or who he mentored. The researcher gathered data that from observations that were not necessarily part of the scope of this study. It was evidence from "outside the fishbowl."

Democracy in Action

What was observed showed that while the *numbers* do not indicate an increase in civic engagement after playing video games, the *actions* of students indicate that students were engaged in the process. On one occasion when he had to be in the computer lab to work with the camp counselors, the researcher saw several students who had found a way to set up game of *Civilization IV* for 10 or so students to play each other. Over the course of the 10-15 minutes the researcher was in the room, those students were intensely focused on what was going on in the game. They were working together in teams to overcome common obstacles in the game and used their understanding of the different types of governments (Democracy, Communism, etc.) to develop a plan of action to produce the necessary raw materials, tools, weapons, and military units to beat another team. Those who had less experience playing the game asked those who had

more experience for help along the way in true democratic fashion. These students were engaged to the extent that they wanted to work together and experience things as a team.

There were also several occasions where colleagues told the researcher of instances where students in the population sample discussed connections they made between what they experienced as part of gameplay and what was going on in the classroom. One such example came to the researcher by way of a fellow social studies teachers who said that one student was able to make an argument as to why local government needs to provide fire, police, and education services because the virtual city that he had designed in *Sim City 4* did not attract good virtual citizens with high wealth until he funded schools, police quarters, and fire stations. He delved deeper into this issue by declaring that he thought real local governments should do the same to help the economy, even if it meant higher taxes. That discussion occurred in a seventh-grade classroom by an "average" student.

Taking the Hill

A final bit of evidence about what the researcher saw as a result of this study focuses on a student that sat in his homeroom all year. The student did not often participate or turn in homework. This student, "Chuck," reluctantly shared with the class that he wanted to enter the military when he grew up and did not care about school outside of how it would help him get into his preferred future dream job, an Infantry Soldier for the U.S. Marines. For the entire school year up until the point of the study, Chuck could only talk about how he wanted to be the one to "take the hill" in combat. While his aspirations to be a Marine is nothing less than admirable, if studies were not about the Marine Corps, Chuck wasn't interested in, especially when studies involved school. When the researcher saw that Chuck had signed up to be a

participant in the study, the researcher had apprehensions about his committing to the requirements of the study. He had showed no interest in homeroom class, much less other classes.

As the study started, Chuck was one of the students who would ask if he could play more often in the lab. He took on the responsibility to help those with little prior experience with video games. As it turned out, he was one of the ringleaders who established multiplayer games and researched how each government type could help him overcome his "enemies" in the game. In a total reversal from the beginning of the school years, he also started asking about civic concepts and the primary election for the presidency as the study came to a close.

While these examples are not part of the formal findings of this study, they do offer anecdotal support for the notion that video gameplay can lead to positive outcomes in civic-education settings. In all these cases, these participants clearly demonstrated being an *engaged* learner. In the researcher's experience as a classroom teacher, anecdotes like these offer genuine insight into the inner workings of a middle school student's mind. It gives substantial reason to continue investigations in this topic.

Connections to the Theoretical Framework

Generally speaking, the results of this study reaffirm the validity of constructivism and bricolage as learning theories. It is duly noted that there was an insignificant change in overall civic-engagement scores from pretest to posttest after playing video games; however, substantial supportive connections can be made to the theoretical framework of this study.

Constructivism is a learning theory that holds that learning takes place in situated contexts focused on the needs and experiences of students. At its core, it is a learning theory that holds that all students develop meaning from intrinsically motivating tasks based upon relevant,

immersive learning experiences. Dewey (1916) and Bruner (1966) made the case that all students are affected when the learning task is learner-centered, self-directed, immersive, and relevant to the lives of the learner. The bricolage learning theory argues that learning occurs as a result of the learner having the opportunity to take pieces of information and connect it in dynamic ways to establish new pieces of information to put together with other new bits of information to promote leaps in cognitive understanding (Papert, 1993). The learner becomes the architect that is able to assemble the various pieces of information to construct new paradigms of understanding.

