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The Potential Impact of Online Learning on Economically Disadvantaged Students

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ABSTRACT OF DISSERTATION

The Potential Impact of Online Learning On Economically Disadvantaged Students

By

Anthony M. Tartaglia

Kutztown University of PA, 2020

Kutztown, Pennsylvania
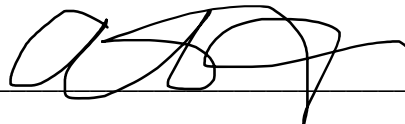
Directed by Dr. Helen S. Hamlet, PhD

Opportunity gaps have consistently been prevalent in the United States' education system and that continues today. The struggle to provide economically disadvantaged students the equity necessary to ensure opportunities exist, similar to those present for students of economic advantage, remains a pervasive dilemma for which there are few solutions. As technology continually changes the global marketplace, it is doing the same to education. Educators have an enormous impact on the lives of their students, both in and out of the classroom and through their instruction, there are techniques available to ensure that students remain engaged. One such method is by using technology, specifically online/virtual learning to not only captivate student interest, but to reduce the already wide chasm that exists between students with and without the means to an equitable education. This action research study sought to determine any possible correlation that may be present between students that are economically disadvantaged who enroll in online courses and the effect it may have on their ability to complete those courses. Several theoretical viewpoints framed the study, including critical theory, social learning theory, ecological systems theory and online learning theory. The study was completed using data from online course enrollments from a southeastern Pennsylvania school district from a three-year time period. The online course data was further examined based on several defining

characteristics, such as required as opposed to elective and the location in which students partook in the course; onsite or offsite. Online students were also delineated into whether they were considered economically disadvantaged based on eligibility for the Free and Reduced Lunch Program. Teachers from the school district's middle school and high school were surveyed for their perceptions about online/virtual learning and the instruction of economically disadvantaged students. Drawing on all of the compiled data, the study showed that students who completed online, required courses in an onsite capacity passed them more frequently than those who took online, required courses offsite. The study also revealed that there are discrepancies between teachers and students in their perceptions of the effectiveness and usefulness of online/virtual learning.

Keywords: Online learning, virtual learning, economically disadvantaged students, impoverished youth, elective courses, required courses, brain research, learning strategies, equity, public policy

Signature of Investigator_____ Date 4/6/20

DEDICATION

This dissertation is dedicated to my amazing wife, Andrea, for her steadfast support, encouragement, patience and love, and my sons, AJ and Angelo, who constantly remind me to keep moving forward and that with hope as your guide, anything is possible.

ACKNOWLEDGMENTS

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> *"It's time for us as a people to start makin' some changes.*
>
> *Let's change the way we eat, let's change the way we live*
>
> *And let's change the way we treat each other.*
>
> *You see the old way wasn't working so it's on us to do*
>
> *What we gotta do, to survive."*
>
> ~Tupac Shakur

"Give me your tired, your poor, your huddled masses, yearning to be free" (Lazarus, 1883). These words that lay inscribed on a plaque nestled inside of the Statue of Liberty have been a beacon of light to the millions of immigrants that have sought freedom and economic opportunity in the United States of America. Unfortunately, many of them found the streets were not paved with gold and the odds of success stacked against them. Since the first European settlers arrived in North America several hundred years ago, education has evolved from parents teaching their children to read and write, to private tutors who provided advanced instruction to only the wealthiest families, to one room schoolhouses delivering content to larger groups of students and eventually becoming something resembling what schools are presently. Although their physical format and method of content conveyance has transformed during that time, one of the consistent quandaries remains; how to offer economically disadvantaged students the same opportunities as their wealthier counterparts. The struggle to reach low socioeconomic status children has been a pervasive dilemma ever since compulsory education was initially instituted.

The persistent achievement gap between those individuals of high socioeconomic status and the economically disadvantaged can be partially blamed upon poor federal, state and local policies. Inadequate funding formulas, low teacher salaries, larger class sizes, dilapidated

learning environments and few experienced teachers are all symptomatic of the reasons why

economically disadvantaged students have such difficulty in reaching the same achievement

levels as their more privileged counterparts. Even though the odds are stacked against many of

the impoverished youth of the United States, hope remains. Educators have an enormous impact

on the lives of their students, both in and out of the classroom. Through their teaching, there are

techniques available to ensure that students with low intrinsic motivation are engaged. One such

method is by using technology, specifically virtual/online learning to not only captivate student

interest, but to reduce the already wide chasm that exists between students with and without the

means to an equitable education.

Statement of the Problem

Over the last ten years as an educator, I have worked as my school district's online

learning facilitator and online lab/classroom instructor. During that time, I noticed a growing

trend which I found to be somewhat troubling; the number of students who have difficulty

completing school due to circumstances beyond their control. Many of the students enrolled in

online classes were exposed to a litany of risk factors, but the most common appeared to be

poverty. After discussions with guidance counselors, social workers and administrators, it

became abundantly clear that school was not a priority for many of the students. In some cases,

these students did not necessarily want a teacher to provide them classroom instruction, but

simply someone to show they cared about them. This caused me to contemplate my own

background and how the circumstances of my youth were in some ways similar to theirs.

This journey of self-reflection has led me to begin asking more specific questions about

the ways in which I can directly impact the lives of disadvantaged students. There is little that

educators can do to change the life circumstances of impoverished youth outside the classroom,

but there is a great deal we can do in the classroom. Through their teaching, there are techniques

available to ensure that students with low intrinsic motivation are engaged. One such method is

by using technology, specifically virtual/online learning to not only captivate student interest, but

to reduce the already wide chasm that exists between students with and without the means to an

equitable education. The proposed study involves determining any possible correlation between

students that are economically disadvantaged who enroll in online courses and the effect it may

have on student motivation.

Public policy has been ineffective in reducing the gap between economically

disadvantaged students and their counterparts, therefore additional measures must be taken to

ensure equal educational opportunities are provided through online learning. The manner in

which students are educated has changed over time, yet the goal has remained mostly the same:

preparing children for their future endeavors. As global interdependence becomes more

commonplace, it is vitally imperative that students are equipped for the expanding marketplace,

especially for those students that start at a disadvantage. Not only are students competing with

each other for jobs, but they must also distinguish themselves from prospective candidates across

the globe.

Significance of the Study

This study will incorporate current brain and learning research to show the lasting impact

that online learning may have on economically disadvantaged students and the other ways in

which the use of digital means of knowledge acquisition can continually transform the classroom

environment. Although online/virtual learning has only begun to become widely accepted as a

viable form of education in the last decade, it has altered the way that educators and students

think about learning. Not only have institutions of higher education adopted online/virtual

means of instruction, students at the elementary and secondary levels of education are able to

obtain entire course loads via the digital medium. The substantial demand for this type of

education has grown exponentially over the last few years. Online learning is demonstrating

itself to be a significant, sometimes transformational, means of reaching economically

disadvantaged students. There are a multitude of reasons why online learning is able to

accomplish so much, where the traditional method of instruction may struggle to reach students.

Online learning is able to meet the needs of a varied collection of students through customizing

their conduits to educational prospects.

     With a self-paced curriculum and courses that provide immediate feedback, an increase

in student motivation is readily apparent. Online programs are also useful in assisting transient

students by addressing issues of mobility that are typically pervasive in those situations.

Although the course content may be delivered online, most successful programs continue to have

a significant face to face component. This allows students that need additional support to be

given the assistance they require. Teachers have transitioned from simply the gatekeepers of

knowledge to something more. Teachers have taken on new roles; not concerned only with

academic results, but the well-being of the whole student comprising their central focus.

     A greater partnership between politicians, administrators, educators, local school boards,

parents and students should be achieved in order to continue moving forward with programs that

assist those who are economically disadvantaged. Although online learning programs are

helping in this endeavor, there is much work to be done. Not every school uses online programs

and some that do, are not doing so with the neediest of students in mind. Many only provide

online learning to those students who are seeking to take courses unavailable to them or to

students seeking to advance faster in their education. These may be appropriate uses for online

learning; however, a greater balance may need to be attained. Further efforts could be

undertaken to ensure more information is shared amongst the educational community about the

benefits of online learning, creating more possibilities that economically disadvantaged students

will have greater opportunities to receive an equal education.

