DIFFERENCES IN STUDENTS' SATISFACTION OF THE ECONOMICS AND PERSONAL FINANCE VIRTUAL HIGH SCHOOL COURSE BETWEEN STUDENTS ATTENDING ECONOMICALLY DISADVANTAGED AND NON-ECONOMICALLY DISADVANTAGED SCHOOLS IN VIRGINIA

by

Lhe Shannon Smith

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

Virtual learning is a mandated high school graduation requirement for students entering high school during the 2013 school year in the state of Virginia. The purpose of this quantitative, causal-comparative study was to analyze the differences of perceived overall satisfaction of high school students enrolled in a virtual course in different socioeconomic status schools, as measured by the e-Learning Student Satisfaction (ELS) instrument. The study participants were high school students enrolled in an Economics and Personal Finance virtual/online high school course in Virginia, $n = 249$. The study utilized a one-way multivariate analysis of variance (MANOVA) to determine if there will be a statistically significant difference in means between the dependent variables, (perceived overall satisfaction, content, learner interface, personalization, and learning community). The independent variable is school's socioeconomic status (SES) defined as economically disadvantaged or non-economically disadvantaged, which is determined by the published Virginia Department of Education (VDOE) enrollment and demographic report. The researcher did not find a statistically significant difference in perceived overall satisfaction, content, personalization, and learning community. However, the researcher did find a significant difference regarding learner interface.

Keywords: e-learner satisfaction, online learning, virtual learning, high school graduation, socioeconomic status (SES), and student satisfaction.

Dedication

As a first-time generation college student, I dedicate this manuscript to everyone who inspires me on a daily basis.

God blessed me with two parents, Paula Gonzalez and Oswald Huggins, who always believed in me and encouraged me to make a difference in this world.

Thank you to my husband, Dr. Lawrence D. Smith, Sr., who encouraged me to continue my academic studies towards this degree. Thank you for accelerating my growth and inspiring me to strive to leave a footprint in academia.

God blessed me with sons who are understanding and supportive. Thank you for being tolerant of me when you needed my attention and I was under a deadline to write. Thank you for inspiring me to inspire you.

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Thank you to my entire church family, the Basilica of St. Mary of the Immaculate Conception.

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Psalm 30:2 states, “LORD my God, I called to you for help, and you healed me.” All honor and glory is given to God.

I would like to express sincere thanks and gratitude to my amazing and supportive dissertation committee chair, Dr. Joanne Gilbreath. I extend a sincere and heartfelt token of gratitude for expressing an interest in my topic and encouraging me every step throughout the process.

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List of Abbreviations

Analysis of Variance (ANOVA)

Content Knowledge (CK)

e-learner Satisfaction (ELS)

Information Communications Technology (ICT)

Individual Education Plans (IEPs)

Institutional Review Board (IRB)

Multivariate Analysis of Variance (MANOVA)

Pedagogy Content Knowledge (PCK)

Pedagogy Knowledge (PK)

Socioeconomic Status (SES)

Statistical Package for the Social Sciences (SPSS)

Technology Knowledge (TK)

Technological Pedagogical Content Knowledge (TPACK)

Virginia Board of Education (VBOE)

Virginia Department of Education (VDOE)

Virtual High School (VHS)

Visual, Auditory, Reading/Writing & Kinesthetic (VARK)

World Wide Web (WWW)

CHAPTER ONE: INTRODUCTION

Background

With the ever increasing use of technologies, students are finding that their methods of learning and their tools of learning are changing; "specifically, virtual learning uses computer software, the Internet, or both to deliver instruction to students," minimizing or eliminating altogether "the need for teachers and students to share a classroom" (Van Beek, 2011, p. 1). The term virtual, online, and blended are used interchangeably throughout this study. It is important to note that the increased use of e-mail as a means of communication between teachers and students or teachers and parents is not always included in the educational paradigm known as virtual learning, nor does it include the use of online forums as a means of communication. Virtual learning environments consist of electronic educational technologies designed as a part of an educational web-based system intended to replace the conventional in-person learning environment offered by traditional brick and mortar based schools. These teaching and learning tools may, in some cases, be used as a means of enhancing the current student experience, as in the case of biology students engaging in virtual dissections as opposed to real ones (Van Beek, 2011).

The majority of institutions of higher learning are offering online courses. In addition, virtual courses are increasing in high schools during the instructional school day (e.g. Virtual Learning Academy, 2014; the K-12 Schools, 2014; Virtual Virginia, 2015). The traditional norm for high school classes in a public school setting is typically held within brick and mortar schools. Virtual learning tools are starting to become commonly used within the high school setting (Watson & Ryan, 2007). Some school divisions employ virtual learning as a means for students to graduate on time or as a graduation requirement (Virtual Virginia, 2015). Virtual

learning serves as a means of acclimating students to life beyond high school. The increased use of technology within the high school setting serves as a means of benefitting those who have ready access to technology (McCollum, 2011; Walterova & Tveit, 2012). On the other hand, there are still those who do not have such ready access, and as such are left behind, to a degree, in regard to their ability to increase their technological knowledge (Light, 2001). As a result, this population may or may not have a firm grasp of how to utilize the tools and programs available to them to assist with furthering their education (Light, 2001; Walterova & Tveit, 2012).

The term "digital divide" was coined in the early 1990s as a means of describing the separation of technological resources between individuals who have access to technologies and the Internet within their home and those who do not (Light, 2001; McCollum, 2011; Vigdor, Ladd, Martinez, 2014; Walterova & Tveit, 2012). This digital divide typically occurs along the socioeconomic status (SES) lines of the community; those who have access to such technologies come from more affluent homes while those who do not are more likely to originate in low-SES families and those below the poverty line (Compaine, 2001). Statistics indicate that as of 2013, 81% of low-SES families do not have computers within their households (Smith, 2013). "Digital divide" was a concept that was established as a means of referring "to unequal access to information technology" (Light, 2001, p. 709). This unequal access to technologies arises from a variety of different factors including ethnicity, SES, acceptable teacher preparedness, and access to technological advances within a given school or community (Beers, 2004).

The "participation gap" is the newest form of digital equity (Palfrey & Gasser, 2013, p. 360). The authors indicate that this gap "is the divide that prevents parts of the generation . . . from participating in the new media environment" (Palfrey & Gasser, 2013, p. 360). Digital equity focuses on the different usage of technologies in different households. According to

Hansen and Reich (2015), “more and less affluent students not only have different levels of basic access to emerging technologies; they use them for different purposes with different levels of support from mentors. Historically, digital divides of usage have compounded digital divides of access” (p. 1246).

According to Rideout and Katz (2016), “lower-income families may connect to the Internet in different ways: through broadband access at home, via a data plan on a mobile device, or by using Wi-Fi-enabled devices in local places that offer them access. When Internet access is intermittent—either because families have trouble paying monthly service charges or are using the Internet only in community locations—they face constraints on what they can access online, compared with those who have consistent access” (p. 7).

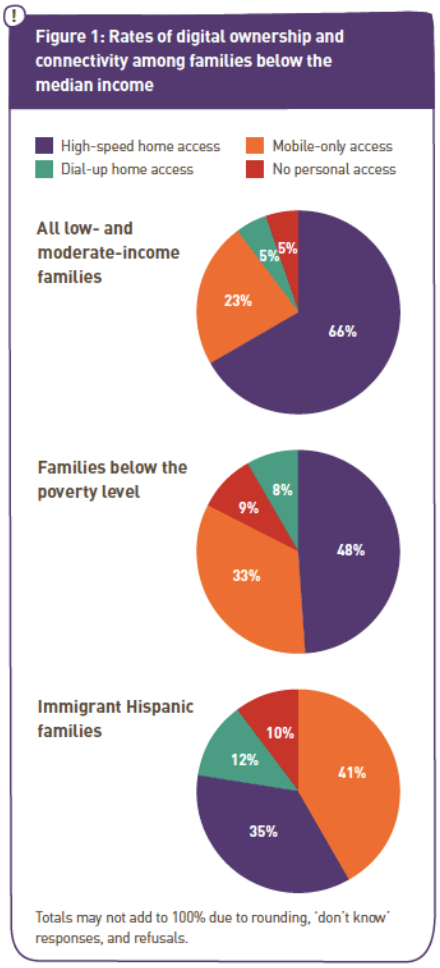

Figure 1. Connectivity Rates for Low Income Homes. Adapted from "Opportunity for All? Technology and Learning in Lower-Income Families" by V. Rideout and V. Katz, 2016, *Technology and Learning in Lower-income Families*. Reprinted with permission (Appendix A).

Individuals who do not have access to computers within their homes are more likely to access programs and online services through computers in public locations, like the library or school (Compaine, 2001; McCollum, 2011; Smith, 2013). This can cause problems in knowledge gains and retention as the access times for these computers is often limited, furthering the disparity present between the technological haves and have-nots (Compaine, 2001; McCollum, 2011; Smith, 2013). This issue is further compounded since many students who fall into these low-SES ranges make up the student population of economically disadvantaged

schools; low-SES schools are because more than 51% of students qualify for free and reduced meal options (U.S. Department of Education, 2014). Thus, the concept of the digital divide can lead to gaps in achievement in schools and in student populations, particularly in instances where a virtual learning experience is a requirement for standard graduation (McCollum, 2011; Virginia Department of Education (VDOE), 2012). Lack of access to certain technologies, like computers, speakers, and printers, remain a social problem that hinders student ability to progress in their educational needs.

Furthermore, the lack of access to certain technologies prevents student completion of assignments when those assignments necessitate the use of computers (McCollum, 2011; Smith, 2013). Beers (2004) makes note that simply because there are computers present within a given school does not indicate or allow for the inference that these students will have the availability to utilize those computers during school hours. Furthermore, just because there are computers present within the school, regardless of whether students can access and utilize these tools, does not indicate that nor infer that, these computers are connected to the Internet or that Internet access is provided for student use (Beers, 2004). In addition, the lack of updated computers and updated software are issues that prevent students from using computers during school hours (Smith, 2013). These issues not only prevent student access but also classify students as the "technological have-nots" (McCollum, 2011, p. 53).

According to McCollum (2011), economically disadvantaged student "populations receive special scrutiny as the technological have-nots" due to the fact that the presence or absence of technology within the student household is governed, in large part, on SES (p. 53). Access to technologies can no longer be considered a luxury in today's society; it is becoming a necessity, influencing the manner in which business is conducted, the means of communication

within society, and perhaps most importantly, the manner in which the attainment of knowledge is increased (Rooksby & Weckert, 2007). As a result of this increasing need for technology, economically disadvantaged students are the most adversely affected students when school assignments require the need for students to use outside class time to complete technology driven assignments (McCollum, 2011; Rooksby & Weckert, 2007).

Although academic success is defined by the individual commitment and participation of a student, socioeconomics plays a pivotal role in the ability to access various technological resources that students need to be academically prepared outside of the school setting (Finn & Rock, 1997; Goddard, 2003; White, 1982). Students from economically disadvantaged households are identified in the school system as at-risk (Goddard, 2003; White, 1982). On the other hand, students from non-economically disadvantaged households are identified in the school system as academically prepared (Finn & Rock, 1997; White, 1982). Research positively correlates at-risk students to the number of students who receive free and reduced meal options (U.S. Department of Education, 2014).

Schools who host a greater population of students who qualify for free and reduced meal options receive funding to pay for more teachers, resources and materials (U.S. Department of Education, 2014).

Problem Statement

"Beginning with students entering ninth grade in fall 2011, one standard unit of credit in Economics and Personal Finance is required for graduation with a Standard or Advanced Studies Diploma" (VDOE, 2014, p. 1). The Virginia Board of Education (VBOE) requires all students entering the ninth grade as first-time freshmen, starting in the 2013-2014 school year, "shall successfully complete one virtual course, which may be a noncredit-bearing course or a required

or elective credit-bearing course that is offered online" (Virginia Legislative Information System, 2015, p. 1). According to the VDOE (2014), "a number of Virginia school divisions provide opportunities for their students to take online courses as a part of their regular course offerings" (p. 1). This requirement spans across all students, including economically disadvantaged students, and is a graduation requirement. The Southern Education Foundation (2015) states that as of 2013, more than 51% of students receive free or reduced meal options in public schools in the United States. In the same report, there are 38% to 42% of public school students from economically disadvantaged households in the state of Virginia (Southern Education Foundation, 2015). Research indicates that students who come from an economically disadvantaged household are less likely to have adequate digital technologies at home to be successful in the school setting (Albert & Johnson, 2011; McCollum, 2011; Rooksby & Weckert, 2007).

Literature indicates that economically disadvantaged students who are on the "have nots" side of the digital divide may not have access to computers, have the requisite computer skills to complete such a requirement, and may not have access to the Internet beyond the school day (McCollum, 2011, p. 53). Furthermore, research addressed the lack of learner readiness for online learning in students from economically disadvantaged households and the subsequent differences in students' satisfaction regarding higher education based on the digital divide (Albert & Johnson, 2011; Barakzai & Fraser, 2005; Hung, Chou, Chen, & Own, 2010; Liaw & Huang, 2013; McCollum, 2011).

Current literature pays specific attention to the students' SES and the gender-based differences present in students' satisfaction regarding virtual learning environments in higher education settings (Albert & Johnson, 2011; Sehrt, 2003). This same study indicated that future studies should address how preconceived views regarding virtual learning in an online course

setting are encouraged (Albert & Johnson, 2011). A recent study conducted by Zehr (2010) acknowledged that there was little research conducted on secondary students, SES, and virtual learning. In addition, Tomul and Savasci (2012) acknowledged the relationship between SES and academic achievement differ based upon the location of the school. Current research does not address high school students' (grades 9 through 12) satisfaction regarding the Economics and Personal Finance virtual high school course, particularly students enrolled in different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

Purpose Statement

The purpose of this quantitative, causal-comparative study was to analyze the differences of perceived overall satisfaction, content, learner interface, personalization, and learning community of high school students enrolled in a virtual course in different SES schools. A total of 300 students will be selected from different Virginia high schools in the same school division, ranging from economically disadvantaged and non-economically disadvantaged, as defined by the VDOE school enrollment and demographic report. Economically disadvantaged schools are defined as schools that have more than 51% of the student population receiving free and reduced meal options. Non-economically disadvantaged schools are defined as schools that do not have more than 51% of the student population receiving free and reduced meal options. The participants will be enrolled in high school, grades 9, 10, 11 or 12, in a Virginia school division during the 2015-2016 school year. The independent variable identified for the study will be the school setting, economically disadvantaged high school and non-economically disadvantaged high school. Dependent variables include perceived overall perceived overall satisfaction, content, learner interface, personalization, and learning community of the virtual high school course. Perceived overall satisfaction is defined as the individual's personal contentment. The

content is defined as the coursework. The learning community is defined as the individuals learning environment and interaction with peers and instructors. The personalization is defined as the student's presence and connectedness to the class. The learning community is defined as the classroom environment.