When one looks specifically at the constructivist theory of learning, the information that came to light as a result of this study indicated that the experiential learning environments equally affected participants, regardless of grade level and gender. Whatever the effect of being able to work with new content in virtual environments, its distribution was equal for males, females, and different grade levels. Furthermore, those who had more experience playing video games had significantly positive outcomes in terms of civic engagement. The researcher can argue that this occurred because participants who had more experience with video games generally, were able to delve deeper into working with the civic content within these games and as such reported much higher positive changes in civic engagement after gameplay.

Bricolage learning theory is supported by both quantitative data and what the researcher observed in the actions of students. Looking specifically at the positive outcomes in civic engagement based upon prior experience playing video games, the researcher would argue that this is an example of students being able to make connections with the information in the games and what was being asked of them on the survey. By using content from engaging learning experiences, those participants were able to apply the information from the video games to come

to newfound interest in civic engagement. The anecdotal information also supports the bricolage theory as several of these students were able to demonstrate complex understanding of civic concepts and civic behavior to come to new conclusions about political issues. The results of the data indicate that new paradigms of learning took place for those mentioned in the anecdotes above and those who had more experience playing video games on their own.

Recommendations

The implications of this research to the general field of social studies education are substantial. For social studies practitioners and teacher educators, the findings of this study lead to two conclusions. First, civic-themed video games do not discriminate against genders and should be used with middle school grade levels as a potential tool. Second, those with more outside experience with video games are more likely to show an increase in interest toward being civically engaged as a result of being exposed to civic-themed video games.

Keller (1987), Driscoll (2005), and Blumenthal et al. (2006) argue that providing learning opportunities that piques interest intrinsically motivate students to want to learn. While there were no statistically significant differences between the changes in the aggregate levels of interest in civic engagement as measured by the CEMS, analysis of the changes in mean scores between the different groups of participants (See Table 1 and Table 5) across all eight civic-engagement constructs indicates that scores of more than a few of the participants increased substantially. Members of the Digital Native generation certainly are interested in playing video games, and this could have explained why there was such a substantial increase in some of the scores. Furthermore, the evidence derived from this study does not warrant the skepticism from teachers that Rice (2007) suggests proliferates regarding the use of video games in the classroom.

Based upon the data analyzed in this study, social studies practitioners should make the effort to introduce this technology in the classroom for further investigation. Teachers and students need to familiarize themselves with civic-themed video games in the civic-education classroom in order for the technology to bare results in the context of building civic engagement in middle school youth. Since the literature base is scant with concrete examples regarding best practices using this tool, investigations to develop a model of using video games to promote civic engagement in youth need to take place at the school level. Furthermore, protocols need to be established for their use in the classroom by districts and schools to facilitate their proper use for learning.

For those interested in social studies teacher education, it is recommended that academics work in tandem in the field with practitioners to understand how this technology can be used effectively. This should include the incorporation of social studies-based video games in methods coursework, as is the case with other forms of technology. It is also recommended that teacher educators continue to build the literature base so more can be understood about this technology in classroom settings regarding their effect on learning outcomes in civic education.

Limitations

Limitations to the study were considered as the study methodology evolved into the current design. However, limitations inherently exist within a study of this design. There were several limitations to this study that would make generalizability to the entire population of middle school students in the nation difficult.

Significant limitation to the study was that there was no control group to compare the results of this study to and no qualitative piece to confirm the results of quantitative analysis. There is no way to know if the overall negative changes that occurred between pretest and

posttest scores give cause to be alarmed about the use of video games for civic education. Just as important there is no way to know *why* those students who had significant positive outcomes did so. Again, this limitation was a result of a research design that was dictated by the needs of the school where it was conducted.

Another limitation is that the sample size was limited to 68 participants in one school, in one urban area, and in one region of the country. While every effort was made to ensure that the sample size was representative of the school's population, making generalizations of this study to the general population of middle school students would be a reach.

One other potential limitation of this study is the CEMS instrument itself. While the survey was developed by a leader in the field of civic education and displayed strong internal reliability measures, it was still a relatively new instrument that had not been used to measure civic engagement as a result of video gameplay.

Finally, a limitation of this study was that the researcher was employed at the school as a civics teacher. Several of his students were involved in this study. However, every effort to shield his involvement in the study was made so as to not tamper with the results. This study was not discussed in class, nor was the researcher present during the gameplay sessions for extended periods of time. When questions did come up, participants were referred to the afterschool program counselor for information.