Research Questions

1. For economically disadvantaged students, is the completion rate of online/virtual courses

    impacted by whether the course is required or an elective?

2. How does an online/virtual course's location (onsite or offsite) impact the course's

    completion rate?

3. How do teachers perceive the use of online/virtual learning as a tool to create equity for

    economically disadvantaged students?

Theoretical Framework

      Critical Theory

Lynch and Baker's (2008) work *Equality in Education*, indicated, "learning is more than

preparation for work; it is important for its own sake" (p. 135). This idea would appear to be

contrary to the ideas expressed by many politicians and policy makers about the objective of

education. The struggle of impoverished students continues to exist and the wage gap between

those with and without college degrees consistently expands. The complex topic of poverty

typically falls under the purview of sociology, power relations and studies of class struggle.

Various philosophers, sociologists and psychologist have studied this societal phenomenon, yet

the Frankfurt School emerged at the forefront of educational philosophy in supporting the cause

of those groups in society that have been typically the most oppressed. Marx, being a part of the

Frankfurt School of thought, was a significant contributor to Critical Theory and Structural

Functionalism.

Although the primary focus of Marx's writings was economic and governmental systems,

Marx understood the impact that education could have on an individual. Ferreira and Bitter

(2008) believed Marx comprehended how education shapes the workers in a society. Marx's

view of society occurred during a time when education was used an avenue to create workers,

enslaved to the system of capitalism, and this simply turned people into objects. Marx thought

schools should be more. Schools should be places of reflection and independent thought.

Ferreira's (2008) insight from Marx's manifesto is a powerful one; "education cannot be spoken

of without referring to socioeconomic realities and class struggles that characterize and sustain

it" (p. 641).

Banfield (2015) furthers these notions, looking introspectively at Marx's *Capital* and its

connection to education. Education is tied in with constraining skylines of probability inside its

very own vista and carrying conclusion to history. Marx's contention is that inside the capitalist

method of generation, abuse is disguised, and opportunity comes to be communicated as an

authentic atomized independence. Yet, this prideful feeling of opportunity camouflages the truth

of the social idea of production whereupon the plausibility of capitalist gathering rests. In its full

emancipatory sense, education is progressive work; a task of capacity construction that both

requires and creates human specialists. The ontological substance of progressive education must

be supported by a specific perspective on human nature. Comprehending education as the

generation of labor power is the central message from Marx. Such a vista shows training

occupying spaces other than formal foundations like schools and colleges. In these contemporary

occasions where tutoring and advanced education frameworks are progressively promoted, such

spaces are to be recovered as spaces of profound hope. In uniting Marx and instruction, education is progressive, human limit building, practice. Its motivation is to attract us to the way that progressive instruction is, and must be, regular workers self-education. Education becomes inherently class struggle. Banfield (2015) stated, "the political task is to rescue education from the influence of the ruling class (p.25)."

Continuing the work of critical theorists, Freire's (1970) *Pedagogy of the Oppressed*, provided an examination of power relations in both society and education. This critical pedagogy proposed the banking concept of education, in which teachers are the disseminators of information and students are receivers and regurgitators of what they have been instructed. The author contended the need for a shift in the power dynamic between teachers and students; both should be responsible for teaching and learning. Unfortunately, there is a contradiction inherit in the banking concept of education, retained by the oppressors to maintain the status quo and prevent the upheaval by students against the dominant institutions.

Teachers and students would be able to work in conjunction to break down power barriers through problem-solving discourse. Instruction as the act of opportunity instead of training as the act of control denies that man is dynamic, segregated, autonomous and unattached to the world; it additionally denies that the world exists as a reality separated from individuals. In issue presenting training, individuals build up their capacity to see fundamentally the manner in which they exist on the planet with which and in which they get themselves; they come to see the world not as a static reality, however as a reality in process, in transformation. Freire (1970) articulated, "the starting point for organizing the program content of education or political action must be the present, existential, concrete situation, reflecting the aspirations of the people" (p. 95).

Additionally, Freire's lens of society from the viewpoint of the oppressed was expanded upon by Kellner (2003). Kellner (2003) indicated Freire, "argued the oppressed have not equally shared or received the benefits of education…but should educate themselves, developing a pedagogy of the oppressed" (p. 56). The pedagogy that Freire hoped for would generate empowerment for the oppressed, in essence creating a learning process that would permit individuals to improve themselves through transformation. This would then inherently create the ability for subjugated people to no longer conform to the values and ideals of the dominant society.

Lynch (2008) continued the efforts of critical theorists, postulating that education is inherently tied into the economic systems in several unique ways: 1) in order to be successful in education, an individual requires access to all the resources necessary to fully immerse in the process; and 2) schools and colleges consistently engage in social stratification through selection for the market system. Due to the capitalist system that permeates the United States, Lynch (2008) opined, "economic generated inequality manifests itself as a social class problem in education, a problem of unequal access and outcomes arising from unequal access to resources" (p. 140). Lynch (2008) continued to assert that schools function as auxiliary components of the market system, preferring middle class and upper-class parents because of the investment of resources they and their children provide to the school. The corollary is also true; students of lower-class families are seen as liabilities and may blemish the perception of the school. Schools are essentially middle-class institutions.

In the estimation of critical scholars, schools may be contributing to the social ills that plague society. Harker's (1984) interpretation of Bourdieu's work indicates that, unmistakably, school functions to duplicate social disparities. Schools work inside the limitations of a specific

habitus, yet in addition, respond to changing outside conditions (financial, innovative and political). What is safeguarded (in spite of the fact that structure may change) in the entirety of the responses of schools to such changing outer conditions as joblessness, is proceeded with strength of the gathering whose *habitus* is exemplified in the schools along these lines, visiting what Bourdieu calls "symbolic violence" of marginalized groups. The education structure categories itself as far as the objectives of its own reproduction; every framework (economy, family, instruction) complies with its very own rationale.

English and Bolton (2016) provides further insight to Bourdieu's work in education. The author contends Bourdieu believed there will never be a time when schools are not embroiled in different types of political strife. School specialists must be dynamic politically in this challenge. School pioneers, instructors, and guardians need to comprehend that except if they can produce associations with different entertainers and offices in this challenged social field, their impact will be bound and restricted by the obtaining of the types of capital inside their span. Instruction is a way to secure an increasingly emblematic capital and progressively monetary capital in the commercial center. The continued focus on instruction as fundamentally a way to find a new line of work undermines the good and humanistic reason for education, which is to empower youngsters to turn out to be all the more completely human.

Bourdieu's work plainly demonstrates that those attempting to change the framework once in a while, if ever, adjust the schooling procedure to put themselves in a disadvantageous position. To change schools so they are increasingly effective with a more extensive band of learners will require that those in the prevailing gatherings perceive and acknowledge that their "cultural arbitrary" is essentially one of numerous conceivable outcomes for schools to grasp. Modifications in education are never neutral. Meanings of scholastic achievement should turn

out to be all the more comprehensively characterized and all the more socially inclusive, with more extensive groups of adequate educational plans than those presently embraced.

School is the most significant institution that reaffirms and propagates social class. Nash (1990) contends that Bourdieu's idea of the *habitus,* the personified objectification of organizations, is responsible for this dilemma. This is felt by students from lower socioeconomic backgrounds who will sense as though school is a foreign entity to them if they are in a predominantly middle or upper-class school setting. There is a need to extricate the things necessary to succeed academically and what Bourdieu refers to as the "cultural arbitrary".