Significance of the Study

In 2007, the VDOE implemented an initiative that would ensure that, upon graduating from high school, students would be college ready and/or career ready, depending on the path chosen by the students; within this initiative was the capability for students to gain access to online resources and to have their tests administered online (VDOE, 2014). Although Watson and Ryan (2007) performed an extensive study on how online learning was being implemented among middle and high school students, a study conducted by Zehr (2010) acknowledged there was little research available regarding the correlation between high school students, SES, and the online learning or virtual learning platforms. The results of this current study will serve as a means of working to reduce this gap in current literature, while adding to the body of research that has been conducted regarding the correlation between socioeconomic factors and the differences present in students' satisfaction of online learning, virtual learning platforms, and blended learning environments. This study is significant because completing a virtual learning course is a requirement for high school graduation in the state of Virginia. During the 2012 school year, the Governor of Virginia signed a bill that would include high school students taking a virtual course to graduate from high school. Increasing virtual learning was one of the Governor's objectives. Examining the satisfaction between different SES students may help focus on how the virtual learning graduation requirement is used and implemented among high school students.

Research Question

The research question for this study was:

RQ1: Is there a difference in students' satisfaction of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia?

Null Hypotheses

The null hypotheses for this study include the following:

$H_0$1: There is no significant difference in *students' perceived overall satisfaction* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$2: There is no significant difference in *students' content* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$3: There is no significant difference in *students' learner interface* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$4: There is no significant difference in *students' personalization* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$5: There is no significant difference in *students' learning community* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

Definitions

1. *Blended learning*: a formal education program in which a student learns at least in part through online delivery of content and instruction with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home (Staker & Horn, 2012).
2. *CK*: Acronym used for content in the Technological Pedagogy Content Knowledge (TPACK) Theory (Brantley, 2013).
3. *Computer software*: Software is the generalized term used for the different types of programs required to operate computers that may be used within the context of the digital environment of the computer itself (Gist, Schwoerer, & Rosen, 1989).
4. *Computer programs*: Also, referred to as simply "programs," computer programs consist of a sequential set of instructions designed to command the computer to perform a specified task, typically executed through the use of the computer's central processor (Clement, Posada, & Crandall, 2000).
5. *Digital equity*: "Equal access and opportunity to digital tools, resources, and services to increase digital knowledge, awareness, and skills" (Davis, Fuller, Jackson, Pittman, & Sweet, 2007).
6. *Digital native*: A digital native is a term used to describe individuals who were born in a time when computers and innovative technology were prevalent (Autry, Jr. & Berge, 2011; Wimberly, 2014).
7. *Distance education*: Instruction that takes place between a teacher and a student in a separate space and/or time (Mupinga, 2005).
8. *Economically disadvantaged*: Defined on the VDOE school enrollment and demographic report of having at least 51% of students identified (VDOE, 2014).

9. *e-Learning*: "Learning that is facilitated by the Internet" (Anderson, 2001, p.6).
10. *e-Learning satisfaction (ELS) instrument*: an instrument developed by Wang (2003) to measure satisfaction in an e-learning environment (Wang, 2003).
11. *Learning environment*: A term used to describe the physical location, context, and culture in which students are able to learn or increase their overall body of knowledge (Great Schools Partnership, 2013).
12. *MANOVA*: Multivariate analysis of variance. A data analysis method used when there is one independent (nominal) variable and two or more related dependent (ratio or interval) variables (Warner, 2012).
13. *Online*: Connectivity to the Internet by a computer or to a network (Kusters, Schnoor, & Truderung, 2010).
14. *Online Learning Platforms*: A virtual environment that utilizes educational technology online providing a virtual classroom experience similar to that offered in traditional brick and mortar classrooms (Dagger, O'Connor, Lawless, Walsh, & Wade, 2007).
15. *PK*: Acronym used for pedagogy in the Technological Pedagogy Content Knowledge (TPACK) Theory (Brantley, 2013).
16. *TK*: Acronym used for technology in the Technological Pedagogy Content Knowledge (TPACK) Theory (Brantley, 2013).
17. *Virtual Learning*: Learning that is administered through the use of the World Wide Web (WWW) (McLester, 2002).

These terms were identified as a necessary part of the knowledge base of the reader in the understanding of the results present. They have been provided to ensure that there are no issues

or disparities that may arise as a result of a lack of knowledge regarding a particular term or the manner in which the term itself is utilized.

CHAPTER TWO: LITERATURE REVIEW

Introduction

Within the state of Virginia, high school graduation requirements have changed in recent years to include a virtual learning component that students must satisfy to earn a high school diploma. The Virginia Board of Education (VBOE) establishes the graduation requirements for Virginia public schools, where high school students are eligible for a Standard Diploma, Advanced Studies Diploma or Modified Standard Diploma (Virginia Legislative Information System, 2015). The Virginia Department of Education (VDOE) added a virtual course graduation requirement in which first-time freshmen entering high school for the first time during the 2013-2014 school year must "successfully complete one virtual course, which may be non-credit bearing" towards the completion of a Standard or Advanced Studies Diploma (VDOE, 2014). The VDOE offers two types of virtual learning options, Virtual Virginia or Multidivision Online Partners (VDOE, 2014).

Local school boards in Virginia are offered two options of virtual learning options to choose from for implementation in the school division. The first option is Virtual Virginia, which is "a program of the VDOE, [that] offers online Advanced Placement (AP®), world language, core academic, and elective courses to students across the Commonwealth and nation" (Virtual Virginia, 2015, p. 1). In addition, the courses are offered during the traditional school day setting via a computer and the World Wide Web (WWW). However, some schools may or may not have a content certified teacher in the classroom. A school building liaison serves in the capacity of a mentor and can be a facilitator or the student's guidance counselor (Virtual Virginia, 2015). The role of the school mentor is to "provide instrumental student support," whereas the role of the student's guidance counselor is to ensure that students are properly

registered for the Virtual Virginia course (Virtual Virginia, 2015). The course contains a Virtual Virginia facilitator, who can be contacted via phone or e-mail. The Virtual Virginia class is through a virtual learning environment, a course management system. Instruction takes place through a virtual environment with students completing virtual modules and taking assessments through the course management system (Virtual Virginia, 2015). Students sign an acceptable use policy for their participation in Virtual Virginia (Virtual Virginia, 2015).

The second option is for the school division is to select a multidivisional online provider. Every school division selects a provider that will host virtual training for schools within the school division. The providers are different external education related companies who host virtual or online training. In addition, the providers must meet the VDOE criteria set forth in order to be eligible to serve in the capacity as a provider with a school division (VDOE, 2014). The online training providers offer online instruction via computer-based instruction, full-time, fully online, supplemental, or others (VDOE, 2014). The local school divisions set forth which provider(s) that they will use and what type of online instruction will be offered. According to the VDOE (2014), the multidivisional online providers meet the following criterion as stated:

1. A private of nonprofit organization that enters into a contract with a local school board to provide online courses or programs through that school board to students who reside in Virginia both within and outside the geographical boundaries of that school division;
2. A private or nonprofit organization that enters into contracts with multiple local school boards to provide online courses or programs to students in grades K through 12 through those school boards;

3. A local school board that provides online courses or programs to students who reside in Virginia but outside the geographical boundaries of that school division (p. ¶ 1).

Although each school division has the freedom to select which virtual learning option works for the school division, all students enrolled in Virginia public schools must complete virtual learning prior to graduation (VDOE, 2014). Students who attend economically disadvantaged households are not excluded from this mandated graduation requirement. This virtual learning component is required to high school students who were born into a generation with a plethora of technology and technological advancements.

Virtual Course Design

There are many facets involved in how courses are designed to include virtual learning. Virtual learning originated from e-learning, or the ability to learn via the use of the computer and the Internet (Swan, 2001). E-learning courses are designed from the basis of learning objects (Swan, 2001). According to Harmon and Koohang (2005), learning objects incorporate all different learning styles (i.e., aural, read/write, kinesthetic, etc.) so that "the object can be contextualized by individual learners. The learner must be able to make meaningful connections between the learning object and his/her experiences or knowledge he/she previously mastered" (p. 2). Learning objects are digital and web-based, such as YouTube video demonstrating how to calculate statistics or an audio clip of an award-winning speaker (Harmon & Koohang, 2005). In addition to learning objects, virtual learning courses are designed in a similar process to brick and mortar classes in a traditional school setting. Schiffman (1986) suggests virtual learning content is created based upon the following steps:

1. Conduct needs assessment.
2. Establish overall goal.

3. Conduct task analysis.
4. Specify objectives.
5. Develop assessment strategies.
6. Select media.
7. Produce materials.
8. Conduct formative evaluation.
    a. Revise as required.
9. Conduct summative evaluation.

"Learning activities are designed to ensure that the learner grasps the knowledge easily, retains the knowledge successfully, and is capable of transferring the knowledge through application in a real world situation" (Chin & Williams, 2006, p. 15). The goal of virtual courses to ensure that content is developed based upon learning styles and attainable objectives (Chin & Williams, 2006; Nichols, 2003; Virtual Virginia, 2015). Many companies, who develop online and virtual courses, use the Standards of Learning objectives and/or course competencies as a guide in developing content. Virtual courses are offered in the format of learning new content or assistance in remediation content that students previously struggled with in a traditional classroom setting. In either case, in the state of Virginia for public education, Standards of Learning test objectives and/or course competencies are heavily relied on when companies structure the virtual course (VDOE, 2014). The resulting end goal for each virtual course offered is for students to attain course credit to count towards their diploma requirements. Virtual courses allow high school students to satisfy graduation requirements in a non-traditional school setting (Chin & Williams, 2006). Virtual courses designed with learning objects and course

objectives; they are also equipped with teachers who have received the professional development needed to serve as effective and efficient facilitators for the virtual class (Nichols, 2003).

Teacher Training

According to Virtual High School (VHS) (2015), all teachers who show an interest in teaching online must undergo extensive professional development and rigorous training in order to assist in facilitating virtual learning or serving as a mentor to the student in the physical classroom. However, teacher training varies from every school division and may be determined by the local school board. In addition, VHS (2015) acknowledges teachers who show interest in teaching an online or virtual class must successfully complete two graduate level courses. The teachers must hold the minimum of a Bachelor's degree in order to enroll and complete graduate level courses. The first course is 26-weeks long and the content "provides teachers with instruction in Web-based course design and fundamentals of teaching an actual VHS NetCourse" (Donlevy, 2003, p. 119). In addition, the second graduate level course instructs teachers on how to effectively and efficiently teacher students using the Internet.

Literature indicates four aspects in teacher training that include course environment, learners' outcomes, learners' characteristics, and institutional and administrative factors (Tallent-Runnels, Thomas, Lan, Cooper, Ahern, Shaw, & Liu, 2006). All four aspects must be clearly defined in order for the teacher and student to be successful in the virtual learning setting. According to Tallent-Runnels et al., (2006), the definition of course environment "includes classroom culture, structural assistance, success factors, online interaction, and evaluation" (p. 96). The course must be designed with the learner in mind, which is another characteristic of course environment. Learner outcomes are defined as the ability to integrate teaching and learning pedagogical contents into the course environment (Donlevy, 2003; Tallent-Runnels et

al., 2006). Research must be conducted to include "various research methods to explore learning outcomes in the cognitive and affective domains" (Tallent-Runnels et al., 2006, p. 104). Learners' characteristics are defined as students' learning styles with the delivery of instruction and students' motivation towards the online course (Tallent-Runnels et al., 2006). There is a small sample of research literature on institutional and administrative factors (Tallent-Runnels et al., 2006). Institutional and administrative factors consist of "institutional policies, institutional support, and enrollment effects" (Tallent-Runnels et al., 2006, p. 113). Each of the four factors are evenly contributed to teacher training as it relates to online instruction. Out of the four aspects, learners' characteristics can be attributed to students who are born into a technological driven society (Autry, Jr. & Berge, 2011; Tallent-Runnels et al., 2006).

Digital Natives

High school students who are enrolled in today's classroom environments are dubbed the phrase, "digital natives" (Wimberly, 2014). A digital native is a term used to describe individuals who were born in a time when computers and innovative technology were prevalent (Autry, & Berge, 2011; Wimberly, 2014). "Termed 'digital natives' or the 'net generation', these young people are said to have been immersed in technology all their lives, imbuing them with sophisticated technical skills and learning preferences" (Bennett, Maton, & Kervin, 2008, p. 1). Similarly, Autry and Berge (2011) indicate, "the uses of these technologies are customary and have become a significant extension to the digital natives" (p. 460). Per Wimberly (2014), a digital native is a person born into a technology driven world and has access to technological resources, such as computers, cellular phones, and the Internet. Having access to these technological resources does not indicate that students are able to actually use them (McCollum, 2011).

Digital native students "have a language of their own when it comes to performing task or collaborating on digital technologies" (Autry, Jr. & Berge, 2011, p. 461). Research indicates a digital native is a millennial or digital z person (Isaksen, 2002). Digital natives are often referred to as the connected or Gen-C, where there is Internet available and technological capabilities (Gruskin, 2015). Digital natives view technology as natural and are more common in students in the 21st century classrooms.

A digital native may also be a student who was born into a technological world but does not have the appropriate access for digital technology access (Hargittai, 2010; Palfrey & Gasser, 2013). The "participation gap" is the newest form of digital divide (Palfrey & Gasser, 2013, p. 360). The authors indicate that this gap "is the divide that prevents parts of the generation . . . from participating in the new media environment" (Palfrey & Gasser, 2013, p. 360). Hargittai (2010) explains there is a discrepancy to assume that although a person grows up in a technology driven environment does not mean that that person is technological savvy. In addition, "socioeconomic status is an important predictor of how people are incorporating the Web into their everyday lives with those from more privileged backgrounds using it in more informed ways for a larger number of activities" (Hargittai, 2010, p. 92).