Future Research

The potential for future research looking specifically at the use of video games in the civic-education classroom is nearly limitless as so little has been done. It is such a new technology to social studies classrooms that the need to build the most basic foundation of research is called for. It is not yet known if civic-themed video games have the potential to

promote positive outcomes in civic engagement, the acquisition of political knowledge or skills needed to be successful citizens. It is not yet known how to use this tool for best practices in civic education or what best practices for their use even are. However, before this process understanding the basics of "how and why" video games can work in a civic education setting, further investigation to verify its potential to a broad population of students needs to happen. Thus, this study should be up-scaled at a district, state, and national level respectively. This can ensure the conclusions of this study were valid and should put to rest any concerns those resistant to video game use in the classroom have about their ability to reach students from different groups.

Summary

Video games are new to the general field of education and very little has been done specific to civic education to understand their place in the classroom. This data from this study concluded that video games do not affect different groups of middle school students in substantially different ways. Students of both genders and all middle school grade levels respond to their use specific to building interest to be civically engaged very similarly. This gives promise to those concerned with the health of our democracy because of the potential promise this tool can offer to teachers and students of civic education alike.

It is hoped that the results of this study serve as a beginning of a deeper conversation social studies practitioners and teachers educators should have regarding educating Digital Natives for democratic life as we move further into the 21st century. What is clear is that those interested in social studies education cannot continue to do what has been done over the last half century, as evidenced by increasingly abysmal democratic participation rates by young people.

As such, the recommendations of this study should act as guidelines for that conversation, setting an agenda for the future.

APPENDIX A: CIVIC ENGAGEMENT MEASUREMENT SURVEY

CIVIC BEHAVIORS

Question Stem 1.

If you found out about a problem in your community that you wanted to do something about (for example, illegal drugs were being sold near a school, or high levels of lead were discovered in the local drinking water), how well do you think you would be able to do each of the following?

Ability Scale				
1	2	3	4	5
I Definitely Can't	I Probably Can't	Maybe	I Probably Can	I Definitely Can

	Create a plan to address the problem.
	Get other people to care about the problem.
	Organize and run a meeting.
	Express your views in front of a group of people.
	Identify individuals or groups who could help you with the problem.
	Write an opinion letter to a local newspaper.
	Call someone on the phone that you had never met before to get their help with the problem.
	Contact an elected official about the problem.
	Organize a petition

Question Stem 2.

When you think about your life after high school, how likely is it that you would do each of the following?

Likelihood Scale

1	2	3	4	5
Not all Likely		Maybe		Extremely Likely

Contact or visit someone in government who represents your community.
Contact a newspaper, radio, or TV talk show to express your opinion on an issue.
Sign an e-mail or written petition.

Question Stem 3.

How much are each of the following like you?

Like Me Scale

1	2	3	4	5
Not at all Like me		Some Like Me		A lot like me

I listen to people talk about politics even when I know that I already disagree with them.
When I see or read a news story about an issue, I try to figure out if they're just telling one side of the story.
When I hear news about politics, I try to figure out what is REALLY going on.

STUDENTS ASSESSMENTS OF ELECTED OFFICIALS AND GOVERNMENT

Question Stem 4.

The next set of questions asks for your opinion of elected officials (e.g., senators, members of city council, governor, president). Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

In general, elected officials cannot be trusted.
Most elected officials listen to the citizens they represent
In general, elected officials give a lot of their time to make the community a better place.
Generally, the only thing elected officials care about is money
In general, elected officials are concerned with serving their fellow citizens.

Question Stem 5.

The following questions ask about your opinions. Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

If you love America, you should notice its problems and work to correct them.
I oppose some US policies because I care about my country and I want to improve it.
Being actively involved in community issues is my responsibility.
Being concerned about state and local issues is an important responsibility for everybody.

Question Stem 6.

The following questions ask about your opinions. Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

The government does not care about us ordinary people.
The US government is pretty much run for the rich, not the average person.
The government really cares what people like my family and I think.

Question Stem 7.

The following questions ask about your opinions. Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

Newspapers should not criticize the government.
I support all US policies, no matter what.
It is un-American to criticize the government.

CIVIC ENGAGEMENT: CONVENTIONAL POLITICS

Question Stem 8.