Bourdieu furthers these notions, indicating students from lower socioeconomic status backgrounds are missing the "cultural capital" of upper-class students and can subsequently become withdrawn from learning. Schools are reaffirming the norms of dominant groups by exulting students who are already positioned to learn, in essence ignoring the *habitus* of marginalized groups. Schools are failing to disrupt the status quo because of its inability to develop a "universal pedagogy". Educational institutions are tasked with providing students the opportunity to learn and understand various aspects of the world and to take action to achieve goals which will benefit themselves and society.

Sadovnick (1991), through an investigation of Bernstein's work in the sociology of education, proclaimed that Bernstein's thoughts on how and what information is transmitted in schools and the assertion that pedagogy is based on the socioeconomic status and beliefs of the families in the local context are extremely noteworthy. Bernstein is careful to suggest the distinction between teaching practices, which focus on the economic benefits of education, and those which emphasize the eternal search for knowledge. Bernstein, in drawing these comparisons, indicates that neither form of pedagogical practice is sufficient to eradicate existing

social class disparities. In the author's estimation, there is hope that if education practices are able to develop "creative subjects", it is plausible that incremental transformation may occur. Bernstein also insinuates rule stratification in educational institutions varies greatly depending on the socioeconomic status context of the schools. In areas of higher socioeconomic status, the more likely rules are to be stratified at younger grade levels and be implicit, including what Bernstein refers to as "invisible pedagogic practices".

Furthermore, Morais (2002) delved further into Bernstein's ideas, specifically through the lens of the classroom's micro-level. The author argues that Bernstein's contention that the "framing of pacing" is an important part of successful learning, is a veritable supposition. Unfortunately, public policy is at odds with this idea because it is not economically viable; additional time for student learning equates to more money. Bernstein opined that due to these restrictions, an additional place of learning is needed for achievement in school. For children to obtain greater levels of conceptual understanding and abstract comprehension, more time is required because students harken back to previously acquired knowledge.

These ideas are advanced further, with Bernstein requesting that students be able to inquire, converse and share viewpoints. To combat the pacing issue, the author suggests teacher training should be improved and increased to incorporate these values into the classroom. Additionally, a transformation of educator epistemology and pedagogy may be necessary to achieve these goals. Although it may be costly for the training, it would be more cost effective than attempting to allow for all the time required by students for knowledge acquisition. Morais (2002) stated, "Bernstein's theory has allowed a characterization of the social context of the classroom, and this constitutes a substantial step forward when we consider the contribution made by psychological theories of instruction" (p. 567).

Social Learning Theory

Bandura's (1971) Social Learning Theory developed as an extension of both classical conditioning and operant conditioning. Bandura (1971) felt as though classical and operant conditioning could not explain all behaviors and were therefore incomplete. Bandura (1971) believed, "all learning phenomena resulting from direct experience can occur through the observation of other people's behaviors" (p. 2). Peer modeling and adult exemplars are important ideas purported by Bandura's (1971) Social Learning Theory. When impoverished youth have adopted standards of achievement through negative modeling, their ability to break the cycle of poverty is appreciably diminished.

Additionally, Grusec (1992), examining Bandura's work, purported that comprehension includes learning and aptitudes for responding to information, as opposed to conceptualizing the development of reflecting in terms of discrete and uniform stages. The author contends cognition is best viewed as specialized intellectual limits that change after some time as a component of development and experience. The capacity to tend to applicable pieces of nature for children to start to see associations between or to obtain data about relations between actions and outcomes At the point when they are young, children have attentional deficits, including difficulty in comprehending multiple prompts simultaneously and in maintaining attention for extensive stretches of time to that may limit their proficiency.

Children should likewise change watched material to emblematic structure, first by utilizing imaginal images and afterward, as language creates, verbal ones. Grusec (1992) stated, "memory is another important cognitive skill, enabling information about observed and personally experienced events to be retained so that it can guide the formulation rules for behavior" (p. 783). Memory improves after some time with the obtaining of language and a

learning base that enables new data to be identified with what is known and subsequently

recalled more accurately. The author is convinced childrens' thinking aptitudes must be refined

with the goal that they can settle on and apply rules which govern behavior.

Vygotsky's Zone of Proximal Development grew as an offshoot of Bandura's Social

Learning Theory. McLeod's (2018) synthesis of Vygotsky's work indicated, "the environment

children grow up in will influence how they think and what they think about" (p.1). This

statement would suggest that impoverished youth that are continually subjected to those

circumstances will have trouble thinking about achievement in school, as they are more likely to

be focused on basic survival needs. Meaning making is of paramount importance for learning

and this is arguably even more vital to the successful learning of economically disadvantaged

students.

Moreover, Kozulin (2007) describes Vygotsky's sociocultural theory in terms of its

application to the manner in which students learn and problem solve. A student's background

knowledge is a vital component of instruction when attempting to create a conceptual change. As

difficult as it can be for educators to determine the origins and extent of a student's prior

knowledge, it is nonetheless an imperative underpinning of additional learning. It becomes

problematic when students are unable to rectify differences in their lived experiences and what

occurs in schools. For successful learning to occur, students should be cognizant of the portions

of a learning task, so that they be able to make personal meaning of it and in turn, be able to

create their own activities for what Vygotsky refers to as "tomorrow's knowledge". Vygotsky's

Zone of Proximal Development (ZPD) expands on these notions, indicating that this is the area

where educators can have the greatest impact, ensuring students are able to interact with their

surrounding context and work in concert with peers. Kozulin (2007) avowed, "Learning awakens

a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with peers" (p. 50).

Ecological Systems Theory

Rosa and Tudge (2013) argued that Bronfenbrenner's theory of human development, which is referred to as an ecological system, focuses on the significant role the environment has to play, especially through the family microsystem. Bronfenbrenner called attention to three fundamental qualities of biological situations. In this manner, what occurs or neglects to occur in some random condition depends to an enormous degree on occasions and connections in other related situations. Additionally, in natural conditions improvement happens through processes, comprehended as methods of association among individuals, kept up over the span of proportional relations among them and with their condition. Finally, biological situations are established in a phenomenological field that arranges the building up of an individual's activities and cooperation.

There is a dynamic change in an individual's qualities after some time and space, which indicates coherence both in the individual and nature, and different individuals inside that condition, all occupied with proportional exercises that become logically increasingly complex in an enduring example of exercises. The child's improvement will be increasingly fruitful if the connections set up in biological conditions are with individuals with whom the child has established a constructive, enthusiastic connection that is both shared and meaningful. Proximal processes are the focal point of bioecological hypothesis and are seen as the main drivers of human advancement. Bronfenbrenner inferred that proximal processes would have a more noteworthy possibility of advancing results of formative skill in increasingly steady and advantageous situations. Rosa and Tudge, via Bronfenbrenner, noted:

It is true that individuals can and often do modify, select, reconstruct and even create their environments. But this capacity emerges only to the extent that the person has been enabled to engage in self-directed action as a joint function not only for his biological endowment but also the environment in which he or she developed. There is not one without the other (p. 251).

Furthermore, Rojas and Avitia (2017) suggested that contrasts in individual learning qualities, family attributes, social convictions and practices or strategy, influences student academic results. Bronfenbrenner determined three cooperating features of individual characteristics: demand, resource and force. Demand characteristics allude to inborn personality attributes, for example, place of origin, age, sexual orientation, race, ethnicity or physical appearance. Demand characteristics impact starting cooperation with other individuals. Resource characteristics identify with mental or material assets accessible to the person. Resource characteristics interface broadly with demand characteristics to impact developmental results. Force characteristics incorporate inspiration and ingenuity. Self-regulation theory research envelops power attributes to clarify watched contrasts in learning practices. The home or family microsystem connects with a person's demand characteristics of age, sexual orientation, and so forth. Educator quality, classroom exercises, and school attributes are oftentimes referred to as deciding scholarly results for students. Time underlies forms at the individual level since encounters after some time change the resource and demand characteristics of a person.