21st Century Learners

High school students in 21st century classrooms are learning through student-centered learning with the use of computers and the Internet (Wimberly, 2014). Selwyn (2011) indicates learners who use 21st century technologies in their course and learning "feel that digital technologies now leave contemporary distance learning as a more individually driven and therefore less compromised form of education than may previously have been the case" (p. 87). In addition, Akyol and Garrison (2014) indicate there is a significant relationship between virtual

learning and students' perceived satisfaction. According to Rovai (2001), graduate level learners have a low sense of community and perception when they are enrolled in distance education course. "Distance education courses must move away from imparting feelings of isolation and move toward generating greater feelings of community and personal attention" (Rovai, 2001, p. 43). There is a need for students to interact with their peers and teachers in order to feel like they belong in the classroom (Akyol & Garrison, 2014; Brown, 2001; Rovai, 2001).

Socioeconomic Status

Socioeconomic status (SES) is measured by different factors such as "the family's (a) occupation of principal breadwinner, (b) source of income, (c) quality of housing, and (d) status of dwelling area to arrive at a score that is converted to one of five social classes" (White, 1982, p. 461). Research examines the relationship between socioeconomic status and academic achievement (Suleman, Aslam, Hussain, Shakir, & Zaib-un-Nisa, 2012; Tomul & Savasci, 2012; White, 1982). This started with the Coleman Report in 1966 that acknowledged there is a strong relationship between variables of academic achievement and socioeconomic status (White, 1982). Childs and Shakeshaft (1986) reported:

> "There is considerable evidence that non-school factors are important determinants of educational outcomes. While school is one educational environment influencing educational performance, so, too, are the home, press, radio, television, and other cultural elements. Then, too, the outcome of schooling is affected by native ability." (p. 262)

Suleman et al., (2014) conducted a study to examine the relationship between parental socioeconomic status and secondary student academic achievement. They randomly selected 1,500 secondary students to participate in the study and students completed a survey, where self-questionnaires were used to collect data. Pilot testing was used to "explore the weakness,

misconceptions and ambiguities of the questionnaire" (Suleman et al., 2014, p. 14). The researchers analyzed data and concluded "parental socio-economic status; parent's educational level, parental occupational level; and parental income level affect the academic achievement of students at secondary level" (Suleman et al., 2014, p. 14).

In a similar study, Tomul and Savasci (2012) acknowledged the relationship between SES and student academic achievement. In this study, the researchers examined SES with 7th grade elementary students, where students were selected using the random sampling method. Tomul and Savasci (2012) concluded that students had more opportunity in education when their families had middle to high socioeconomic status background.

Research literature indicates that students from lower socioeconomic status backgrounds are more likely to drop out of school or not graduate on time (Huang & Sebastian, 2014; Marks, 2014; Munoz & Dossett, 2014). In the education realm, low-SES students are identified as at-risk and "are more likely to experience situations that interfere with their ability to focus on academic work" (Couillard, Garnett, Hutchins, Fawcett, & Maycock, 2006, p. 278).

According to the American Psychological Association (n.d.), "inadequate education and increased dropout rates affect children's academic achievement, perpetuating the low-SES of the community. Improving school systems and early intervention programs may help to reduce these risk factors, and thus increased research on the correlation between SES and education is essential" (p. 1).

Learning Styles

SES does not determine a students' learning style (Dunn, Griggs, Olson, Beasley, & Gorman, 1995). The process of learning information is an academic skill that is required to be effective and efficient in any academic setting. One of the key components of how information

is acquired derives from learning theories (Awwad, 2013; Myers, 2008; Vygotsky, 1986). Described in research as conceptual frameworks, learning theories are formed based on how information is understood, decoded, and recalled. "Learning theories are a source of verified instructional strategies, tactics, and techniques" (Ertmer & Newby, 2013, p. 44). There is much research that indicates that behaviorism, cognitivism, and constructivism are three widely used categories in learning theories (Awwad, 2013; Ertmer & Newby, 2013; Myers, 2008; Vygotsky, 1986). In addition, research suggests that to acquire and process information, students must be able to decipher which information is important to retain and how to recall information when needed (Awwad, 2013).

Research generally agrees on the definition of learning styles but differ in how learning styles are divided into categories (Bagher, Yamini, & Riazi, 2009; Decapua & Wintergerst, 2005; Smith, 2002). The most frequently used learning style categories within research literature are defined as visual, auditory, reading/writing, and kinesthetic. Each learning style is attributed to several factors. Decapua and Wintergerst (2005) suggest that learning styles are attributed to a variety of factors, such as background, age, and the way that people comprehend information. In a similar study, Bagher et al. (2009) recommend that a person's environment can heavily influence their learning style. Learning styles of all students are attributed to many factors but mainly the environment in which the content is instructed.

There are many theories that have derived from Vygotsky's (1986) learning styles. In the following section, Visual, Auditory, Reading/writing, and Kinesthetic (VARK) Model, Information Communications Technology (ICT), Situated Cognition, Technological Pedagogical Content Knowledge (TPACK) Framework, Engagement Theory and Moore's Theory of Transactional Distance will be explored through research literature. All of the aforementioned

theories will be explored in greater detail through this chapter to see if there a difference between students' satisfaction of the Economics and Personal Finance virtual high school course between students at different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

Theoretical Framework

The following theoretical framework section will examine students' learning styles in a traditional classroom setting, transition to learning with technology and end with students learning online.

VARK Model

Although learning styles vary greatly (Ganesh & Ratnakar, 2014), all students have a preferred method in which information is easily retained. Prithishkumar and Michael (2014) state, "learning also depends on one's personality and includes factors such as curiosity, prior awareness of the subject, emotional status of the individual, boredom, motivation, concern, and an incentive to study" (p. 183). A student's learning style is the ideal way in which knowledge is acquired and successfully retained (Myers, 2008).

Research indicates that students are more adept to retain information when their learning styles are identified and information is delivered through that said preferred learning style (Ganesh & Ratnakar, 2014). According to Neil Fleming's VARK model, students have learning styles in visual (V), auditory (A), reading/writing (R) or kinesthetic (K) (Bagher et al., 2009; Smith, 2002). Developed in 1978, the VARK model is widely used in academic settings to determine if knowledge is retained by visual, auditory, reading/writing, or kinesthetic (Forest, 2004).

Visual learners. According to the V in the VARK model, visual learners are those who absorb information by seeing visual aids such as pictures, diagrams, charts, and maps (Forest, 2004). In addition, visual learners retain information by processing content in the form of pictures and flowcharts (Prithishkumar & Michael, 2014). According to Jin (2013), visual learning allows students to understand and retain ideals when concepts are associated with photos or other types of images. In a study performed by Jin (2013), the majority of students in a standard public high school preferred to learn through the use of visual models. Examples of these capabilities may include diagramming, outlining, and utilizing sample photos within the technological devices (Jin, 2013).

Auditory learners. The A in the VARK model consists of auditory learners. Auditory learners retain information at-ease by listening and speaking. In a traditional classroom setting, auditory learners may speak information aloud to recall and remember information. High school auditory learners acquire concepts and information when class material is recorded rather than reading material presented (Prithishkumar & Michael, 2014). Auditory learners process information when it is given in the form of "discussions and seminars and like listening to mp3 recordings of lecturers" (Prithishkumar & Michael, 2014, p. 184).

Reading/Writing learners. The R in the VARK model consists of reading/writing learners. These learners retain information by reading and writing (Ganesh & Ratnakar, 2014). Reading/writing learners prefer to read a textbook, write notes, and enjoy reading and writing (Ganesh & Ratnakar, 2014; Prithishkumar & Michael, 2014). Reading/writing learners process information by decoding written text and taking notes for understanding and comprehension (Fleming, 1995). Note taking is a strength that many reading/writing learners possess (Fleming,

1995; Ganesh & Ratnakar, 2014). Textbooks delivered through the Internet are "ideally suited" to the academic success of reading/writing learners (Fleming, 1995, p. 3).

Kinesthetic leaners. The K in the VARK model consists of kinesthetic learners. Kinesthetic learners prefer to acquire information using interaction, contact, and movement in their learning environment (Prithishkumar & Michael, 2014). "Kinesthetic learning employs a combination of sensory functions; such learners have to feel or live the experience to learn; they prefer simulations of real practices and experiences, lessons that emphasize on performing an activity, field trips, exhibits, samples, photographs, case studies, real-life examples, role-plays, and applications to help them understand principles and advanced concepts" (Ganesh & Ratnakar, 2014, p. 27).

In order for information to be readily processed, the student must have an interest in the information and a motivation in how the information is delivered (Prithishkumar & Michael, 2014). As there is an array of students who have different learning methodologies, it is essential to take into consideration the specific functionalities that are involved, especially with regard to virtual learning.

Information Communications Technology (ICT)

As digital capabilities have been assessed throughout the years, it is important to take into consideration the historical background of digital learning and ICT factors. According to Perry (2011), one of the first known distance learning courses was during the 1700s when classroom lessons were sent via postal mail in Boston. This was a trend during the 1800s as well and as during the early 1920s, and Penn State University began offering short academic courses through the school's radio station (Perry, 2011). In essence, this made way for broadcasting measures

and as the years progressed, many educators and students felt the need to opt for flexible programs, which could potentially span the globe (Perry, 2011).

Furthermore, as distance learning progressed, many early education researchers played a role in developing processes where students could possibly construct their own reality based on the experience and knowledge that they learned within the classroom. ICT was first heard of in the 1980s when students were allowed the chance to interact with their environment based on positive implications (Van Beek, 2011). This then developed a conceptual framework in which the interaction could be explained.

According to Perry (2011), many early researchers claimed that there was also a need to apply ethical and social protocols within the ICT models so that students could have the ability to have a broad perspective on life. In essence, the capabilities were based on the assumptions that technology could be utilized to enable students to carry out daily tasks in academia and solve problems accordingly (Selwyn, 2011). When developed in the 1980s, researchers embraced the limitations that were faced because it meant that there was a strong possibility to enhance the process even more (Rooksby & Weckert, 2007). They were able to alter the standard procedures and determine the best route to take for the success of the students (Perry, 2011).

Therefore, based on these implications, the functions of digital courses along with ICT tend to take into the consideration of proper skills and knowledge as gained by students (Rooksby & Weckert, 2007). However, Perry (2011) states that there is a dire need for teachers to understand the nature of the many processes involved. When the protocols were first established many years ago, the ICT and digital learning were just facets that were built on a limited continuum. Now, each component is carefully crafted and plays a significant role in academia (Rooksby & Weckert, 2007; Rovai, 2001; Tomer, 2012).

ICT and visual learners. When virtual learning is taken into consideration, many teachers use ICT tools within the classroom in order to facilitate levels of interaction (Tomer, 2012). Jin (2013) states that the use of communicative technology has the ability to deliver engaging and thrilling lessons to a variety of students within the K-12 setting. Teachers are able to use video clips, presentations, and visuals with color to demonstrate certain topics within each subject. For visual learners, ICT assists students to manipulate images or diagrams to learn to the best of their abilities (Tomer, 2012). Students create assessments, narrate presentations, illustrate notes with pictures and diagrams, and create concept maps for understanding and comprehension (Jin, 2013; Tomer, 2012).

ICT and auditory learners. Suwardy, Pan, & Seow (2013) states auditory learners understand concepts the best when they listen to spoken words. Instead of relying on notes that are printed, ICT plays a vital role in providing auditory learners technologies with audio lessons (Jin, 2013). Auditory learners are sophisticated, but there are some instances where ICT allows for the use of specific speakers, especially if there is specialization in a certain subject (Jim, 2013; Tomer, 2012). Suwardy et al., (2013) also indicate that it may be helpful for students to write down notes as they listen to the information that is relayed as there is a high susceptibility that they will retain the information as needed.

When ICT is utilized for auditory learners, students use verbal games, oral presentations, discussions, tape recordings and show and tell in order to learn about a specific subject (Wan, 2010). Many teachers use sound recordings, music, podcasts and text readers as well to engage students in the content that is being taught (Van Beek, 2011; Wan, 2010). Students who prefer to learn via auditory tendencies use audio books, which are recommended highly for students to absorb content (Suwardy et al., 2013). In addition, Suwardy et al., (2013) suggests students who

prefer to listen to concepts tend to have strong processing skills regarding auditory perception. When this facet is emphasized within an academic setting, students can listen of rhythms, tones, and individual notes in a rapid and efficient manner.

ICT and read/write learners. Students who retain information using the read/write method are students who prefer to read concepts, facts or instructions as opposed to listening or observing them (Prithishkumar & Michael, 2014). As ICT is involved, there is typically a large association with notes, structure of text layout, lists, definitions, glossaries, manuals, handouts and other various written manipulatives (Prithishkumar & Michael, 2014). According to Harvey, Greer, Basham, & Hu (2010), teachers often use specific word processors as beneficial tools for assisting read/writer learners. Templates are typically developed as needed through programs such as Microsoft Office, Adobe Acrobat, and other innovative software applications where brainstorming capabilities can take place. In most instances, students who prefer the read/write learning methodology use ICT to create templates and facilitate mind mapping so that outlines are created for ease of use (Harvey et al., 2010; Prithishkumar & Michael, 2014). Sometimes, teachers may find that students benefit the most when they use an ICT tool to switch between mind mapping and outlines so that versatility can be seen accordingly (Harvey et al., 2010).

There are many read/write learners who pay specific attention to the glossaries within textbooks so that they can be aware of the structure of the overall literature (Gist et al., 1989). Many teachers encourage their students to make their own glossaries within the technological devices that are provided so that they can progress in a beneficial way throughout the course (Ganesh & Ratnakar, 2014). As stated by Hung et al. (2010), students can return to their own notes after the teacher's lectures and prepare a brand-new set, especially if something was initially missed.