When you think about your life after high school, how likely is it that you would do each of the following?

Likelihood Scale

1	2	3	4	5
Not all Likely		Maybe		Extremely Likely

Vote on a regular basis.
Wear a campaign button to support a candidate.
Volunteer for a political party.

Question Stem 9.

How much do you agree or disagree with the following statements?

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I enjoy talking about politics and political issues.

CIVIC ENGAGEMENT: ALTERNATIVE FORMS

Question Stem 10.

When you think about your life after high school, how likely is it that you would do each of the following?

Likelihood Scale

1	2	3	4	5
Not all Likely		Maybe		Extremely Likely

Participate in a boycott against a company.
Refuse to buy clothes made in sweatshops.
Participate in political activities such as protests, marches, or demonstrations.

Question Stem 11.

After high school, would you consider doing any of the following?

YES or NO

	YES	NO
Trying to talk to people and explain why they should vote for or against one of the parties or candidates during an election?		
Expressing your views about politics on a website, blog, or chat room?		
Participating in a poetry slam, youth forum, live music performance, or other event where young people express their political views?		
Working as a canvasser (i.e., someone who goes door to door) for a political or social group, or candidate?		

Question Stem 12.

Special interest groups are organizations that people sometimes join when they care about a particular issue. When you finish high school, would you consider joining any of the following special interest groups?

YES or NO

	Yes	No	Don' Know
Environmental Groups (e.g., Greenpeace, Sierra Club)			
Second Amendment and Firearms Groups (e.g., National Rifle Association)			
Animal Rights Groups (e.g., World Wildlife Foundation, PAWS, People for the Ethnical Treatment of Animals [PETA])			
Ethnic Support Groups (e.g., NAACP, Mexican American League Defense and Education Fund)			
Labor Union / Professional Association Groups (e.g., AFL-CIO, American Federation of Teachers)			
Women's Issues Groups (e.g., National Organization of Women)			
Human Rights Groups (e.g., Amnesty International, American Civic Liberties Union)			

Question Stem 13.

When you think about life after high school, how likely is it that you would do each of the following?

Likelihood Scale

	1	2	3	4	5
	Not all Likely		Maybe		Extremely Likely
Do volunteer work to help needy people.					
Get involved in issues like health or safety that affect your community.					
Work with a group to solve a problem in the community where you live.					

POLITICAL EFFICACY

Question Stem 14.

The questions below ask about your experiences in the last 3 years.
As a part of a class, have you worked on a service or volunteer project?

YES or NO

	YES	NO
Did you have an opportunity to think and talk about your experience with other students in class?		
Did you apply information learned in class to your service project?		
Did you learn about possible causes of and solutions to social problems you were addressing in your service project?		
Did you discuss what the government could do to solve the problem?		

Question Stem 15.

The following questions ask about your opinions. Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

I believe I can make a difference in my community.	
By working with others in the community I can help make things better.	

EQUALITY AND INJUSTICE

Question Stem 16.

The following questions ask about your opinions. Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

	Basically, people get fair treatment in America, no matter who they are.
	In America you have an equal chance no matter where you come from or what race you are.
	America is a fair society where everyone has an equal chance to get ahead

Question Stem 17.

How much do you agree or disagree with each of these statements?

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

	It makes me angry when I think about the conditions some people have to live in.
	I get mad when I hear about people being treated unjustly.

PARENTS' CIVIC ENGAGEMENT

Question Stem 18.

Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

	My parents / guardians are active in the community.
	My parents / guardians are active in local politics (e.g., school board, city council).
	My parents / guardians do volunteer work in our community.

POLITICAL CONVERSATIONS WITH OTHERS

Question Stem 19.

Here are some questions about your political discussions with others. Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

	I talk to my parents/guardians about politics.
	I'm interested in my parents'/guardians' opinions about politics.
	My parents/guardians encourage me to express my opinions about politics and current events, even if they are different from their views.

Question Stem 20.

Here are some questions about your political discussions with others. Indicate how much you agree or disagree with each statement.

Agreement Scale

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

	I talk to my friends about politics.
	I'm interested in my friends' opinions about politics.
	My friends encourage me to express my opinions about politics, even if they are different from their views.