Similarly, Paat (2013) worked with family dynamics and applied Bronfenbrenner's Ecological Systems Theory. The author maintained that the family environment worldview centers around the interrelationship among family and other biological frameworks, for example, school, neighborhood, and friends. The family is a social organization that gives an establishment wherein children determine how to explore and fit into society. Strong family bonds are accepted to be progressively steady, adaptable and receptive to their youngsters' needs,

along these lines decreasing family stressors. Other family qualities, for example, family

structure and family capital, additionally profoundly affect youngster results. Existing writing

demonstrates that families with constrained monetary resources and social capital face a more

noteworthy number of social challenges.

The positive connection between family financial status and child results is consistently

contemplated. Concerning child rearing, it has been indicated that sensational contrasts in

parenting techniques exist between guardians of the upper class and those of poor regular

workers, with the previous being increasingly engaged with their youngsters' after school

exercises. At the point when parents have not earned college degrees, they are less equipped for

furnishing their youngsters with the help they need in school and a learning domain that is

helpful for scholarly achievement.

Bronfenbrenner and Ceci's (1994) development of the Bioecological Model furthered

Bronfenbrenner's original Ecological Systems Theory to explain human development. Families

that live in environments with adequate resources are at an advantage for the proximal process to

occur; families in a disadvantaged environment cannot expect the same results. Bronfenbrenner

(1994) researched the deleterious effect an unstable environment the stress related to family

inconsistency will have on child's development. According to Bronfenbrenner (1994),

"evidence shows the severity of developmental dysfunction is markedly increased for families

living in disadvantaged and unstable environments" (p. 576).

Online Learning Theory

Numerous attempts have been made to create a cohesive and dynamic theory of online

learning, however there are an innumerable number of variables that make attempts to do so

almost impossible. Models have been created that included synchronous and asynchronous

learning, while others look to blended and rotational learning for guidance. Some educational

institutions use vendor created online platforms for learning, yet some schools have their own

teachers devise online courses. Nevertheless, various experts in the field have used differing

learning theories in their endeavors.

Anderson (2008) argues pundits of theory contend that too severe adherence to a specific

hypothetical perspective regularly channels our judgments and in this way blinds us to

significant exercises of the real world. Internet learning can present difficulties to instructors, as

the apparatuses and chances to find understudies' previously established inclinations and social

points of view are regularly restricted by transmission capacity imperatives, which cutoff the

clients' perspective on non-verbal communication and paralinguistic intimations.

Internet learning, as a subset of all separation instruction, has consistently been worried

about the arrangement of access to an instructive encounter that is, at any rate, more adaptable in

time and in space than traditional learning settings. Web based learning will upgrade the basic

capacity of communication in education, in different configurations and styles, among every one

of the members. The test as hypothesis developers and online professionals, in this way, is to

depict which modes, techniques, exercises, and on-screen characters are most cost-and learning-

powerful in making and conveying quality e-learning programs.

Golding (2016) developed the idea of connectivism as a conceptual framework to explain

the interactions between individuals and learning on the Internet. The Internet has become a

pathway for a multitude of individuals to communicate and create knowledge both in and out of

the traditional classroom settings. Connectivism uses these ideas as the basis of a conceptual

framework that posits learning is a network phenomenon predisposed to technology. The amount

of resources, created by a plethora of individuals, available to learners knows no bounds. In

connectivism, learners need to have the ability to access shared information at any juncture; this framework asserts that learning and knowledge are not limited by time or space and are interconnected by the technology that creates them. Connections are consistently made by individuals, groups and societal structures via technology. These links established with people and technology change the way the brain processes information. The authors maintain for this type of learning to be most effective, information should be accessible, evaluated and subsequently synthesized for appropriate decision making.

Picciano (2017) viewed online learning as an alternative to traditional methods of instruction and attempted to show the benefits it has for student learning. The author denoted that the instructor gives a social domain where the student can amass or develop with others the learning required to solve the problem. The utilization of intelligent practice by both student and instructor is an educational foundation for intuitive dialogue that replaces direct lecturing, regardless of whether in a traditional classroom or an online class. Similarly, as no single learning hypothesis has been developed for education, the equivalent is also valid for online instruction.

Various hypotheses have been created, the greater part of which arise from other significant learning theories. The community of inquiry model bolsters the plan of online and blended courses as dynamic learning situations or networks subject to teachers and understudies sharing thoughts, data and suppositions. Online community learning is an idea that spotlights the usage of the Internet to provide learning situations that encourage joint effort and construct information. Web based learning as a subset of separation instruction, has consistently been worried about the arrangement of access to an instructive encounter that is, at any rate increasingly adaptable in time and in space as grounds-based training. Blended learning models

do not fit effectively into the distance education composition, despite the fact that they are advancing as a predominant segment of conventional up close and personal and online instruction situations.

The ideas of Critical Theory, Social Learning Theory, Ecological Systems Theory and Online Learning Theory will inform the framework and context in which any conclusions are based. The hope is through catalytic validity the researcher will be able to inform and focus those who participate in the research to help those who are in the most need of their assistance.

Definition of Terms

Impoverished youth/economically disadvantaged- students who may be eligible for free and reduced lunch

Low-income- students whose family's household income is less than 200% of the federal poverty threshold ($48,678 for a family of four as of 2016)

Poor- students whose family's household income is less than federal poverty threshold ($24,339 for a family of four as of 2016)

Online Learning- refers to instruction that is delivered primarily through the Internet

Onsite Online Learning- online courses completed primarily in a traditional school setting

Offsite Online Learning- online courses completed primarily in a student's home

Chapter 2: Literature Review

"Wake up all the teachers time to teach a new way

Maybe then they'll listen to whatcha have to say

'Cause they're the ones who's coming up and the world is in their hands

When you teach the children teach em the very best you can."

~Harold Melvin and the Blue Notes

Poverty in the United States

Poverty is a complicated, established, and debilitating circumstance which impacts a child's social, emotional, and physical health, as well as educational growth and progression. Once a child is born into poverty, the chances they will remain impoverished throughout their lifetime remain high. Payne (2005) stated, "Generational poverty is a type of poverty that [cyclically] passes from generation to generation and has its own distinct culture and beliefs" (p.1). The enculturation of poverty is in many instances connected to the education level of the head of the household; the higher the education level of the parent, the less likely a child is to live in a poor or low-income family. Clearly evident is the impact stressors concomitant with child poverty generate for learning, which persist into adulthood and encumber educational achievement. (Richardson, 2008).

According to Richardson (2008), "poverty creates risk in every dimension of a child's life" (p. 19). Children that are born into poverty are at increased risk to be malnourished and underdeveloped. Unfortunately, these markers do not dissipate as children age into adolescence and young adulthood. Even more disturbing is how little wealthy nations, such as the United States, do to prevent children from experience economic disadvantage (Richardson, 2008). The United States has the highest Gross Domestic Product (GDP) in the world, yet also holds the

dubious distinction of maintaining one of the highest poverty rates amongst children, ages zero to seventeen, of any of the nations belonging to the Organization for Economic Cooperation and Development (World Bank, 2018). The data that exists regarding low-income and poor children is just as alarming.

Koball and Jiang (2018) detailed many facts and figures about low-income and poor children in the United States. The authors stated, "41% of children under eighteen years of age live in low-income households, while 19% are considered poor" (Koball, 2018, p. 1). The United States currently has over seventy million children under the age of eighteen within its borders, comprising almost one fourth of the total population, however they also disproportionately compose thirty two percent of those individuals who live in poverty. Children who live in low-income and poor families have a tendency to lack residential stability, often times moving during the school year. Children from low-income and poor families are also three times as likely to rent than own a home than families who are middle and upper class (Koball, 2018). Families seeking employment and economic opportunity are continually on the move and the amount of people doing so depends upon the nation's economy. Richardson (2008) aptly stated, "economically challenged families lack the resources to mitigate problems linked to child poverty and are in the greatest need of targeted government and non-governmental organization intervention" (p. 24).