In order to prevent students from missing vital knowledge throughout the classroom session, ICT ensures there is a surplus of accuracy, especially during the re-writing process (Donlevy, 2003). Teachers encourage students to write their explanations of different facets throughout the class so that they are better prepared for upcoming material and assessments (Decapua & Wintergerst, 2005). Learners who thrive on reading and writing tend to re-write and re-read in order to correctly process the material that is being presented (Jin, 2013). This allows for a positive learning experience from a student's perspective. This is why the ICT ensures that efficiency is met in the highest standards possible (Hung et al., 2010).

ICT and kinesthetic learners. For kinesthetic learners, the preference of learning style includes touching and feeling objects in order to engage within a classroom discussion (Leopold, 2012). For the most part, each sense within the human body is used so that individuals can derive the proper techniques through the learning processes (Malapile & Keengwe, 2013). With regard to ICT, kinesthetic learners tend to perform the best when they are interacting with a variety of different facets of technology (Donlevy, 2003; Selwyn, 2011). For example, students may prefer to play an educational game or enjoy role-playing with the help of a computer through the guidance of a teacher. Other examples may include trial and error electronic demonstrations, innovative dioramas, and laboratories that have been structured and organized by a computer system (Harvey et al., 2010).

Situated Cognition. The theory of situated cognition states that knowledge of individuals is found within the context, culture and even activity, with regard to the way that it was initially learned (Brown, Collins, & Duguid, 1989; Kemp, 2002; Laurillard, 2013). "Situated cognition emphasizes the importance of context in establishing meaningful linkages with learner experience and in promoting connections among knowledge, skill, and experience"

(Choi & Hannafin, 1995, p. 54). There are many researchers who also refer to the concept as situated learning (Blitzer & Heubner, 2012; Kemp, 2002; La Marca, 2006). Blitzer and Heubner (2012) state that learning, is a social process, especially when students have the ability to interact with each other through activities that are shared and through the discussion of language. According to Laurillard (2013), it is the responsibility of the teacher to "create the conditions in which understanding is possible, and the student's responsibility to take advantage of that" (p. 1). When this is done, knowledge can be shared and problem-solving mechanisms can be taken into consideration as well (Kemp, 2002).

With regard to technology, the role of action needs to take place in order for proper cognition among students to occur (La Marca, 2006). That action may take place in a learning institution or within a community. Moreover, students need to have an abundance of adequate tool for their success (Laurillard, 2013). The tools that are found within the structured environments tend to constitute the specific forms in which situated cognition can actually develop. Blitzer and Heubner (2012) indicate students interact in new situations when active participation in the classroom setting is exhibited. Whether learners take the time to reflect upon a class lecture or whether they take the time to learn the class material themselves, there is constant knowledge that has already been derived from a specific location (Choi & Hannafin, 1995). In essence, situated cognition takes into account the types of learners that are found within a class setting and a community in order to define the possibilities that may exist (La Marca, 2006; Laurillard, 2013).

On the other hand, in a separate research conducted by Laurillard (2013), situated cognition is not enough in the academic realm where it "gives a sense of action, but not the sense of 'standing back' from the content that is implicit in what teachers want of their students" (p.

23). The author suggests that although the environment is important, it is not exclusively the responsibility for positive learning to take place (Laurillard, 2013). In addition, Laurillard (2013) mentions that knowledge acquired through an academic setting is different from knowledge acquired in an "everyday" setting (p. 23). When students are in the classroom, there is a different type of learning that occurs as opposed to when students are outside of a class, maybe in an outside setting, with their peers. In a similar research study, Smith and Semin (2004) indicate, "feedback – occurring internally and with the environment over time – is of paramount importance" (p. 4). Smith and Semin (2004) argue that feedback is critical in the learning process as it relates to Situated Cognition. Also, Resnick (1987) agrees that learning in a school environment is at the responsibility of the individual, whereas learning outside of school is "socially shared" (p. 13). Research literature differs on who is ultimately responsible for learning context as it relates to situated cognition.

Technological Pedagogical Content Knowledge (TPACK). The TPACK is a framework that is extended upon Lee Shulman's pedagogical content knowledge (PCK) by adding the technology component (Koehler & Mishra, 2009). The framework is used by teachers to integrate "a complex interaction among three bodies of knowledge: content (CK), pedagogy (PK) and technology (TK)" (Koehler & Mishra, 2009, p. 60). By using the framework, there is an allowance for addressing the multifaceted and often complex nature of knowledge needed by educators (Brantley, 2013).

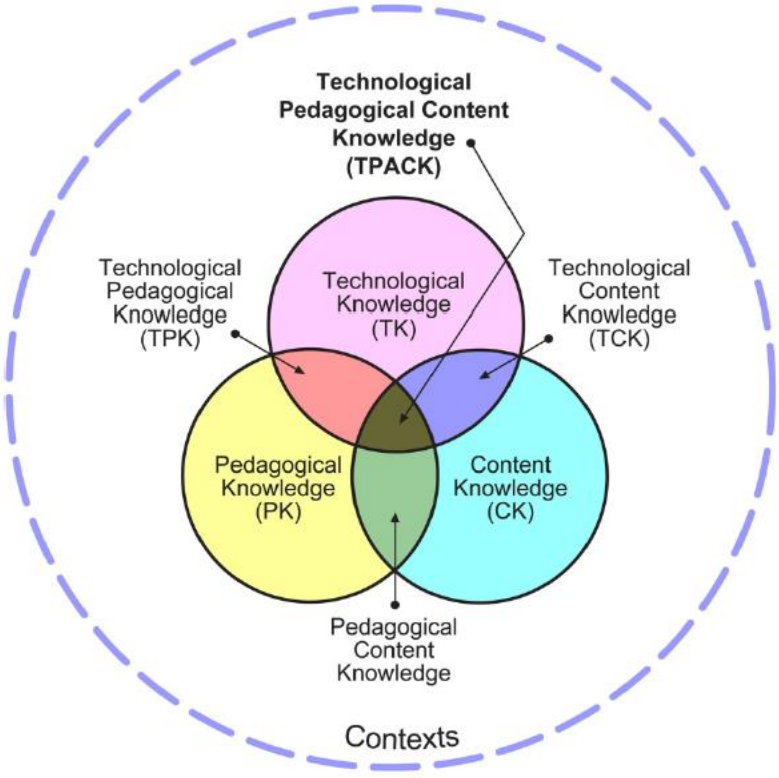

Figure 2. The TPACK Framework and its knowledge components. Adapted from "What is technological pedagogical content knowledge (TPACK)?," by M. Koehler and P. Mishra, 2009, *Contemporary Issues in Technology and Teacher Education, 9*(1), p. 63. Reprinted with permission (Appendix B).

Technological knowledge (TK). Brantley (2013) indicates technological knowledge or TK contains knowledge that includes tools, resources, and the implications with regard to innovative technology in learning settings. This component of the theory includes a basic understanding of each tool that is involved so that teachers and students can apply them to everyday situations in a classroom environment (Brantley, 2013; Niess, 2005). For example, the use of iPads, laptops, SmartBoards and computers are a few classroom manipulatives that are used as it relates to TK. Brantley (2013) also states that there is a strong desire to apply TK in a broad manner so that efficiency can be guaranteed. However, there is also a notion that information technology and digitization as a whole will have to exist in order to adapt to possible

changes in the future (Koehler & Mishra, 2009). According to Koehler and Mishra (2009), "defining [TK] is notoriously difficult. Any definition of technology knowledge is in danger of becoming outdated by the time this text has been published" (p. 64).

Content knowledge (CK). The second factor of TPACK known as content knowledge or CK involves the actual content that is taught within a classroom. Content refers to the curriculum and instruction component taught by a teacher (Brantley, 2013). For example, when a teacher incorporates students to use critical thinking in English classes or multiplication in math classes, CK is being applied. Shuman (1986) stated this type of knowledge includes a variety of factors, such as theories, concepts, frameworks, and ideas. Moreover, there may even be the need to have knowledge pertaining to specific evidence of established approaches that students can take when learning in an academic environment (Koehler & Mishra, 2009; Niess, 2005).

Pedagogical knowledge (PK). The third general component of TPACK is known as pedagogy or PK. Brantley (2013) states that this type of knowledge takes into consideration the deep impact of knowledge that teachers have gained throughout the years. This may include specific processes, methods or even practices (Koehler & Mishra, 2009; Niess, 2005). In many cases, PK tends to encompass a broad array of purposes with regard to education (Brantley, 2013). For example, differentiated learning, project based learning and applying real world connections are indicators of PK. Also, Brantley (2013) states generic assessment is needed in order to determine the actual capabilities of the teachers. In essence, there is a dire need to determine the specific implications of knowledge-based technology so that students can thrive in the future (Brantley, 2013). When Shuman created the theory, he wanted to develop a process where new epistemologies could be added to original parameters of knowledge and he succeeded greatly (Koehler & Mishra, 2009; Brantley, 2013). Teachers must understand a multitude of

learning and development theories in order to comprehend how they are used to maximize effect teaching (Koehler & Mishra, 2009).

Engagement Theory. Greg Kearsley and Ben Shneiderman developed the engagement theory in hopes that it would facilitate the engagement of technology within the academic learning process (Huang, 2010). The focus of this theory is that students must be engaged in a meaningful way when dealing with interaction of peers as well as teachers (Kearsley & Shneiderman, 1999). This will assist students in getting tasks done in an efficient manner (Huang, 2010; Kearsley & Shneiderman, 1999). Huang (2010) indicates the concept of engagement is critical for this process; there is an intention that learning is based on a combination of teaching with the use of specific aspects of technology.

Huang (2010) also states that the theory is based on the notion that collaborative teams must be instilled for success among the academic arena. Three components that are usually prevalent when the theory is used includes the need to have project based tasks, the need to perform tasks in a group or through collaboration and the need to have a legitimate focus of the subject being taught or learned (Kearsley & Shneiderman, 1999).

Finally, it should be known that the engagement theory is different from many other educational processes as there is a strong emphasis on learning that is essentially computer based with the need to have collaboration (Huang, 2010; Kearsley & Shneiderman, 1999). This helps to develop successful parameters within the students involved (Huang, 2010).

Moore's Theory of Transactional Distance. In 1986, researcher Michael G. Moore stated that distance education relied on the communication methods that are established by the teacher and the learner involved (Reyes, 2013). Initially, the theory focused on two primary concepts: distance teaching and learner autonomy. Distance education is defined as learning

beyond the traditional brick and mortar classroom (Keegan, 2000). Learner autonomy is the ability for each student to have full control of how he is taught and how knowledge is retained (Keegan, 2000; Moore, 1993). The autonomy of the learner depends on the student's style of learning (i.e., reading/writing, aural, visual and kinesthetic). In addition, the term transaction derived from John Dewey and added at a later stage to the theory. Moore (1993) indicated three factors that contribute to transaction consisting of: communication between the teacher and the student, the overall structure of how the content is delivered, and the ability for students to become engaged in the learning process.

The first factor that contributes to transaction relies on the communication between the student and the teacher. Moore (1993) acknowledged that communication is vital not in terms of quantity but rather quality. This theory "perceives dialogue as an element connected with the quality of communication rather than the frequency" (Moore, 1993, p. 22).

The second factor that contributes to transaction is the organization of course delivery. Goals must be established and clearly stated; teachers must have a sound technique to deliver the content to students. In addition, formative and summative assessment techniques must be established by procedures.

The third and final factor that contributes to transaction is the autonomy of the learner. "Autonomy, in other words, is the degree of decision the learner has over issues such as educational goals, manner of teaching followed, rate of progress and methods of assessment" (Moore, 1993, p. 22). Learners must have clear self-defined learning goals and objectives.

In essence, this theory states there is a requirement to build a strong communication channel as teaching methods and learning methods can vary depending on the people who are a part of the process (Moore, 1993). According to Moore (1993) and Reyes (2013), there may also

be a need for specialized tools and instruments such as diagrams and technological devices so that students are able to process concepts in a more efficient manner. A student may prefer to work in a more independent way (Moore, 1993). The theory emphasizes the cognitive abilities of data transmission and ideas as seen within distant learning.

Related Literature

ICT and Learning

Information and Communications Technologies (ICT) play a role towards improving student learning by facilitating efficient teaching methods within the classroom. According to Malapile and Keengwe (2013), when students are exposed to ICT through daily curriculum, there is a strong tendency for them to have a positive outlook on their overall achievement measures. This can be in terms of practical skills, basic knowledge, comprehension of certain subjects, and proper presentation skills. By using ICT students can look at images in an easy manner, therefore improving their memory with regard to retention and understanding the material (Rooksby & Weckert, 2007). Teachers can also use ICT when explaining instructions that may be considered complex for many students (Perry, 2011). This plays a significant role in ensuring comprehension. Moreover, when ICT is modeled effectively, teachers develop classes that are interactive so that the involved students enjoy lessons (Malapile & Keengwe, 2013). Facets of concentration and student attendance have the strong possibility of increasing as time progresses (Malapile & Keengwe, 2013).

Many teachers throughout the world incorporate the use of ICT tools in order to support their traditional methods of learning (Laurillard, 2013). For example, when there is a need for students to retrieve information, they can exhibit passive learning tendencies. However, when students are engaging with the class, they can exhibit active learning tendencies. Each of these

approaches contributes to the versatility that is needed towards teaching students. The educational technology tools are significant as it has the potential to change the pace of lessons (Kumar, 2007). In today's society, it is imperative for children to develop sufficient skills in order to enable them for positive opportunities in the future and they can then take advantage of all the possibilities that are found simply from using ICT (Malapile & Keengwe, 2013).

Since education through ICT tools have become a priority, especially within the past decade, Malapile and Keengwe (2013) indicate that there is an immense support from a wide variety of branches in the world of academia. With the allowance for lessons that are high quality and the involvement in collaboration with teachers all over the globe, there is a tendency to prepare teaching plans through the use of an array of resources. Students have the ability to learn new analytical skills, they can improve in their reading comprehension and they can also increase their writing capabilities with regard to grammar, punctuation, and spelling (Laurillard, 2013; Malapile & Keengwe, 2013; Roblyer & Marshall, 2002). As ICT is updated to reflect current technologies, there is still an encouragement of independent learning so that students are aware that they are responsible for their own educational journey (Rooksby & Weckert, 2007). ICT plays a vital role in proving that educational technology can make students feel more successful in their academic role as a student (Selwyn, 2011; Suwardy et al., 2013). Furthermore, most students find that their learning experiences are more stimulated as opposed to following standard classroom protocols (Malapile & Keengwe, 2013).