DEMOGRAPHIC QUESTIONS

1. What is your gender?

    a. Male
    b. Female

2. What is your grade level?

    a. Sixth
    b. Seventh
    c. Eighth

3. What is your racial background?

    a. White (Non-Latino)
    b. Black (Non-Latino)
    c. Latino
    d. Asian
    e. Other

4. How much time do you spend playing video games at HOME?

    a. 0-1 hours per week
    b. 1-5 hours per week
    c. 5-10 hours per week
    d. 10-15 hours per week
    e. More than 15 hours per week

5. What is your favorite class in school?
    a. Math
    b. Science
    c. Social Studies
    d. Language Arts/Reading
    e. Computers
    f. Other Electives

6. How important do you think what you learn in your social studies class is?
    1. Very Unimportant
    2. Somewhat Unimportant
    3. Neither Important or Unimportant
    4. Somewhat Important
    5. Very Important

APPENDIX B: DAILY LOG OF VIDEO GAMEPLAY

Student Name & Student Number:			
Date	Game Played	Amount of Time Played (round to nearest 15 minutes)	Signature of Counselor Verification
02/01/2012	**Civ IV**	**1 hour 45 minutes**	**Mr. Smith**
Total Time Spent Playing *Sim City 4*			
Total Time Spent Playing *Civ IV*			
Total Time Spent Playing *Commander in Chief*			
Total Time Spent Playing All Games			

APPEDNIX C: IRB LETTER UNIVERSITY OF CENTRAL FLORIDA

University of Central Florida

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **John C. Pagnotti**

Date: **February 08, 2012**

Dear Researcher:

On 2/8/2012 the IRB approved the following modifications / human participant research until 2/7/2013 inclusive:

Type of Review:	UCF Initial Review Submission Form Expedited Review Category # 7 *This approval includes a Waiver of Written Documentation of Consent*
Project Title:	THE EFFECT OF CIVICS BASED VIDEO GAMES ON MIDDLE SCHOOL STUDENT CIVIC ENGAGEMENT
Investigator:	John C. Pagnotti
IRB Number:	SBE-12-08199
Funding Agency:	
Grant Title:	
Research ID:	N/A

The Continuing Review Application must be submitted 30days prior to the expiration date for studies that were previously expedited, and 60 days prior to the expiration date for research that was previously reviewed at a convened meeting. Do not make changes to the study (i.e., protocol, methodology, consent form, personnel, site, etc.) before obtaining IRB approval. A Modification Form **cannot** be used to extend the approval period of a study. All forms may be completed and submitted online at https://iris.research.ucf.edu .

If continuing review approval is not granted before the expiration date of 2/7/2013, approval of this research expires on that date. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

Use of the approved, stamped consent document(s) is required. The new form supersedes all previous versions, which are now invalid for further use. Only approved investigators (or other approved key study personnel) may solicit consent for research participation. Participants or their representatives must receive a copy of the consent form(s).

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., CF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 02/08/2012 02:34:05 PM EST

Page 1 of 2

APPENDIX D: IRB LETTER ORANGE COUNTY SCHOOLS

Submit this form and a copy of your proposal to:
Accountability, Research, and Assessment
P.O. Box 271
Orlando, FL 32802-0271

Orange County Public Schools

RESEARCH REQUEST FORM

RECEIVED FEB 09 2012

Your research proposal should include: Project Title; Purpose and Research Problem; Instruments; Procedures and Proposed Data Analysis

Requester's Name John Pagnotti Date 2/8/12

Address: Home 14716 Royal Poinciana Dr, Orlando FL 32828 Phone 321-946-6716

Business Jackson Middle School Phone 407-249-6430

Project Director or Advisor Dr. William Russell Phone 407-823-4345

Address College of Education, U.C.F

Degree Sought: (check one) ☐ Associate ☒ Doctorate ☐ Bachelor's ☐ None ☐ Master's ☐ Specialist

Project Title "The effect of civics based video games on middle school student civic engagement

ESTIMATED INVOLVEMENT

PERSONNEL/CENTERS	NUMBER	AMOUNT OF TIME (DAYS, HOURS, ETC.)	SPECIFY/DESCRIBE GRADES, SCHOOLS, SPECIAL NEEDS, ETC.
Students	75	≈30 hours	6th-7th-8th grades in after school program
Teachers			Jackson Middle CAH-Stars
Administrators			
Schools/Centers			
Others (specify)			

Specify possible benefits to students/school system: To see if gaming has a place in civics education

I have included the IRB information from U.C.F including IRB approval.