The economic status of the United States plays a significant part in poverty rates and the Great Recession is a prime example of the backlash impoverished families feel, especially those headed by women. Redd, Sanchez-Carter, Murphey, Anderson-Moore and Knewstub (2011) found that although the poverty rate of the United States' children is high given the nation's resources, it "masks much higher rates within particular subgroups, such as single-mother

families with a poverty rate of 47% in 2010" (p. 3). These rates are even higher for single

parents that are younger, as they typically are subjected to additional fiscal privations. Children

from single parent households are even more likely to experience deleterious, enduring effects on

their growth and life circumstances, including economic difficulties in adulthood (Redd, et.al,

2011).

Brooks-Gunn and Duncan (1997) studied the consequences of poverty on children

through the lens of learning (dis)abilities and developmental delays. They determined that

children living in poverty are 1.3 times more likely to suffer learning delays than their more

economically advantaged counterparts. Brooks-Gunn (1997) also found a significant

discrepancy on IQ test scores. They stated, "poorer children score between 6 and 13 points

lower on various standard tests of IQ, verbal ability and achievement" (Brooks-Gunn, 1997, p.

61). As is evidenced by the data and statistics surrounding impoverished youth, it is readily

apparent these children are beginning their lives at an extreme disadvantage.

Public Policy Limitations

The United States, for centuries, has been viewed as a land of opportunity; your merit

will determine your success or failure. This view of America as a place, where if you work hard

and are ambitious, you can achieve whatever dreams you set for yourself has brought millions

from around the world to its shores. Parents bring their children to the United States hoping that

they may gain access to a free and public education. Lee and Burkham (2002) discussed this

phenomenon and avowed, "it is widely held that a key goal of education is to make sure that

every student has a chance to excel, both in school and in life" (p. 1). Unfortunately, Lee (2002)

also found that in many instances, students from less economically advantaged backgrounds

begin school with cognitive deficiencies and attend lesser quality institutions (Lee, 2002). These

dilemmas are exacerbated by the choices policy creators and legislators make regarding the education of children.

Furthermore, Jenson and Fraser's (2016) volume entitled *Social Policy for Children and Families: A Risk and Resilience Perspective*, examines the ways in which society is impacted by the decisions of lawmakers, with a specific emphasis on the realm of education. Jenson and Fraser (2016) investigate the problematic way in which the elected officials of this nation have sought to influence our nation's children through federal education policy by scrutinizing the connections between political philosophy and principles. As the authors explore the risk factors of specific demographic groups, they postulate, "the most consistent characteristic of American social policy for children and families may be the sheer inconsistency of efforts aimed at helping the nation's most vulnerable populations" (Jenson, 2016, p. 5). Essentially, the authors maintain that our elected officials are not using the data and statistics available to them in order to enact legislation to alleviate the problems. Additionally, Jenson and Fraser argue that the policies, which are instituted to improve the conditions of susceptible peoples, are not factoring in all of the variables and thus are insufficient (Jenson, 2016).

Jenson and Fraser's (2016) social policy discourse discusses a plethora of current and past practices instituted by lawmakers that have had little positive effect on the individuals they are purported to help. In many instances, politicians have only widened the gap between those who need the most support and the individuals with the means to flourish. Jenson and Fraser (2016) converge on a wide range of policy topics regarding poverty and child welfare programs, including mental health, youth with (dis)abilities, as well as adolescent substance abuse and juvenile justice. Each portion of the volume uses risk and protective factors when discussing the individual policy areas. The authors use the context of ecological theory in an attempt to explain

both past and present reform policies, however Jenson and Fraser acknowledge, "identifying and

analyzing major policy responses to the challenges confronted by children and their families is a

difficult undertaking for legislators, governmental officials, judges, scholars, and other experts"

(Fraser, 2016, p. 297). Recognizing the problematic task of creating effective policy, they feel

that the individuals who require the assistance are in an even greater quandary when attempting

to navigate through the labyrinth of services available.

The evidence that Jenson and Fraser provide specifically details poverty rates in the

United States and the alarming variation that exist between children of color and their white

counterparts. According to Jenson and Fraser (2016), nearly 1 in 4 children under the age of 18

live in poverty, with even higher rates in the African American, Native American and Latino

communities. When compared to other developed nations, especially those in Scandinavia, the

United States' poverty rate is four times higher, even though our country's GDP is the largest in

the world. The adverse effect poverty has on immediate family, the community and society

cannot be understated and dismissed. Particularly troubling is the "few innovative policy

strategies being introduced to reduce the number of children and adolescents who experience

these problems" (Jenson, 2016, p.7). When students are struggling to survive, without the most

basic of needs, performing well in school is not at the forefront of their priorities.

Jenson and Fraser (2016) provide significant commentary about the varying domains

of social policy. In doing so, they deliver meaningful insight as to the fluctuating dilemmas

confronting policy and decision makers. The authors deem that even with all of the data,

statistics and other information that exists to combat the multitude of societal issues, "it is not

systematically applied to policy or program design, which results in poorly specified,

inadequately integrated, and wastefully duplicated services for children and families" (Jenson, 2016, p. 5).

Similarly, Sensoy and DiAngelo's (2017) work involving social justice in education opined that the inequalities that exist are due to the lack of neutrality that has stemmed from the complicit way in which society behaves toward injustice. This conviction applies to the realm of politics and can be traced back to the founding of the United States. Specifically, Sensoy and DiAngelo (2017) stated, "there is no neutral space and schools are not now, nor have they ever been, politically neutral" (p. 185). They describe in great detail how the education system is a byproduct of partisan politics and that the dominant group of society controls the desired outcome from schooling. In large part this is due to the dominance of privileged members of society and the oppression of the minority members (Sensoy, 2017).

Sensoy and DiAngelo's (2017) book, *Is Everyone Really Equal? An Introduction to Key Concepts in Social Justice Education*, views public policy through the lens of the United States' institutional makeup and believes that the system itself is oppressive. The authors state, "the ultimate goal of social justice education is to enable us to recognize structural inequalities in ways that prepare us to change them" (Sensoy, 2017, p. 22). According to Sensoy and DiAngelo, it is the dominant group that seeks to retain control of their power and authority, by protecting the status quo. Subsequently, positionality prevents these powerful individuals and their governing institutions from engaging in thoughtful discourse and allows them to remain complicit to the existing societal inequalities. Sensoy and DiAngelo (2017) posit that in order for social justice to transpire, we have to not only acknowledge the inequities, but also be willing to confront them. The authors consider that in order to truly comprehend what

injustices exist in society, agreement is not necessary, however politicians worrying about

whether they won or lost a deliberation is unassumingly counterproductive (Sensoy, 2017).

Brown's (2016) volume, *After the At-Risk Label: Reorienting Educational Policy and Practice,* expands upon this notion by stating, "in the existing neoliberal policy climate characterized by individualism, market competition, and privatization, the extent to which students learn is often connected to the educational opportunities they are afforded (or they fail to receive) in schools" (p. 4). There have been varied attempts to alleviate poverty and bridge the educational gap, but their effects have usually been short term and unsustainable due to partisan politics. As students who come from low socioeconomic backgrounds are exposed to several other risk factors, not completing the requirements for graduation becomes the eventual byproduct. This, in turn, perpetuates the cycle of poverty that currently exists in the United States.

Impact of Poverty on Education

The National Education Association (NEA) (2016) asserted, "achievement gaps are the harsh reality of the current educational landscape and although progress has been made, disparities still exist in educational outcomes related to poverty" (p. 1). The rates of poverty continue to increase amongst public school children partially due to the current demographic shift in the United States; Americans are continually segregating themselves based on socioeconomic status. The NEA (2016) found, "the income achievement gap from high- and low-income families increased 40% from 1970-2000. This is more pronounced than the black/white achievement gap many emphasize" (p.2).