Specifically, Perry (2011) states ICT facilitates a type of increased retention among students as well as a decrease in the actual learning time. With availability that is high-demand, there is an allowance for students to learn with a high level of convenience outside of the school setting (McCollum, 2011). Hung et al. (2010) claims that this is essential since students can pace

themselves accordingly. This will increase their confidence with regard to the success that is faced in academia (Reyes, 2013).

While ICT and virtual learning offers a plethora of advantages to take into consideration, research indicates that there may be drawbacks as well. According to Wimberly (2014), some educators are concerned that increased technology in the classroom may cause a decrease in basic social interaction. When face-to-face human communication is suppressed, students may find themselves succeeding in academia, however they may struggle as they try to get along with others (Reyes, 2013). In a similar study, Mupinga (2005) suggests that learning in a traditional face-to-face environment is not the same as learning in an online environment.

Koehler and Mishra (2009) argue, "teaching with technology is complicated further considering the challenges newer technologies present to teachers" (p. 61). Digital technologies are neutral technologies, but ultimately digital technologies send students into isolation, thus resulting in asynchronous communication (Koehler & Mishra, 2009). In addition, there are many educators who "do not consider themselves sufficiently prepared to use technology in the classroom and often do not appreciate its value or relevance to teaching and learning" (Koehler & Mishra, 2009, p. 62). The authors suggest that in order to prepare teachers to be effective in technology integration, there must be diverse professional development training that focuses on different facets of teaching and learning (Koehler & Mishra, 2009). There is no concrete way to establish technology integration into the classroom but Koehler and Mishra (2009) state "integration efforts should be creatively designed or structured for particular subject matter ideas in specific classroom contexts" (p. 62).

Online Learning

According to Donlevy (2003), online learning allows students to explore curriculum using distance technologies. Online learning makes students marketable to the workforce and marketplace (Donlevy, 2003). Roblyer and Marshall (2002) conducted a survey to determine the difference between successful and unsuccessful students enrolled in the Economics and Personal Finance virtual high school course. The authors acknowledged that "study environment, motivation, and computer confidence were the strongest predictors of successful and unsuccessful students, and two of these had relatively high reliability: study environment and computer confidence" (p. 252).

In a similar study by Valtonen, Kukkonen, Dillon, and Väisänen (2009), high school students' readiness was examined to determine if high school students were capable in being successful in online learning. According to Valtonen et al., (2009), high school students had a lack of knowledge of the possibilities of online learning but they were literate in the use of computers and Internet skills.

In an article by Beese (2014), students have the ability to thrive in online learning environment because of the efficiency and ease that can take place. In this quantitative study, most people enjoyed the fact that classes could be taken anywhere instead of an actual physical classroom (Beese, 2014). In essence, high quality learning can take place as long as there is a computer or mobile technology involved with the connection of Internet (Beese, 2014). Moreover, students have the ability to participate in class even when they are in different parts of the world (Beese, 2014; Suwardy et al., 2013).

As indicated in a qualitative study performed by Wan (2010), high school students tend to have a high interest in online learning since digitization of academia continues to progress as

time goes on. In today's society, high school students are in tune with computers and digital innovation; therefore, Wan (2010) states that the learners will have a better chance for motivation and overall success. He also indicates that schools are hesitant to implement online learning capabilities because students may lose their abilities to socialize in a proper manner (Wan, 2010). There is a possibility that teachers will be more involved with their students and they may more engaged with the subject matter (Blackenship & Atkinson, 2010).

While it may not be necessary to base the entire scope of high school academia online, it may be beneficial to expose students to different communication mediums that they may experience upon graduating from high school. Wan (2010) also states that high school seniors may have the opportunity to engage in online college courses so that they can be prepared for the material they are about to face when they enter a university. This will create a broad sense of cognitive development and they can also take part in the process from their home computer (Wan, 2010).

Suwardy et al. (2013) also mentions that there is a strong sense of synergy when high school students actively participate in online learning environments. Ideas can be shared in a continuous manner and with the guidance of a teacher, each student can account for his or her personal unique learning methodology. This means that most online learning classrooms are very student centered since they may prefer auditory learning or simply visual learning depending on the parameters that exist (Beese, 2014).

In the same study, Suwardy et al. (2013) indicates that there are negative implications to take into consideration as well. For example as seen within the study, there are many students who may not be familiar with the many facets involved in order to effectively operate an online course. In essence, computer literacy may be limited, creating a lack of effectiveness. It should

also be known that technology has a high level of reliability, however, there may be moments where the equipment may fail and data may be lost entirely. This is why there is a need for adequate programming and logistical strategies in order to succeed Suwardy et al. (2013).

In addition, in a different study conducted by Donlevy (2003), there are disadvantages and drawbacks to identified special education students who enroll in virtual classes. The absence of personal teacher to student contact is a hindrance for special education learners (Donlevy, 2003). "These opportunities for social and emotional learning are diminished or unavailable in an online classroom" (Donlevy, 2003, p. 120). Special education learners who may not normally be involved in a traditional classroom setting would "find it difficult to sustain interest in accomplishing all the learning activities associated with" virtual learning (Donley, 2003, p. 120).

According to Harvey et al. (2014), virtual learning provides a unique type of experience that allows for distinct accommodations for learners that may be visual, auditory, or even kinesthetic. With these implications, there is a strong audience of students who are well dispersed with a variety of different needs. As time progresses, there are increased efficiency capabilities that are taken advantage of and in essence, virtual learning becomes a standard in academia (Donlevy, 2003; Harvey et al., 2014; Hung et al., 2010). To go along with this notion, Hung et al., (2010) also indicates that virtual learning maximizes instruction that is individualized, even when teachers create their own lesson plans as needed. When this occurs, learning preferences are targeted and students have a high susceptibility to succeed within their time at school (Hung et al, 2010; Laurillard, 2013). Moreover, virtual learning creates a type of synchronicity in a self-faced manner. Students can progress as fast or slow as they can with the assistance of the teacher and this may then eliminate certain types of developed frustration (Hung et al., 2010).

Both Harvey et al. (2014) and Hung et al. (2010) indicate virtual learning leads to strong tendencies of collaboration. Research states the Internet can be used with curriculum and instruction to promote a student's educational journey (Kumar, 2007). Human interaction is vital for learning; however, when technology is involved with components such as e-mail, message boards and teleconferencing, students can benefit in technology integration (Laurillard, 2013; Malapile & Keengwe, 2013). Teachers in online courses must make students aware of when they will respond to e-mail communication and may have to create a general forum where students are able to ask questions relating to the class and/or content (Mupinga, 2005).

Socioeconomic Status and Online Learning

Blankenship and Atkinson (2010) indicated that there is a strong indication that low-SES students are optimistic about the idea of online learning due to the potential to gain more access to college-level material. According to the Blankenship and Atkinson (2010) quantitative study, there was a 25% increase of enrollment of online learning within less than affluent communities. Moreover, a meta-analysis was performed to compare the academic outcomes between physical courses and online courses (Blankenship & Atkinson, 2010). The results showed that there was a small discretion regarding differences but nonetheless; students seemed more motivated in the online learning arena (Blankenship & Atkinson, 2010).

It should also be known that Tomer (2012) designed a similar study about low-income students and their perceptions of online learning. Tomer (2012) found that as time progressed, many students had the ability to achieve a high standard of learning without attending a face-to-face class. This is because technology makes it extremely simple to engage with a teacher without having to show up to an actual physical classroom (Tomer, 2012). Instead, the

classroom can be available in an online atmosphere and students from every demographic will have the ability to join (Tomer, 2012).

Moreover, it is found that there is a gap in the literature with regard to online learning in different socioeconomic status (SES) communities (Wan, 2010; Zehr, 2010). While there is a plethora of studies based on digital learning in low-SES communities in the post-secondary education level (Albert & Johnson, 2011; Rovai, 2001), there is limited information on the digital learning in low-SES communities in the high school setting (Smith, 2013; Vigdor et al., 2014). Based on these implications, a thorough analysis can then be made pertaining to distant and digital learning in the high school setting.

Even though there are an array of studies, which thoroughly assess the importance of online learning and the digitization of today's society, there are still gaps to take into consideration (Zehr, 2010). For example, there is limited information with regard to the discrepancies that are seen among high school students (Tomer, 2012). While online learning may be suitable for many grade levels and certain learners, there is still a need to decipher among each group in order to better understand the dynamic of the population (Wan, 2010).

Summary

Innovation and new technology has made a significant impact in the way that virtual classrooms are structured. It has affected society, but it has also affected the population of students because there are a variety of learners that exist. In addition, innovation and new technology has impacted the amount of resources available to economically disadvantaged students. It is imperative for educational institutions to create an environment for students that can support a high level of thinking so that they can be productive citizens. As seen with ICT,

the integration of technology has supported students who are kinesthetic learners, auditory learners, visual learners, and read/write learners, meaning all learners (Blitzer & Heubner, 2012).

According to Gall, Gall, and Borg (2010), technology and the digitization of the many tools that are involved play a role in creating authentic learning arenas where students are increasingly motivated to attend class on a daily basis. This means that they are highly susceptible of having increased communication capabilities and they are able to solve problems in a more effective manner. These implications have led many researchers to believe that learning should support an innovative environment especially through adequate collaboration of an array of devices.

In today's society, there is a plethora of learners who are not raised in affluent homes, yet they still have the desire to thrive and learn new facets about life in general (Albert & Johnson, 2011). Therefore, if there is an increase in the amount of digitalization, there is a strong likelihood that students will succeed regardless of their family income (Albert & Johnson, 2011; Compaine, 2001; Harvey et al., 2014; Lewis, 2007; McCollum, 2011). Society is continuing to change hence the number of learner types and the array of different facets as seen with ICT (Rooksby & Weckert, 2007).

CHAPTER THREE: METHODS

Design

A quantitative, causal-comparative design was used to investigate the difference between perceived overall students' satisfaction of the Economics and Personal Finance virtual high school course in different socioeconomic schools. Gall, Gall, and Borg (2007) refer to causal-comparative design as group comparison research. This research design was chosen because it is similar to experimental research (Creswell, 2015) but explores causal relationships between independent and dependent variables and relates the outcomes of the two organized groups (Gall, et al., 2007). The independent variables in this study were the type of school, SES (economically disadvantaged and non-economically disadvantaged); the dependent variable was the perceived overall satisfaction, content, learner interface, personalization, and learning community. Research participants from high schools in Virginia were already in organized groups, which reflect the type of school in which they attended. Although this research design is causal-comparative and is similar to an experimental research, it does not establish any cause-and-effect relationship between variables but identifies associations between independent and dependent variables (Creswell, 2015; Gall, et al., 2007).

Research Question

RQ1: Is there a difference in students' satisfaction of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia?

Null Hypotheses

The null hypotheses for this study include the following:

$H_0$1: There is no significant difference in *students' perceived overall satisfaction* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$2: There is no significant difference in *students' content* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$3: There is no significant difference in *students' learner interface* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$4: There is no significant difference in *students' personalization* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$5: There is no significant difference in *students' learning community* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

Participants and Setting

The participants for this study were selected by convenience sampling from six Economics and Personal Finance classes (from two Virginia high schools) in the same school division. The school division is categorized as urban/suburban. All students enrolled in the virtual/online Economics and Personal Finance course were invited to participate.

Population: School Division

The entire student population for School Division A Public Schools for the 2015-2016 school year was less than 50,000 students, which was located in the state of Virginia. The school

division was located in an area where the average median family income was less than $60,000. School Division A Public Schools gender consisted of (52%) male students and (48%) female students. School Division A Public Schools student demographics included (.3%) American Indian or Alaskan Native; (9.9%) Asian; (36.5%) Black or African-American; (.1%) Native Hawaiian or other Pacific Islander; (41%) White; (8.2%) Hispanic or Latino; (4%) Non-Hispanic, two or more races. The entire high school divisions' population included (30%) high school students.

Sample

A convenience sampling of 249 participants was used because the sample of students selected was indicative of the students who represent the population of the research study (Creswell, 2015). The selected students were enrolled in an Economics and Personal Finance virtual/online course. The participants included 128 students enrolled in an economically disadvantaged school and 121 students enrolled in a non-economically disadvantaged school. For this study, the number of participants sampled was 249 students, which according to Gall et al., (2007) is the required minimum (n = 42) per group for a medium effect size with a statistical power of .7 at the .05 α level (p. 145).

Group 1: Economically disadvantaged school. The economically disadvantaged school makeup consisted of the following percentages within Group 1: There were in grade 9 (0.8%), grade 10 (35.2%), grade 11 (21.0%), and grade 12 (43.0%). There were (0%) American Indian or Alaskan Native; (19.5%) Asian; (32.0%) Black or African-American; (0.0%) Native Hawaiian or other Pacific Islander; (15.7%) White; (32.8%) Hispanic or Latino; (0%) Non-Hispanic, two or more races. There were (38.5%) males and (61.5%) females. There were (54.7%) students who were enrolled in the course for the first time and (45.3%) students who

were previously enrolled in a virtual/online course. There were (48.4%) students who received free and reduced lunch, whereas (51.6%) students did not receive free and reduced lunch.

Group 2: Non-economically disadvantaged school. The non-economically disadvantaged school makeup consisted of the percentages within Group 2: There were in grade 9 (3.3%), grade 10 (12.4%), grade 11 (40.5%), and grade 12 (43.8%). There were (1.7%) American Indian or Alaskan Native; (16.5%) Asian; (20.7%) Black or African-American; (3.3%) Native Hawaiian or other Pacific Islander; (30.6%) White; (18.2%) Hispanic or Latino; (9.0%) Non-Hispanic, two or more races. There were (52.9%) males and (47.1%) females. There were (53.7%) students who were enrolled in the course for the first time and (46.3%) students who were previously enrolled in a virtual/online course. There were (17.4%) students who received free and reduced lunch, whereas (82.6%) students did not receive free and reduced lunch.