ASSURANCE

Using the proposed procedures and instrument, I hereby agree to conduct research in accordance with the policies of the Orange County Public Schools. Deviations from the approved procedures shall be cleared through the Senior Director of Accountability, Research, and Assessment. Reports and materials shall be supplied as specified.

Requester's Signature [signature]

Approval Granted: ☒ Yes ☐ No Remove statement 2 from question 11 Date: 3-12-12

Signature of the Senior Director for Accountability, Research, and Assessment [signature]

NOTE TO REQUESTER: When seeking approval at the school level, a copy of this form, signed by the Senior Director, Accountability, Research, and Assessment, should be shown to the school principal.

Reference School Board Policy GCS, p. 249

7PL202 FORM ID #GB0103/23-1/1FY REV 1/04

APPENDIX E: CONSENT FORM

THE EFFECT OF CIVICS BASED VIDEO GAMES ON MIDDLE SCHOOL STUDENT CIVIC ENGAGEMENT

Informed Consent from a Parent for a Child

This consent form requires a signature

Principle Investigators: John Pagnotti, M.A.
Faculty Supervisor: William B. Russell III, Ph.D.
Investigational Site: Jackson Middle School
Orlando FL

Please sign and return this consent form to a representative of the All-Star Program or Mr. John Pagnotti if you agree to have your student participate in this study. Please keep a copy of this form for your records.

Introduction: Researchers at the University of Central Florida (UCF) study many topics. To do this we need the help of people who agree to take part in a research study. You are being asked to allow your child to take part in a research study, which will include about 75 people. Your child is being invited to take part in this research study because he or she is a student at Jackson Middle School enrolled in the All-Stars Program.
John Pagnotti, who is enrolled in the Ph.D. in Social Science Education program in the College of Education at the University of Central Florida and a full-time faculty member at Jackson Middle School is conducting this study. Because he is a graduate student, he is being guided by Dr. William Russell, a faculty member at UCF in the College of Education.

What you should know about a research study:

- Someone will explain this research study to you.
- A research study is something you volunteer for.
- Whether or not you take part is up to you.
- You should allow your child to take part in this study only because you want to.
- You can choose not to take part in the research study.
- You can agree to take part now and later change your mind.
- Whatever you decide it will not be held against you or your child.
- Feel free to ask all the questions you want before you decide.

Purpose of the research study: The purpose of this study is to determine the effect video games have on middle school student interest on being engaged in civics.
What your child will be asked to do in the study: Your child is one of 75 students enrolled in the All-Stars Program who has elected to sign up for a new course offered where they get to play civics based video games. This temporary course is specifically offered for this study to take place. Only students who are part of this study are eligible for entry in this particular course in

the All-Stars program. If you decide to let your student participate in this study, they will take a survey that measures how much interest they have in being civically engaged. This survey will take no longer than 30 minutes to complete and will be given at the beginning of the course and then again 6 weeks later. Over the duration of the 6 weeks, your student will have access to playing age-appropriate civic themed video games as part of their All-Stars Program activities. The games that they will play are Sim City 4, Civilization IV and Commander in Chief. All activities that are related to this study will be conducted during their time in the All-Stars Program to make sure your student's academic time is not effected.
Location: The survey and gaming time will take place in a supervised computer lab at Jackson Middle School during the All-Star Program.
Time required: We expect that your student will be in this particular All-Star Program course, which is designed specifically for this research study for about 6 weeks. To participate your child would be in the course 2-3 days a week, during the allotted time for the All-Stars Program.**Risks:** There are no expected risks to your student for taking part in this study.
Benefits: There are no expected benefits to your students for taking part in this study.
Compensation or payment: There is no compensation or other payment to you or your child for your child's part in this study.
Confidentiality: We will limit your student's personal data collected in this study. Efforts will be made to limit your student's personal information to people who have a need to review this information. Organizations that may inspect and copy your information include the IRB and other representatives of UCF.
Study contact for questions about the study or to report a problem: If you have questions, concerns, or complaints, or think the research has hurt your child talk to:

John Pagnotti, Graduate Student, Social Science Education PhD program, College of Education, at 321-946-6746 or by email at John.Pagnotti@ocps.net

Dr. William Russell, Associate Professor of Social Studies Education, College of Education at 407-823-4345 or by email at russell@ucf.edu.