Additionally, The NEA (2016) completed more work by focusing specifically on students that were eligible for the National Student Lunch Program (NSLP) and their proficiency levels in

4th and 8th grade. They found significantly lower proficiency levels in the areas of math and

reading for students eligible for the NSLP. In twenty-one states, more than half of all students in

public schools were eligible for free and reduced lunch. As of 2013, the NEA determined that the

majority of students enrolled in public schools are from low-income families. "Significant gaps

exist in standardized test scores, grades, graduation rates or college enrollment and completion

between low- and high-income students" (NEA, 2016, p. 3).

Jensen's (2013) book, *Engaging Students with Poverty in Mind*, states, "the academic

record of students who live in poverty is not good. In the United States, if you are poor, your

odds of graduating are lower than are those of a middle-income student" (p.1). He goes further

by positing that the schools and teachers are not doing enough to ensure that impoverished

students remain engaged in learning. Students are dropping out due to a lack of engagement and

that fostering positive relationships can assist in alleviating this dilemma. Jensen puts forth

seven engagement factors that, "correlate with student engagement and are strongly tied to

socioeconomic status" (p.8).

According to Bridgeland's (2006) work with the Gates Foundation, dropouts are twice as

likely as high school graduates to become impoverished in the year following their exit from

school. They are more likely to be unemployed, on public assistance or single parents of

children who drop out of school. The earning power of non-graduates is also significantly lower,

by approximately $9,000 less per year and close to $1 million over a lifetime. High school

graduates with an associate degree typically earn close to $400 per month more than those

without any post-secondary degree (Bridgeland, 2006).

Moreover, in Ravtich's (2013) work involving the privatization of schools, the author

determined although it is possible for students beginning schooling at an economic disadvantage

to succeed in school, while their more financially advantaged counterparts can fail despite the advantage, the circumstances a child is born into makes an enormous difference. Poverty effects every facet of a child's life, especially their motivation to attend school. Many impoverished students suffer from chronic absenteeism and in Ravitch's (2013) estimation, "this sustained absence from daily instruction widens the achievement gap" (Location, 2013).

Carr-Chelman and Marsh (2009) asserted in their study that according to the National Center for Education Statistics, the total spending for K-12 public education exceeded $553 billion in 2006-2007. They found that there are disparities in the amount of funding certain schools receive, which is creating disparaging educational opportunities. Carr-Chelman and Marsh (2009) stated, "because wealthier districts have more resources to draw from than schools in low-income communities, inequities can occur across school districts within a single state" (p. 50).

Thomas and McCormick's (2017) article briefly discusses the equity gaps that exist in the realm of education. The authors propose a variety of questions regarding equity gaps, such as what are gaps, who defines those gaps, who are the individuals and groups responsible for the creation and elimination of such gaps and which stakeholders are significantly impacted by these gaps? They further maintain that developing a standard definition of the purpose of schooling to which most educational stakeholders agree is a difficult proposition. Thomas and McCormick (2017) believe, "renewed attention to deficit thinking in schools and educational research reminds us to consider deeply ingrained cultural funds of knowledge so often ignored in efforts to reduce gaps" (p. 1). Even usage of the term "gap" carries with it an implication of a deficit.

Although gaps are typically viewed as having a negative connotation, the authors support the idea that this is not as simple as it may appear. Thomas and McCormick (2017) state, "some

gaps may be seen as desirable, even necessary, spaces from which we can step back from and take stock of, familiar as well as new or strange approaches and tensions" (p.1). Additionally, the authors feel that room for growth and improvement, coupled with useful diagnostic information can be byproducts of certain gaps in education. The type of language used when discussing gaps is of specific importance in the authors estimation, as it can be extremely limiting to the reasons and answers sought to eliminate unwanted gaps. They believe that the goals of unity and equity should be constantly strived toward in education on a global scale.

Furthermore, the authors stipulate that as solutions to the dilemma of gaps in educational equity are sought, more cooperation and dialogue should continue to occur at the local, state, national and global levels. Lastly, the authors suggest further research and examination of the topic will lead to a more impactful and lasting education experience for all educational stakeholders.

Rawlinson's (2011) *A Mind Shaped by Poverty: 10 Things Educators Should Know,* provides an examination of how impoverished students behave and feel, while delving into strategies to more effectively instruct those individuals. Children who are accustomed to inequality may have trouble trusting individuals, especially those in positions of authority, whom they deem to be unjust. They use their experience and perceptions, sometimes placing teachers and peers into specific clusters. Even when teachers may have altruistic motives when attempting to assist impoverished youth, these students may rebuff it, along with any additional work that is required for the class. The author found that there is a negative perception about economically disadvantaged students, creating a more antagonistic and sometimes adversarial relationship between teachers and students. Rawlinson (2011) professed, "students living in poverty are often tagged as troublesome, dishonest, lazy and dumb. They have to prove their

innocence and ability before they get access to some educational opportunities" (Location 202).

Ensuring that economically disadvantaged students have admittance to teachers and counselors

on a consistent basis, along with proper sustenance is of paramount importance.

Many impoverished students are arriving at schools with a deficit mindset and

unfortunately, that can be reaffirmed by the actions of administrators, teachers and students. Due

to the competitive nature of the classroom environment, students are constantly vying with

students of families with greater economic means, but are often willing to settle for mediocrity,

as it is what they are accustomed to in many aspects of their home lives. Their mindset may be

very limited, because of how they are conditioned and experience few options. In far too many

instances, school is not a priority for children of low socioeconomic status households and is

viewed as simply a place to escape the stress of home life and socialize. Motivation, personal

growth, and varied experiences are all suggestions made by Rawlinson (2011) to positively

impact learning. Access is a key component to improve the educational experience of

impoverished learners. Rawlinson (2011) purported, "students deserve access to places and

educational opportunities without some kind of proof" (Location 205). They should be

supported by understanding educators, exposed to places they may never see, experience the

world outside of their immediate reality and provided with the opportunities to chase their

dreams.

Brain Research and Learning

The University of Pennsylvania's Center for High Impact Philanthropy (2015)

contributed new research about the effects of trauma, including poverty on the brain's

development. They determined that the connections between the brain cells of children are

significantly affected by a child's immediate environment. The researchers at the Center for

High Impact Philanthropy (2015) found, "children that grow up in an atmosphere of deprivation,

or ongoing persistent stress, may fail to build or maintain important brain connections" (p. 1).

These findings have major implications for impoverished youth, including educational outcomes.

Using images from MRI scans of two children, one with healthy development and the other

affected by environmental stress, the Center for High Impact Philanthropy concluded that there is

considerably more brain activity in the temporal lobes of the healthy child's brain than in the

child that was affected by environmental distress (Center for High Impact Philanthropy, 2015).

Luby's (2015) study at the University of Wisconsin-Madison discovered that

impoverished youth had irregularly developed brain structures, specifically in the frontal and

temporal lobes, while scoring significantly lower on standardized assessments. The changes that

occur in the brains of economically disadvantaged children not only impact learning but may

also lead to mental health disorders and an inability to process stress.

Socioeconomic status (SES) can be challenging to define when attempting to account for

all the unique variables that comprise it. There are certainly relationships between the multitude

of factors that shape SES however there is no perfect connection. Attempting to gather precise

income information from a research study involving SES is a rather arduous task, therefore

researchers typically use elements such as education level, geographical area and occupation

about impoverished individuals that are easily acquired through online databases. Farah's (2017)

research focused on the connections between SES and neuroscience. The study determined there

was "a six-point difference in child IQ between the lowest and highest SES levels at the age of

two years, which grew to more than a fifteen-point difference when assessed at age sixteen"

(Farah, 2017, p. 57). In the author's estimation, the neural networks formed by the brain should

be contemplated when discussions of poverty and its effects are raised. Farah (2017) used event

related potential (ERP) and functional magnetic resonance imaging (fMRI) scans to compare the

results of working memory tests in research subjects. These tests showed the effect of SES on

working memory, which indicated that children of higher SES had larger increases in their

capacity for load activation. Children from lower SES required greater working memory load

activation under less strenuous circumstances and less activation under the most demanding

conditions. Farah (2017) avowed:

> Certain neurocognitive domains are particularly apt to show SES disparities on
>
> behavioral testing: these are language, executive function and memory. These same
>
> systems also show disparities in neural processing, as revealed by ERPs and fMRI,
>
> including evidence of moderation, whereby SES is associated with differences in the
>
> neurocognitive systems used. Differences between higher and lower SES mathematical
>
> problem solving are consistent with SES disparities in language (p. 60).