Instrumentation

In 2003, Yi-Shun Wang developed a comprehensive model and instrument for measuring learner satisfaction with asynchronous e-learning systems (Wang, 2003). The e-learner satisfaction (ELS) instrument has been used in hundreds of research projects. The purpose of the ELS was to measure high school students' satisfaction of learning in asynchronous environments (Liaw & Huang, 2013; Roblyer & Marshall, 2002; Shee & Wang, 2008; Wang, 2003). Created by Wang (2003), the purpose of the ELS instrument is to measure students' satisfaction of an online course. See Appendix C for the instrument. The following 17-question instrument was adapted from the study created by Wang (2003) where participants were asked to answer statements utilizing a seven-point Likert-type scale ranging from Strongly Disagree to Strongly Agree. Responses were as follows: Strongly Disagree = 1, Disagree = 2, Somewhat Disagree = 3, Neutral = 4, Somewhat Agree = 5, Agree = 6, and Strongly Agree = 7 (Wang, 2003). The

combined possible score on this instrument ranges from 17 to 119 points. A score of 17 is the lowest possible score meaning students perceived overall dissatisfaction of online learning. A score of 119 points is the highest possible score meaning students perceived overall satisfaction of online learning. Using the subscales from Wang (2003) study, the following items were examined:

Reliability. Reliability was evaluated by assessing the internal consistency of the items representing each factor using Cronbach alpha. The 17-item instrument had a reliability of 0.93, exceeding the minimum standard of 0.80 suggested for basic research. The reliability of each factor was as follows: content = 0.89; learner interface = 0.90; personalization = 0.88; learning community = 0.95. Furthermore, each of these 17 items had a corrected item-to-total correlation of above 0.50 (p. 79).

Content validity. The ELS instrument meets requirements of reliability and consistent factor structure. The procedures used in conceptualizing the ELS construct, generating items, and purifying the ELS measures suggest that the ELS instrument has strong content validity (p. 80).

The instrument adapted from Wang (2003) was sent to an e-mail account for the school-designated teacher. See Appendix D for permission to use the instrument. There were no adapted instructions for administration of the instrument. The researcher created instructions for the teacher to read to students prior to completing the survey. See Appendix E for instrument instructions. The survey was administered through Google Forms, which is an online website used to deliver the instrument, and was completed within a one-30-minute session. Data collected from the survey were anonymous and answers were saved into a Microsoft Excel spreadsheet.

Procedures

The researcher contacted the superintendent in school division A and permission was granted. See Appendix F for letter to superintendent requesting permission. The researcher applied to the Institutional Review Board (IRB) and upon gaining approval, the research was executed. See Appendix G for IRB Approval. The researcher sent e-mail communication to each virtual/online Economics and Personal Finance teacher upon receiving permission from the superintendent. The e-mail asked each teacher for permission to conduct the study. See Appendix H for letter to each teacher requesting permission to conduct the study.

The researcher dropped off physical consent forms in an envelope package to the school's secretary in the attention of the virtual/online Economics and Personal Finance teacher with a note enclosed referencing the timeline. The researcher included a collection envelope inside of the main envelope package to be used to collect the completed and signed consent forms back to the researcher. The teacher had a timeline of 10 school days to distribute, collect, and return consent forms to the researcher. The teachers sent the forms home to parents with the students, respectively, which met the criterion stated on the consent form. The consent form informed parents, guardians, and students about the purpose of the study and the availability of the online survey. See Appendix I for informed consent letter. The teacher collected completed consent forms for the researcher using the collection envelope and give to the school's secretary. At the deadline listed in the envelope, the researcher picked up the sealed informed consent forms from the school's secretary. Once the researcher received the collection envelope, the researcher gave the Google Forms link on an index card (Appendix C) to the virtual/online Economics and Personal Finance teacher through the school's secretary. The researcher gave an index card with the survey link to the school's secretary to give to the teacher. The researcher

kept the consent forms in a locked drawer or filing cabinet separate from collected study data. The teacher allowed only students who agreed to participate in the study to complete the online survey within the virtual/online Economics and Personal Finance course. Students who did not return the completed consent form was not provided the survey link.

At the beginning of the school year (September 2015) students were enrolled in a virtual/online Economics and Personal Finance course. The "course supports school compliance with the new requirement that each student in Virginia complete a virtual or online course before graduation" (Virtual Virginia, 2015, p. 1). The delivery system of the course was through an approved online school division partner. Different teachers in different school buildings but in the same content subject taught participants. The course lasted for a total of 36 weeks. The students were asked to complete the ELS instrument to measure their perceptions of online courses. See teacher instruction in Appendix H for administering the instrument. The teacher instructed students to log on to the link provided. The link took them to Google Forms. There, the students were asked to agree with the disclaimer before proceeding to the survey. If the student agreed, the student selected next. If the student did not agree then the survey did not allow the student to click next and he/she must click exit to close the survey. The next page were instructions regarding the instrument (Appendix E). After reading the instructions, the student selected next which took them to the background page. The background page consisted of five questions. Students selected one choice per question. After completing the background page, the students clicked next and viewed the ELS instrument. The student participants read through the online instructions and took the survey within a 30-minute window in one setting. After students completed the survey, the survey thanked participants and closed. There was neither

monetary compensation nor extra credit given to students who participated in the study. This study was like the study conducted by Roblyer and Marshall (2002).

Data Analysis

The statistical analysis used for this study was the one-way multivariate analysis of variance (MANOVA) to analyze mean differences of the dependent variables, (perceived overall student satisfaction, content, learner interface, personalization, and learning community) against the independent nominal variable, the type of school (economically disadvantaged and non-economically disadvantaged). Gall et al., (2007) indicate that a one-way MANOVA is used to examine significant difference between an independent variable with more than one dependent variable. According to Warner (2012), "in a one-way MANOVA, mean scores on multiple quantitative outcome variables are compared for participants across two or more groups" (p. 778).

Data were used to create boxplots to test for extreme outliers. The Kolmogorov-Smirnov test was used to test for assumption of normality. This test was used because the $n > 50$. The significance level used was $p > .05$. Scatter plots were used to test for the assumption of linearity between each pair of dependent variables. A scatter plot matrix was used for each group of the independent variable. Box's M test of equality of covariance was used to examine the tenability of the assumptions for homogeneity of variance. The dependent variables were moderately related. Pearson's Product Moment test was used to detect multicollinearity. The MANOVA was conducted at a 95% confidence interval. Partial eta squared was used for effect size.

CHAPTER FOUR: FINDINGS

Research Question

The research question identified for this study was:

RQ1: Is there a difference between students' satisfaction of the Economics and Personal Finance virtual high school course between students at different socioeconomic schools in Virginia?

Null Hypotheses

The null hypotheses for this study include the following:

$H_0$1: There is no significant difference in *students' perceived overall satisfaction* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$2: There is no significant difference in *students' content* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$3: There is no significant difference in *students' learner interface* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$4: There is no significant difference in *students' personalization* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

$H_0$5: There is no significant difference in *students' learning community* of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia.

Descriptive Statistics

Participants who completed the survey totaled 249 from economically disadvantaged schools and the non-economically disadvantaged schools. There was one independent variable: socioeconomic schools type. The independent variable, type of school, had two groups: economically disadvantaged and non-economically disadvantaged. The dependent variables for this study were the students' (perceived overall satisfaction, content, learner interface, personalization, and learning community).

Means and standard deviations for the dependent variables (perceived overall satisfaction, content, learner interface, personalization, and learning community) are in Table 1.

Table 1

Descriptive Statistics of Dependent Variables

Variables	*N*	*M*	*SD*
Overall Perceived Satisfaction	249	3.94	.793
Content	249	3.96	1.15
Learner Interface	249	4.10	1.06
Personalization	249	3.58	.694
Learning Community	249	3.70	.774

Means and standard deviations on the independent variable, type of school, with Perceived Overall Satisfaction are in Table 2. Students in the economically disadvantaged school had a higher perceived overall satisfaction (M = 4.03, SD = 1.01) than students in the non-economically disadvantaged school (M = 3.85, SD = .452).

Table 2

Descriptive Statistics of Perceived Overall Satisfaction

Variables	*N*	*M*	*SD*
Economically Disadvantaged School	128	4.03	1.01
Non-Economically Disadvantaged School	121	3.85	.452

Means and standard deviations on the independent variable, type of school, with Content can be found in Table 3. Students in the economically disadvantaged school rated higher in content (M = 4.01, SD = 1.361) than students in the non-economically disadvantaged school (M = 3.90, SD = .88).

Table 3

Descriptive Statistics of Content

Variables	*N*	*M*	*SD*
Economically Disadvantaged School	128	4.01	1.36
Non-Economically Disadvantaged School	121	3.90	.88

Means and standard deviations on the independent variable, type of school, with Learner Interface can be found in Table 4. Students in the economically disadvantaged school rated higher in learner interface (M = 4.25, SD = 1.11) than students in the non-economically disadvantaged school (M = 3.93, SD = .98).

Table 4

Descriptive Statistics of Learner Interface

Variables	*N*	*M*	*SD*
Economically Disadvantaged School	128	4.25	1.11
Non-Economically Disadvantaged School	121	3.93	.98

Means and standard deviations on the independent variable, type of school, with Personalization can be found in Table 5. Students in the non-economically disadvantaged school rated higher in personalization (*M* = 3.63, *SD* = .727) than students in the economically disadvantaged school (*M* = 3.53, *SD* = .662).

Table 5

Descriptive Statistics of Personalization

Variables	*N*	*M*	*SD*
Economically Disadvantaged School	128	3.53	.662
Non-Economically Disadvantaged School	121	3.63	.727

Means and standard deviations on the independent variable, type of school, with Learning Community can be found in Table 6. Students in the non-economically disadvantaged school rated higher in learning community (*M* = 3.88, *SD* = .850) than students in the economically disadvantaged school (*M* = 3.53, *SD* = .654).

Table 6

Descriptive Statistics of Learning Community

Variables	*N*	*M*	*SD*
Economically Disadvantaged School	128	3.53	.654
Non-Economically Disadvantaged School	121	3.88	.850

Results

Data Screening

Boxplots were conducted to check for the presence of outliers for the dependent variable, Perceived Overall Satisfaction, in Figure 3. Boxplots were conducted to check for the presence of outliers for Content, Learner Interface, Personalization, and Learning Community in Figure 4. There were no univariate outliers in the data, as assessed by inspection of a boxplot.

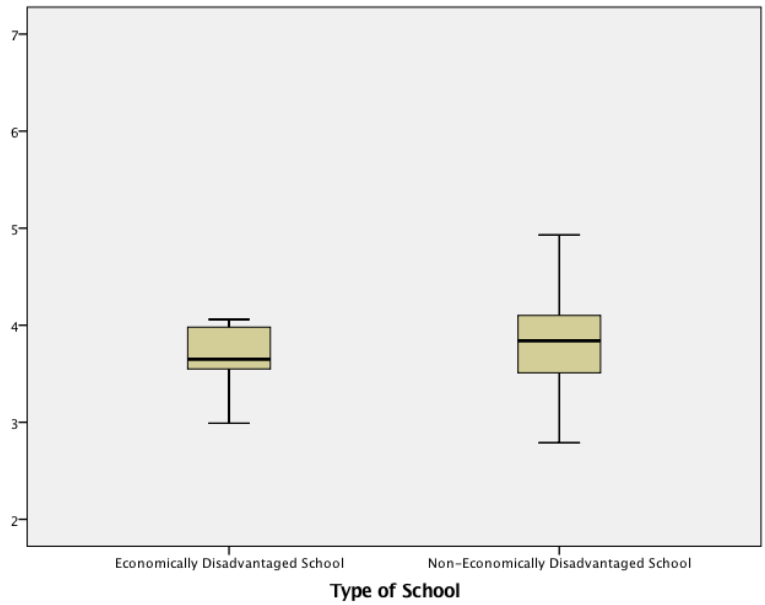

Figure 3. Boxplot for Perceived Overall Satisfaction

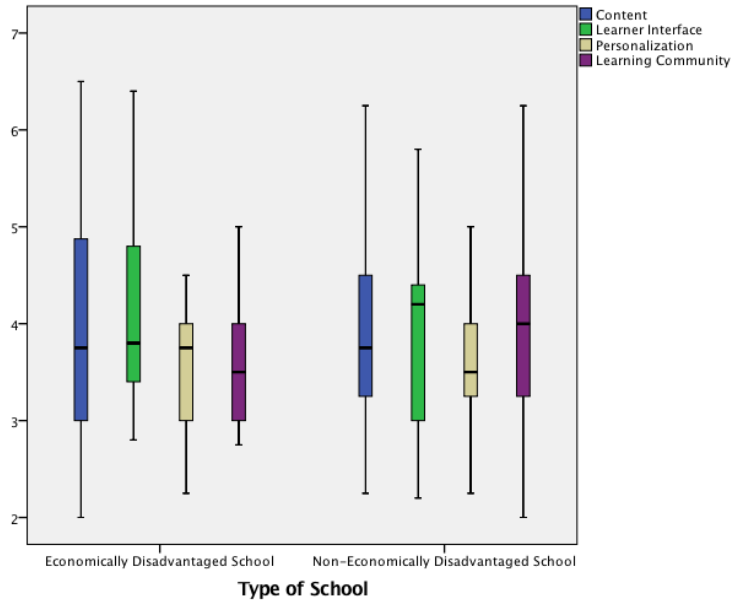

Figure 4. Boxplots for Content, Learner Interface, Personalization, and Learning Community

Assumption Tests

A one-way multivariate analysis of variance (MANOVA) was conducted to examine the nulls at a 95% confidence level. The Kolmogorov-Smirnov test was used to test for assumption of normality. Scatterplot matrices were used to test the assumption of linearity between each pair of dependent variables. Box's M test was used to test the assumption of homogeneity of variance-covariance matrices. Pearson's Product Moment test was used to detect multicollinearity.

The Kolmogorov-Smirnov test was used to test for assumption of normality in Table 7. This test was used because the $n > 50$. The assumption for normality was not found tenable at the .05 α level for each dependent variable in Group 1 (economically disadvantaged school): overall satisfaction ($p = .000$), content ($p = .001$), learner interface ($p = .000$), personalization ($p = .000$), and learning community ($p = .000$). The data were not normally distributed as determined by the Kolmogorov-Smirnov test. The assumption for normality was not found tenable at the .05 α level for each dependent variable in Group 2 (non-economically

disadvantaged school): content (p = .000), learner interface (p = .000), personalization (p = .002), and learning community (p = .000). However, the variable, perceived overall satisfaction (p = .200), was found tenable at the .05 α level in Group 2 (non-economically disadvantaged school).