IRB contact about you and your child's rights in the study or to report a complaint: Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (UCF IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901. You may also talk to them for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You want to get information or provide input about this research.

Withdrawing from the study: You may decide not to have your child continue in the research study at any time without it being held against you or your child. If you do not want your child to

be involved in this research study, do not sign this consent form. If you sign the consent form and later decide you would like for your child to leave the study, please contact the researchers. Contact information is provided above.

Your signature below indicates your permission for the child named below to take part in this research.

DO NOT SIGN THIS FORM AFTER THE IRB EXPIRATION DATE BELOW

_____
Name of participant

_____ _____
Signature of parent or guardian Date

_____

- ❑ Parent
- ❑ Guardian (See note below)

_____
Printed name of parent or guardian

Assent

❑ Obtained

Note on permission by guardians: An individual may provide permission for a child only if that individual can provide a written document indicating that he or she is legally authorized to consent to the child's general medical care. Attach the documentation to the signed document.

APPENDIX F: PARENT LETTER

Hello Parents and Guardians!

I would like to take the opportunity to introduce myself to you. My name is John Pagnotti. I am a teacher at Jackson Middle School where I have the best job in the world teaching Civics to Jackson's 7th grade students. I am writing this letter to you because I am also a full-time Doctoral Student at the University of Central Florida, where I am currently conducting research under the supervision of Dr. William Russell, a Professor in the College of Education. This research investigates the effect video games have on middle school students' interest in civic engagement. This letter is to invite your student at Jackson Middle School who is enrolled in the All Stars Program to be a participant in this study.

Study Overview

In order for a healthy functioning democracy to exist, citizens have to participate. Unfortunately, young citizens in this country have traditionally shown little interest to participate. Finding ways with which to get them interested in civic life at a young age is vital to keeping democracy in America strong. As you may have noticed, young people like to play video games. The purpose of this study is to learn if video games that have civic themes can be used as a tool to interest middle school students in civics. The study will take place in the All-Stars Program, where a course will be provided for students to play civic themed video games during before and after school hours in a computer lab. The study will require that students take a survey that shows their level of interest in civics.

Student Involvement

To be eligible for participation in this study, a student has to be in the All Stars Program, sign up for the course where civic themed video games are played and have parental/guardian consent to be part of this study. Only students in the study will be in the course. To participate in the study, your student would need to be present at the All Star Program 2-3 days a week to play the games. They still would have the opportunity for tutoring to make sure they keep their academics high. Students will be given a 30-minute computer based survey that asks them questions that gauges their interest in being civically engaged at the beginning of the course. Over the next 6 weeks in the All Star program, students will play 3 games that focuses on civic themes; Sim City 4, Civilization 4 and Commander in Chief. These games are age appropriate and allow players to step into the role of a mayor of a city to build a city, a king to build a society or a president to run

a country. I can assure you these games are not "shooter" games where players act like soldiers in simulated combat. After the end of the 6 weeks students will re-take the same 30-minute survey to see if there are any differences in the way they report their civic interest.

Participation in this study is completely voluntary and there are not any expected risks or benefits to your students as a result of participation. Names will not appear on the surveys answers, however a unique number to maintain their privacy will identify their survey. Your student's name will not appear in any publication associated with this study.

I have included two copies of the consent form with this letter. If you choose to allow your student to be a participant in this research, kindly send a signed copy of the consent form back to school with your student where I or member of the All Stars Program Staff will collect it from them. Please keep the other copy of the consent form for your records.

Contact Information

If you have any questions regarding this study, or would like additional information about participation please contact me at 321-946-6746 or email john.pagnotti@ocps.net. You can also contact my supervising professor Dr. William Russell at 407-823-4345 or email at Russell@ucf.edu.

Thank you in advance for your interest and assistance with this research

Very Truly Yours,

John Pagnotti

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