Although this data appears to show a relationship between SES and the brain's development,

there is no definitive information that permits any generalizability about what an impoverished

brain's moniker may be.

Furthermore, Farah (2017) stated, "given the importance of brain function for academic,

occupational success and emotional well-being, which are causally related to SES, this creates a

vicious cycle: a family's poverty would causally affect the capacities needed for socioeconomic

success in the next generation" (p. 64). Income level and SES do not directly manifest

themselves on the brain's development; it is the exposure to many associated, chronic risk

factors that ultimately cause the damage. There was enough variation amongst research

participants throughout the differing SES levels, with the greatest disparity being between the

poorest and near poor children, to show that poverty and SES are not transposable concepts.

Blair and Raver (2012) examined how children develop when exposed to significant amounts of adversity, through the lens of nature and nurture. Their idea of experiential canalization is based upon the idea that biology is significantly impacted and altered by experience. The author's study showed the deleterious effect that parental stress has on the child's physical and mental development. Blair and Raver (2012) ascertained, "the material and psychological hardships of poverty are very real, and their effects on development are often severe" (p. 310). Their model sought to focus on the ways in which a multitude of variables coalesce to influence child development, either in a positive or negative direction.

Stress is arguably the most significant component of their model, due to the manner in which it affects the neural networks of children, specifically through executive functioning and self-regulation. The hormones released during stressful situations change neural pathways in the brain and modify the synapses involved in the prefrontal cortex. When those levels are significantly heightened over an extended period of time, reactive responses increase and reflective responses decrease, which subsequently alters behavior and cognition. The emphasis on reaction may be beneficial in their specific context but would provide extreme difficulty in a school setting. Even though poverty is an incredibly difficult challenge faced by many students, significantly influencing their development on a cellular level, it is not a hopeless situation. Blair and Raver (2012) provide suggestions for educators on how to manage classrooms for students that are exposed to high stress home environments. The authors asserted, "supporting adults who maintain high levels of responsiveness, consistency, and warmth can be expected to lead to more flexible regulation of stress physiology with cascading influences on child self-regulation" (Blair and Raver, 2012, p. 313).

When children are exposed to an environment of violence, their fMRI scans show fewer and weaker neural connections. Poverty is often times a byproduct or precursor to violence and chaos in the home. This can place children in situations where they suffer from malnutrition, neglect, abuse, homelessness and unemployed parents. Researchers have observed the grey matter tissue in the brains from children living in the harshest of conditions and noticed a diminishment in that specific area of the brain. The physical surface area of their brains was in fact reduced when compared to those whose families whose income considered them to be middle class or upper class. Hayasaki (2016) indicated, "science now tells us that relationships and interactions with the environment sculpt the areas of the brain that control behavior (like the ability to concentrate) which also can affect academic achievement (like learning to read)" (p. 41).

The stress levels that children are subjected to, especially those who are poor, are one of the major causes of diminished brain development, including the way synapses form and neurons fire. This constant exposure to high levels of stress could cause your system to overload and be in a perpetual state of fight or flight. Hayasaki (2016) contended, "Those in this type of environment often do not fully develop the ability to effectively plan, set goals, make moral decisions and maintain emotional stability. Similar harm is seen in response to family chaos, neglect and abuse" (p. 43). There are ways to combat these risk factors, both at home and in school. Relationship building and stress management would assist students in coping with highly stressful situations.

Brown's (2014) book, *Make it Stick: The Science of Successful Learning*, provides empirical research to present the reader with effective strategies for instruction and learning. The author rationalizes many significant ideas about learning and instruction that are completely

contrary to established methods of completing those tasks. In order to achieve any goals that individuals set out for themselves, mastering the ability to learn is the key to doing so. Learning necessitates memory, is an obtained proficiency and requires effort. The most lasting learning, though not as quick and more difficult, is counterintuitive to traditional instructional methods, which in Brown's (2014) estimation, are not based on sound research. According to Brown (2014), learning is "acquiring knowledge and skills and having them readily available from memory so you can make sense of future problems and opportunities" (p.2).

Retrieval practice from memory is an efficient way to ensure that new information or abilities are acquired and recollected. When this retrieval requires significant exertion, the learning is more potent. A repetition of this process increases the likelihood that learned information is easier to access. For learning to be of use, memory is a necessity. Some individuals have larger working memory (those with typically higher IQs) than others, but learning is a skill that can be acquired by everyone. This should not be done without some degree of difficulty, as learning is more impactful when it is an arduous task. It cannot be done quickly and many of the most used techniques have been found to be ineffective, such as massed practice and the rereading of text. Massed practice is not an effective strategy to build long term mastery and only increases short term learning, as is the case with cramming. Practicing in segments that are spaced out, or in intervals, so that some forgetting occurs will lead to more durable learning. Interleaving, or incorporating various skills together before they are completely mastered, is another effective learning and instructional tool.

When learning involves effort, the brain is being modified. Learning is a multifaceted procedure that involves encoding information in short term memory, consolidating that knowledge into something that has meaning and sending it to long term memory for storage,

where it will be eventually retrieved, enabling an application whenever necessary. Effortful retrieval strengthens memory, allowing for the creation of mental models. The growth mindset should be a guiding principle in learning and instruction. Brown (2014) also challenges many of the ideas embraced by much of the educational community, including Garnder's Multiple Intelligences (1983) by declaring, "the simple fact that different theories embrace such wildly discrepant dimensions gives cause for concern about their scientific underpinnings" (p.144). Unfortunately, learning in the preferred modality typically is not how students are being assessed, which is somewhat problematic. Brown (2014) supports this statement by avowing, "when instructional style matches the nature of content, all learners learn better, regardless of their differing preferences for how the material is taught" (p.146). Gardner's ideas also do not provide an adequate explanation for the variety of environments in which individual's families prioritize certain knowledge.

Brown (2014) proposes three different types of intelligences; analytical, creative and practical. Analytical, creative and practical intelligence provide insight into ways that, "different cultures and learning situations draw on these intelligences differently and much of what's required to succeed in a particular situation is not measured by standard IQ or aptitude test" (Brown, 2014, p.150). There are certainly cognitive differences in how we learn, but they are not learning styles. It is more a reflection of individuals able to extract underlying principles and apply them to differing examples of information and others simply trying to memorize the examples provided. Comprehending the underlying principles is what leads to knowledge, not rote memorization. Brown (2014) states, "learning is stronger when it matters, when the abstract is made concrete and personal" (p.11). This idea may be even more important to economically disadvantaged students than their more privileged counterparts.

Dang et.al (2016) believe that poverty is a worldwide concern with few solutions that groups, and individuals can agree upon. Dang et.al (2016) posit, "people with low income also suffer from the stigma and stereotyping associated with being poor" (p. 288). The authors feel that due to the financial constraints that significantly impact the daily lives of impoverished individuals, their cognitive functions are impeded. They were specifically concerned with working memory; due to the purported interceding effect it has on poverty. The researchers performed a study to determine any notable link between the performance on various tasks, involving procedural processes and attentional control.

Approximately one hundred individuals, mostly women from a Chinese university participated in the study. The participants were provided various scenarios in which they were given three minutes to determine possible solutions to proposed questions. They were shown different images on a screen and had to respond which category it belonged to. The researchers performed a total of 200 trials and hypothesized that when an individual's working memory was put under stress through the influence of monetary concerns, they would opt for more procedural type learning. They also believed the opposite to be true; when working memory is not influenced by a risk factor, an individual is more inclined to use attentional control.