Table 7

Komogorov-Smirnov Test of Normality

Variables	Type of School	Statistics	*Df*	Sig.
Perceived Overall	Economically Disadvantaged School	.349	128	.000
Satisfaction	Non-Economically Disadvantaged School	.071	121	.200
Content	Economically Disadvantaged School	.107	128	.001
	Non-Economically Disadvantaged School	.147	121	.000
Learner Interface	Economically Disadvantaged School	.197	128	.000
	Non-Economically Disadvantaged School	.171	121	.000
Personalization	Economically Disadvantaged School	.230	128	.000
	Non-Economically Disadvantaged School	.107	121	.000
Learning Community	Economically Disadvantaged School	.190	128	.000
	Non-Economically Disadvantaged School	.121	121	.000

Scatterplot matrices were performed for the type of school to test the assumption of linearity for each group of the independent variable. The scatterplot matrices looked for a linear relationship between each pair of dependent variables, (overall perceived satisfaction, content, learner interface, personalization, and learning community). There was a linear relationship between overall perceived satisfaction and each dependent variable, as assessed by scatterplot, in Figure 5.

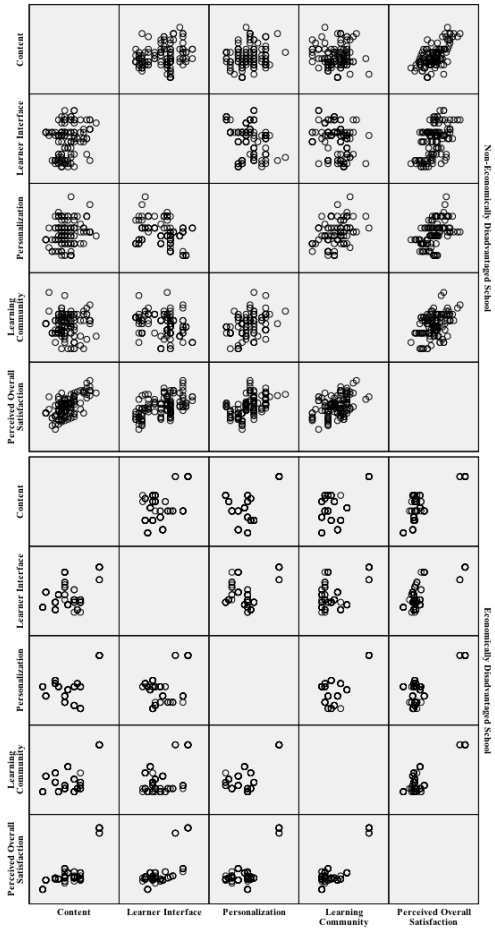

Figure 5. Scatterplot Matrices of Dependent Variables by Type of School

Box's Test of Equality of Covariance Matrices (Box's M) test was used to test the assumption of homogeneity of variance-covariance matrices. There was a violation of homogeneity of variance-covariances, as assessed by Box's test of equality of covariance matrices (p = .004). The data failed the Box's M test (p < .05).

Pearson's Product Moment test was used to detect multicollinearity. There was no multicollinearity between overall perceived satisfaction and content (r = .679, p =.000), learner interface (r = .635, p =.000), personalization (r = .553, p =.033), and learning community (r = .457, p =.000), as assessed by Pearson correlation.

Null Hypotheses

A one-way multivariate analysis of variance (MANOVA) was conducted to examine the nulls at a 95% confidence level. The MANOVA tests multiple dependent variables all at one time. Five measures were assessed: Perceived Overall Satisfaction, Content, Learner Interface, Personalization, and Learning Community. Differences between the schools on the combined dependent variables were statistically significant, $F(5, 243) = 7.808$, $p = .001$; Wilks' $\Lambda = .862$; partial $\eta^2 = .138$ thus post hoc analysis was required.

Post Hoc analysis was conducted using a series of ANOVAs. A difference was found only on null hypotheses three. For null hypotheses three a one-way ANOVA was conducted to examine the differences of students' learner interface of the Economics and Personal Finance virtual high school course between students attending different SES economically disadvantaged ($M = 4.25$, $SD = 1.11$) and non-economically disadvantaged ($M = 3.93$, $SD = .98$) schools in Virginia. The researcher found a statistically significant difference in the scores between the two types of schools. Therefore, the third null hypothesis was rejected were $F(1, 247) = 5.85$, $p = .016$. The effect size was small. Pupils in the SES economically disadvantaged group rated themselves higher in perceived learner interface.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Discussion

The purpose of this causal-comparative study was to investigate the difference between students' satisfaction (perceived overall satisfaction, learner interface, learning community, content, and personalization) of the Economics and Personal Finance virtual high school course between economically disadvantaged and non-economically schools in Virginia. After obtaining approval by Liberty University's Institutional Review Board and the selected school division, the researcher contacted six (6) teachers who taught a virtual/online class of Economics and Personal Finance. The participants from this study were high school students enrolled in a virtual/online component of an Economics and Personal Finance class, another required class for graduation in the state of Virginia. A total of 249 participants from two different high schools in the same school division, agreed to participate in the survey. Data were collected via Google Forms and was analyzed with the use of SPSS, and the results were stated in Chapter Four.

The study utilized the e-Learning Satisfaction (ELS) instrument constructed by Wang (2003) to quantitatively measure satisfaction in an e-learning environment. The data gathering instrument was used to answer the following research question: Is there a difference in students' satisfaction of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia?

A quantitative, causal-comparative design was used to investigate the difference between perceived overall students' satisfaction of the Economics and Personal Finance virtual high school course in different socioeconomic schools. Gall et al. (2007) refer to causal-comparative design as group comparison research. This research design was chosen because it is like

experimental research (Creswell, 2015) but explores causal relationships between independent and dependent variables and relates the outcomes of the two organized groups (Gall, et al., 2007).

The researcher chose to base the research on theoretical frameworks of the VARK Model, ICT (Information Communications Technology), Situated Cognition, TPACK, Engagement Theory, and Moore's Transactional Distance. These theoretical frameworks examined students' learning styles in a traditional classroom setting, students' learning with technology, and students learning online.

The VARK Model discusses the various ways some student learns, such as visual, auditory, reading/writing, and kinesthetic. Although learning styles vary greatly (Ganesh & Ratnakar, 2014), all students have a preferred method in which information is easily retained. Prithishkumar and Michael (2014) state, "learning also depends on one's personality and includes factors such as curiosity, prior awareness of the subject, emotional status of the individual, boredom, motivation, concern, and an incentive to study" (p. 183).

A student's learning style is the ideal way in which knowledge is acquired and successfully retained (Myers, 2008). According to Perry (2011), many early researchers claimed that there was also a need to apply ethical and social protocols within the ICT models so that students could have the ability to have a broad perspective on life. The capabilities were based on the assumptions that technology could be utilized to enable students to carry out daily tasks in academia and solve problems accordingly (Selwyn, 2011).

TPACK is a framework that is extended upon Lee Shulman's pedagogical content knowledge (PCK) by adding the technology component (Koehler & Mishra, 2009). The framework is used by teachers to integrate "a complex interaction among three bodies of

knowledge: content (CK), pedagogy (PK) and technology (TK)" (Koehler & Mishra, 2009, p. 60). By using the framework, there is an allowance for addressing the multifaceted and often complex nature of knowledge needed by educators (Brantley, 2013).

Kearsley and Shneiderman developed the engagement theory in hopes that it would facilitate the engagement of technology within the academic learning process (Huang, 2010). The focus of this theory is that students must be engaged in a meaningful way when dealing with interaction of peers as well as teachers (Kearsley & Shneiderman, 1999).

Moore's (1993) Theory of Transactional Distance indicated three factors that contribute to transaction consisting of: communication between the teacher and the student, the overall structure of how the content is delivered, and the ability for students to become engaged in the learning process.

In addition, SES was examined. The literature was unclear on whether or not high school students' satisfaction of virtual/online classes was different in economically disadvantaged and non-economically disadvantaged schools. Current literature pays specific attention to the students' SES and the gender-based differences present in students' satisfaction regarding virtual learning environments in higher education settings (Albert & Johnson, 2011; Sehrt, 2003). As high school education is expanded beyond a traditional classroom setting, it is viable to conduct research that measures students' satisfaction, perceptions and concerns in their virtual/online classes. According to Hendricks and Bailey (2016), "whether that classroom is boxed in brick walls or is an ephemeral reality extant only in cyberspace, the teacher responsible for that classroom is the final arbiter of quality" (p. 15).

As seen in the current literature, "another prevalent perception regarding online instruction is that it lacks the social interactions that enrich a student's preparation for

employment" (p. 18) and "in online education, just as traditional face-to-face education, the ultimate responsibility for quality rests with the teacher" (Hendricks & Bailey, 2016, p. 19). The purpose of this study was to examine the differences of perceived overall satisfaction, while focusing on content, learner interface, personalization, and learning community, between students attending different SES schools.

Null Hypotheses

The null hypotheses examined the differences of students' perceived overall satisfaction of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia. The analysis did not show significant differences in perceived overall satisfaction between students attending the two types of high school. The researcher did not reject the null hypotheses. Students attending both types of school showed neutral satisfaction scores with their perceived overall satisfaction of their virtual/online Economics and Personal Finance course. The results were consistent with other studies that showed college level students perceived overall satisfaction. Kauffman (2015) performed a study where students perceived online courses differently from traditional classes and negative perceptions impacted their overall perceived satisfaction. In addition, in the same study, the researcher suggested that online learning is not appropriate for every student (Kauffman, 2015). "Students' satisfaction can be measured from his level of pleasure as well as the effectiveness of the student's education experience" (Rahman, Hussein & Aluwi, 2015, p. 769). According to Liaw and Huang (2013), "perceived satisfaction can be affected by interactive learning environments, perceived self-efficacy, and perceived anxiety" (p. 2). In a similar study, students who were more satisfied with their instructors indicated that they learned more compared to students who were less satisfied

with the virtual/online course (Richardson & Swan, 2003). According to Horzum (2015), "satisfaction can be defined as fulfillment and pleasure level of the students about different aspects of learning service which they received in an online learning program" (p. 506). There is a high rate of students who start virtual/online courses but do not finish them (Liaw, 2008). Perceived overall satisfaction is a reason why students are not successful in their virtual/online courses (Kim & Kim, 2014). Sub factors, such as content, learner interface, personalization, and learning community, contributed to students' perceived overall satisfaction. These self-reported factors suggest there may be concerns relating to student success of virtual/online classes between students attending different SES schools.

The third hypothesis examined the differences of students' learner interface of the Economics and Personal Finance virtual high school course between students attending different SES (economically disadvantaged and non-economically disadvantaged) schools in Virginia. The analysis showed differences in learner interface between students attending the two types of high school. The researcher rejected the null hypothesis. Pupils in the SES economically disadvantaged group rated themselves statistically higher in learner interface of their virtual/online Economics and Personal Finance course. The learner interface is a critical factor for virtual/online courses to be user friendly (Kaufamn, 2015; Mirbaha, 2015; Park & Song, 2015). Research indicates that virtual/online students are at ease with the course management system, there is a similar effect with satisfaction (Park & Song, 2015). Research literature indicates that the design of the virtual/online course, or the learner interface, is vital in distance education (Horzum, 2015; Liaw, 2008).

Conclusions

Incorporating the use of virtual/online learning in high school academic settings is increasing as the constant everyday use of technology increases. The Virginia Board of Education requires virtual/online learning experiences into the graduation requirements of high school students. Limitations such as SES may prevent students in the state of Virginia from overcoming access barriers. Perceived overall satisfaction is correlated to the success of the virtual/online class. After the conclusion of this research, there are concerns on whether students have a positive perceived overall satisfaction with virtual/online learning in the high school setting. There is a strong concern for traditional classroom teachers to be appropriately trained in order to serve in the capacity as a virtual/online teacher. There were more students in the economically disadvantaged school who were taking the virtual/online course for the first time, compared to students in the non-economically disadvantaged school.

There were no significant differences in the students' perceived overall satisfaction responses between the economically disadvantaged and non-economically disadvantaged school. The students attending both types of schools rated their perceived overall satisfaction of the virtual/online component of Economics and Personal Finance class as neutral. This rating does not imply that students agree with the system nor does it imply that students disagree with the virtual/online component.

For null hypothesis three, students in the SES economically disadvantaged group rated themselves statistically higher in learner interface of their virtual/online Economics and Personal Finance course. Research suggests that students in economically disadvantaged schools tend to have disruptive behaviors in the traditional school setting due to personal academic challenges (Berger & Archer, 2016). Challenges, such as physical dress and classroom participation, may

negatively affect students attending economically disadvantaged schools in the traditional school setting. In the virtual/online setting, students from economically disadvantaged schools may not have the same obstacles as they would in a traditional face-to-face classroom.

Implications

There is a continued need in academia to align virtual/online learning with high school students from diverse backgrounds to be successful in their educational endeavors. In addition, there is a concern of appropriate teacher training, course design and virtual/online instructional strategies, specifically in designing virtual/online course curricula to include the experiences of economically disadvantaged backgrounds. Furthermore, learning styles must be considered prior to the start of the course in order to present information in an efficient and effective. Students must complete a pre-assessment prior to the course in order to fully assess how students can be successful in the course. High school students must have a high amount of self-discipline before enrolling in virtual/online courses. There is a need to examine the amount of self-discipline attained prior to enrolling in a virtual/online course and for students to devote more time to learning in a virtual/online course.

Limitations

There were several known limitations to this study. First, the educational accommodations were limitations. The study did not specify if the students received individualized education plans (IEPs), 504s, English language learners, or gifted learners. Second, students who attended an economic disadvantaged school may not have been economically disadvantaged. Similarly, students who attended a non-economically disadvantaged school may have been economically disadvantaged. The same teacher did not teach all students selected for the study and may have impacted student's perceived overall

satisfaction. However, students from Class A, Class B, and Class C were all from the economically disadvantaged high school (Class D, Class E, and Class F were all from the non-economically disadvantaged high school) all enrolled in the same Economics and Personal Finance course. Some students were previously enrolled in online courses and others were not. This is a limitation as some students already had virtual/online experience, which could have impacted their perceived overall satisfaction. Another limitation is the teacher's knowledge of how virtual/online courses work and their training, or lack thereof.

Recommendations for Future Research

While there is an increase of high school students participating in virtual/online courses, there remains a tremendous need for continued research. There were some limitations to this research, such as not knowing which students had disabilities, which students were identified as economically disadvantaged and non-economically disadvantaged, how students were accessing the virtual/online courses, and the progress of English language learners. One of the strong recommendations is to conduct a research similar to this one and to use the same instrument.

The following are recommendations for further research.

(a) Conduct a study with high school students who have identified disabilities.

(b) Conduct a study with middle school students who are taking high school virtual credit courses.

(c) Conduct a study between high school students who are taking high school virtual credit courses who have identified economically disadvantaged and non-economically disadvantaged backgrounds.

(d) Conduct a study between virtual high school teachers in economically disadvantaged and non-economically disadvantaged schools.

(e) Conduct a study between parents of virtual high school students of economically disadvantaged and non-economically disadvantaged backgrounds.

(f) Conduct a study between the connectivity communications (i.e., tablet, mobile phone, cable modem, fiber optic, etc.).

(g) Conduct a study on English Language Learners and their satisfaction in virtual/online high school courses.

(h) Conduct a study examining the differences between virtual/online, hybrid, and blended learning.

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APPENDICES

Appendix A: Permission to Use and Publish Image

Re: Joan Ganz Cooney Center Contact Form

SK Svehaug, Katy <Katy.Svehaug@sesame.org>

Mon 8/1

Smith, Lhe S

Reply all

Inbox

You replied on 8/2/2016 6:40 AM.

Hi there,
Yes, you're welcome to use the graphic as long as you include a citation. We would love to see the report once it's complete!

Thanks,
Katy

On 7/30/16, 8:09 AM, "Smith, Lhe S" <lhugginsreel@liberty.edu> wrote:

> Good Morning,
>
> I have completed my study and would like to reproduce and publish my study using your graphic. Do you grant me permission to do so? Please advise.
>
> Sent from my iPhone
>
> On Mar 10, 2016, at 5:32 PM, Svehaug, Katy <Katy.Svehaug@sesame.org> wrote:
> Hi there,
> Thanks for reaching out. You¹re welcome to utilize the Connectivity Rates graphic.
> We would love to know more about how you intend to use it, and hope you¹d be willing to share the final product!
> Best,
> –
> Katy Svehaug
> Web and Content Associate | Joan Ganz Cooney Center
> katy.svehaug@sesame.org
> On 3/10/16, 8:32 AM, "lhugginsreel=liberty.edu@sesameonline.net on behalf of lhugginsreel@liberty.edu" <lhugginsreel=liberty.edu@sesameonline.net on behalf of lhugginsreel@liberty.edu> wrote:
>
> : lhugginsreel@liberty.edu
> Email: lhugginsreel@liberty.edu
> :
> Comment: Hello,
> I would like permission to use the "Connectivity Rates for Low Income Homes" graphic found in the TechLearning March 2016 magazine issue.
> Topic: Research/Initiatives
> Time: Thursday March 10, 2016 at 8:32 am
> IP Address: 208.255.153.249
> Contact Form URL: http://www.joanganzcooneycenter.org/contact-form/
> Sent by an unverified visitor to your site.

Appendix B: Permission to Use TPACK Diagram

On Jan 18, 2015, at 1:24 AM, Punya Mishra <punya@msu.edu> wrote:

Dear Lhe Smith -

I assume you mean the TPACK diagram. If that is the case, you can find instructions on using the diagram and citing it on the TPACK.org website.

thanks
~ punya

Punya Mishra
Web: http://punyamishra.com
Blog: http://punya.educ.msu.edu/blog/

On 1/16/15, 11:32 AM, Smith, Lhe S wrote:

> Good Morning,
>
> My name is Lhe Smith and I am doing a quantitative dissertation with Liberty University. I am discussing the TPACK Framework and I would like to ask permission to use Figure 1 on pg. 63 in the "What is technological pedagogical content knowledge (TPACK)?," article. Please advise.
>
> ---
> God Bless,
>
> Lhe Smith

Appendix C: E-Learning Satisfaction (ELS) Survey Questions

Administered through Google Forms

Background Section	
1. Grade Level	9 10 11 12
2. Ethnicity	American Indian or Alaska Native; Asian; Black or African-American; Native Hawaiian or other Pacific Islander; White; Hispanic or Latino; Non-Hispanic, two or more races
3. Gender	Male; Female
4. Is this your first online course?	Yes; No
5. Do you receive free or reduced lunch?	Yes; No
e-learning Satisfaction Section	
Content	
1. The e-learning system provides content that exactly fits your needs.	1 2 3 4 5 6 7
2. The e-learning system provides useful content.	1 2 3 4 5 6 7
3. The e-learning system provides sufficient content.	1 2 3 4 5 6 7
4. The e-learning system provides up-to-date content.	1 2 3 4 5 6 7
Learner Interface	
5. The e-learning system makes it easy to use.	1 2 3 4 5 6 7
6. The e-learning system makes it easy for you to find the content you need.	1 2 3 4 5 6 7
7. The content provided by the e-learning system is easy to understand.	1 2 3 4 5 6 7
8. The e-learning is user-friendly.	1 2 3 4 5 6 7
9. The operation of the e-learning system is easy to understand.	1 2 3 4 5 6 7
Personalization	
10. The e-learning system enables you to control your learning progress.	1 2 3 4 5 6 7
11. The e-learning system enables you to learn the content you need.	1 2 3 4 5 6 7
12. The e-learning system enables you to choose what you want to learn.	1 2 3 4 5 6 7
13. The e-learning system records your learning progress and performance.	1 2 3 4 5 6 7
Learning Community	
14. The e-learning system makes it easy for you to discuss questions with your teachers.	1 2 3 4 5 6 7
15. The e-learning system makes it easy for you to discuss questions with other students.	1 2 3 4 5 6 7
16. The e-learning system makes it easy for you to share what you learn with the learning community.	1 2 3 4 5 6 7
17. The e-learning system makes it easy for you to access the shared content from the learning community.	1 2 3 4 5 6 7

Appendix D: Permission to Use Instrument

Re: ELS Instrument Use for Dissertation

YW Yi-Shur

Wed 8/3

Reply all

Inbox

You replied on 8/4/2016 9:18 PM.

Yes. You are permitted to do so.

----- Original Message -----

Sent: Saturday, July 30, 2016 8:02 PM
Subject: Re: ELS Instrument Use for Dissertation

Good Morning Dr. Wang,

I have completed my study and would like to reproduce and publish my study using your survey instrument. Do you grant me permission to do so? Please advise.

Sent from my iPhone

On Jan 3, 2015, at 1:22 AM, wrote:

Hi, Smith,

You are permitted to use the e-learner satisfaction instrument in your dessertation.

Wish you success,

Yi-Shun Wang, Professor
Department of Information Management
National Changhua University of Education, Taiwan

----- Original Message -----

Subject: ELS Instrument Use for Dissertation

Appendix E: Instrument Instructions

Dear Student Participant,

Thank you for your time to consent and complete this survey. This online survey consists of two sections: a demographic section and e-learning Satisfaction section.

The background section lists five (5) questions about grade level, ethnicity, gender, online course experience and free and reduced lunch eligibility. You will choose one answer per question. The survey software keeps your background information separate from the answers you provide to the survey.

The e-learning Satisfaction section lists 17 questions about your satisfaction with your current virtual or online course(s). You will answer each statement to the best of your ability using a Likert-scale rating of 1 (Strongly Disagree) to 7 (Strongly Agree). You will choose one answer per question.

I plan to publish the results of this study, but will not include any information that would identify you. Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. You may choose to not answer an individual question or you may skip any section of the survey.

This survey should take you a maximum of 30 minutes to complete in one setting.

Thank you for your time and participation.

Lhe Smith
Doctoral Candidate
Liberty University, School of Education

Appendix F: Letter to Superintendent Requesting Permission

Dear Superintendent:

As a graduate student in the School of Education Department at Liberty University, I am conducting research as part of the requirements for a Doctorate of Education in Educational Leadership degree. The title of my research project is, "Differences in Students' Satisfaction of the Economics and Personal Finance Virtual High School Course Between Students Attending Economically Disadvantaged and Non-Economically Disadvantaged Schools in Virginia." The purpose of my research is to analyze the differences between students' satisfaction of the Economics and Personal Finance virtual high school course between students in different socioeconomic status high schools in Virginia.

I am writing to request your permission to conduct my research in your school division and to contact high virtual/online teachers to recruit student participants for my research.

Participants will be asked to visit an online survey link. The survey should take no longer than 30 minutes to complete. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on approved letterhead indicating your approval. I can be reached by e-mail at

Thank you again for your time and interest.

Sincerely,

Lhe Smith
Doctoral Candidate

Appendix G: IRB Approval

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

March 18, 2016

Lhe Smith
IRB Approval 2465.031816: Differences in Students' Satisfaction of Virtual High School Courses between Students Attending Economically Disadvantaged and Non-Economically Disadvantaged Schools in Virginia

Dear Lhe,

We are pleased to inform you that your study has been approved by the Liberty IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

LIBERTY
UNIVERSITY.
Liberty University | Training Champions for Christ since 1971

Appendix H: Letter to Teacher Requesting Permission

Dear Teacher:

As a graduate student in the School of Education Department at Liberty University, I am conducting research as part of the requirements for a Doctorate of Education in Educational Leadership degree. The title of my research project is "Differences in students' satisfaction of the Economics and Personal Finance virtual high school course between students attending economically disadvantaged and non-economically disadvantaged schools in Virginia." The purpose of my research is to analyze the differences between students' satisfaction of the Economics and Personal Finance virtual high school course between students in different socioeconomic high schools in Virginia.

I am writing to request your permission to conduct my research in your high school and to recruit student participants for my research. I have previously received permission from the superintendent of the school division. I am enclosing a copy of the permission letter.

Participants will be asked to visit or and click on the link provided. The survey should take no longer than 30 minutes to complete. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. I can be reached by e-mail or via phone

Thank you again for your time and interest.

Sincerely,

Lhe Smith
Doctoral Candidate

Appendix I: Informed Consent Letter

CONSENT FORM

DIFFERENCES IN STUDENTS' SATISFACTION OF THE ECONOMICS AND PERSONAL FINANCE VIRTUAL HIGH SCHOOL COURSE BETWEEN STUDENTS ATTENDING ECONOMICALLY DISADVANTAGED AND NON-ECONOMICALLY DISADVANTAGED SCHOOLS IN VIRGINIA

Lhe Smith

Liberty University

School of Education

You are invited to be in a research study of overall satisfaction of your virtual high school course. You were selected as a possible participant because you are enrolled OR were previously enrolled in a virtual class in a Virginia high school. I ask that you read this form and ask any questions you may have before agreeing to be in the study.

Lhe Smith, a Doctoral Candidate, in the School of Education department at Liberty University is conducting this study.

Background Information:

The purpose of this study is to analyze the differences between students' satisfaction of the Economics and Personal Finance virtual high school course between students at different socioeconomic schools in Virginia.

Procedures:

If you agree to be in this study, I would ask you to do the following things:

1. Logon to the assigned Google Forms link
2. Complete the survey within an allotted time frame of 15 minutes
3. Answer the survey questions truthfully and honestly
4. Complete the survey in one session

Risks and Benefits of being in the Study:

This study has minimal risks. Minimal risk means that the project involves no more emotional or physical stress than might be anticipated in daily life. The study also does not put the person at financial or legal risk. Individuals should not expect to receive any direct benefit from participating in the study.

Compensation:

You will not receive compensation upon completion of the survey.

Confidentiality:

Those who complete the survey will remain anonymous. The records of this study will be kept private. In any sort of report that may be published will not include any information that will make it possible to identify a subject. Research records will be stored securely and only the researcher will have access to the records.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships. The

survey is not required for the completion of the course and participation will not affect the grade in the course.

Contacts and Questions:

The researcher conducting this study is Lhe Smith. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at lhugginsreel@liberty.edu. You may also contact Dr. Joanne Gilbreath, Dissertation Chair,

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd, Suite 1837, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

Signature of Parent or Guardian: _____ Date: _____

Signature of Minor: _____ Date: _____

Signature of Investigator: _____ Date: _____

Appendix J: Administration of Instrument for Teachers

Dear Teachers,

Thank you for agreeing to administer the survey to student participants. Please provide the link to participants who have submitted both an assent and consent form. The survey should take no more than 30 minutes to complete. Once participants finish the survey, they will be thanked and the survey will close. Once the survey reaches the maximum response threshold, the link will become inactive and there will be no access to the survey.

Thank you again for your time and commitment.

Sincerely,

Lhe Smith

Doctoral Candidate

Appendix K: Letter of Approval to Conduct Research

February 6, 2015

This is to inform you that I give Lhe Smith, graduate student in the School of Education Department at Liberty University, permission to contact the regarding research as part of the requirements to obtain a Doctorate of Education in Educational Leadership.

Please contact me if you have any questions.

Division Superintendent

vnl

Appendix L: Letter of Approval to Conduct Research

Ms. Lhe Smith
Doctoral Candidate
Liberty University

Dear Ms. Smith:

Your request to conduct research for your doctoral dissertation (regarding student satisfaction in a virtual or online high school course) at Liberty University is approved. Specifically, you are approved to provide (via administrators/teachers) a link to your online survey to students who are enrolled in a virtual course or a course with a virtual component. The approval is granted with the understanding that the following conditions will apply:

- Participation of administrators and teachers is strictly voluntary.
- Parent permission must be obtained for student participation (if applicable).
- Names of individuals, school names, or the name of the school division cannot be used in the reporting of the results of your findings without prior permission from the
- All copies, distribution, retrieval of materials, and arrangement of interviews/collections will be your responsibility.
- Questions/procedures must be limited to those detailed in your prospectus.

You may use this letter as a cover letter when contacting administrators and teachers. Should you have further questions, please feel free to contact me at