Upon the conclusion of the experiment, the researchers found that their hypotheses were supported by the outcome of the participant's responses. Dang et.al (2016) stated, "people with such adversity display enhanced executive function of task shifting as well as improved detection, learning and memory on tasks involving stimuli that are ecologically relevant to them" (p.290). Summarily, the authors contend that the impoverished are typically employed in professions that necessitate a focus on procedure and repetition, rather than tasks which require the usage of executive functioning and working memory.

Aluja-Banet, Sancho, and Vukic's (2017) article viewed student disengagement as a pervasive dilemma in schools throughout the world. According to Aluja-Banet et.al (2017), a growing number of studies shows, "learner's level of engagement during their years of schooling are low and many students are reported to feel bored or even hate school" (p.1). The authors believe these negative emotions have a cascading effect on students' ability to view learning as something positive and to further their education beyond what is required. More effective methods of engaging students are needed to ensure this scenario does not occur. Inherent in determining whether students are engaged is finding a viable solution to measure their levels of motivation.

Additionally, the authors feel that one of the most important cogs in the wheel of student learning is motivation; it has a significant bearing on a students' achievement. Teachers, administrators and other educational stakeholders can react to student motivation and provide the proper interventions when necessary. Aluja-Banet et.al (2017) maintain, "motivation is a psychological construct, personal, varying from one individual to another" (p.3). It is extremely fluid and dynamic, subject to a various amount of internal and external influences. The authors support the notion that there is a distinction between motivation and engagement. Aluja-Banet et.al (2017) separated engagement into three different categories: 1) academic engagement;2) social engagement; and 3) intellectual engagement. They also posited three main components of motivation involving activity, persistence and intensity. In order to quantify and properly measure motivation, the authors used specific behavioral indicators from a virtual learning environment (VLE). Speed, persistence, intensity and choice were all indicators used to determine the motivation level of the students that participated in the study.

The research was performed at six secondary schools in Spain, ensuring a diverse group of socioeconomic students and a variety of subject matter. The researchers found that most of the students whom participated in the study were the most active in completing schoolwork on Monday and Wednesday, while being the least active on Saturday. The information obtained through the model created by the researchers provided students, teachers and administrators valuable information regarding motivation and a viable method of measuring it. Aluja-Banet et.al (2017) conclude by stating, "the system shows another case how Learning Analytics contributes to the enhancement of learning and teaching processes by defining, measuring, modeling and formalizing computationally the constructs associated with learning dispositions" (p.6).

There is no shortage of literature that exists that provides insight into the ways in which the brain's development is impacted by an individual's environment. Deprez (2015) provides an overview of the manner in which learning, and experience are key components of brain development. The brains of younger children are considerably more malleable than adult brains due to their increased neuroplasticity and other additional factors, with adolescents undergoing additional changes to their brain's wiring. The frontal lobes, or the central processing unit of the brain, is responsible for many of the decisions individuals make regarding morality and ethics. This can be extremely difficult and provide teachers with challenges when interacting with adolescents, who may have difficulty making appropriate decisions.

Deprez (2015) delivers suggestions to educators that will provide adolescent students with a learning environment that feels safe. Due to the increasing amounts of stress placed on many students as a result of their exposure to poverty, neglect, and other risk factors "teachers need to understand the home lives of students because it has great impact on their school lives"

(Deprez, 2015, p. 13). Students have more diverse home lives, including varied cultures, religions and domestic partnerships, than ever before and the classroom should be a space that embraces anyone who enters. Students are also learning differently, not only because of societal changes and dependence on technology, but because of how their brains are being trained to obtain and retain information.

Additionally, Brown, Anderson, Garnett, and Hill (2019) delved into the role that household chaos and instability plays in the cortisol levels of children. They also sought to explain how those factors wreak havoc on a child's healthy development via the connection between elevated cortisol levels and hypothalamic-pituitary-adrenal (HPA) imbalance. Their study hoped to determine a causal relationship amongst economic hardship, financial strain and cortisol levels. Brown, et. al. (2019) stated, "chronically elevated cortisol alters neural connections in brain areas such as the hippocampus, prefrontal cortex and amygdala and the impact may be particularly pronounced in early childhood, when there is rapid brain growth and development" (p. 2). This stems from the system of poverty and household chaos, which directly influence HPA functioning. When children are from low socioeconomic status backgrounds, they are significantly more likely to have elevated cortisol levels as adults.

Although it may seem unlikely, there are some temporary benefits from elevated levels of cortisol, or hypercortisolism. Due to the chronic stress that children may be exposed to, HPA corrections are made to increase adaptability and hypervigilance in certain environments. This will eventually cause significant erosion of the HPA system. Brown, et. al. (2019) determined, "while the nutrition and health care advantages purchased by parents may influence children's HPA functioning beginning prenatally, contextual poverty risks play an undeniable role in shaping the development of the HPA system" (p. 6). There is a cascading effect for students that

occurs in households that are subjected to economic instability, cementing environments of chaos that destabilize routines that are essential to success in school and the workplace.

This arena of policy and research has a substantial number of critics and detractors, who believe that the connection of poverty and neuroscience is an extension of eugenics, with racist insinuations. Tolwinski (2019) interviewed several neuroscientists about their efforts in the field of brain science and poverty to gather their opinions about whether they may be negatively impacting the marginalized groups they claim to help. Tolwinski (2019) found that the subjects of the study, "hoped to shine a light on inequality by showing that adverse experiences such as poverty and trauma negatively affect children's cognitive development, well-being and life course" (p. 143). Unfortunately, good intentions may not always be enough. There have been instances when individuals that create policy pick and choose parts of research to push their own agenda to the detriment of those that require the most assistance.

Some naysayers intimated that this field of research shows a biological determination using a more nature focused argument, in which an individual's life path is set by the first few years of life. The critics failed to see or refused to notice the idea of plasticity, which eliminates a deterministic view of the brain as unreactive to an intersection of genes and the environment. For example, although learning a non-native language is easier for younger children, it is not out of reach for adults; it merely requires more exertion. The brain is constantly rewiring itself, making new connections over an individual's life span. The problem becomes, as Tolwinski (2019) declared, "people and organizations have a finite capacity to deal with social problems, so those social problems must compete for scarce attention" (p. 157). The road to increasing access and equity is being paved through an online/virtual learning environment.

Online Learning as a Tool to Increase Equity

Although online/virtual learning has only begun to become widely accepted as a viable

form of education in the last decade, it has altered the way that educators and students think

about learning. Willingham's (2009) volume *Why Don't Students Like School?* suggests, "to

teach well, you should pay careful attention to what an assignment will actually make students

think about (not what you hope they will think about), because that is what they will remember"

(Location, 955). Watson and Gemin's (2008) article on *Promising Practices in Online Learning*

provides a brief discourse on the opportunities available for impoverished youth in online/virtual

programs. Not only have institutions of higher education adopted online/virtual means of

instruction, students at the elementary and secondary levels of education are able to obtain entire

course loads via the digital medium. Online learning is demonstrating itself to be a significant,

sometimes transformational, means of reaching economically disadvantaged students (Watson,

2008). There are a multitude of reasons why online learning is able to accomplish so much,

where the traditional method of instruction may struggle. Online learning is able to meet the

needs of a varied collection of students through customizing their conduits to educational

prospects. According to Watson and Gemin (2008), "online learning has become an effective

medium in reaching students who fail, become disengaged or seek an alternative route to a

traditional education" (p. 6). Through the use of online programs, students are provided with an

array of options to meet their individual learning needs, including credit recovery.

Archambault and Diamond's (2010) work with the International Association of K-12

Online Learning, discusses the various strategies through which schools are able to provide

options using the online medium to earn credits toward graduation. Credit recovery programs

are a vital lifeline for schools and students to increase graduation rates and promote an

instructional blend to meet student learning types. With a self-paced curriculum and courses that

provide immediate feedback, an increase in student motivation is readily apparent. Online

programs are also useful in assisting transient students by addressing issues of mobility that are

typically pervasive in those situations. Archambault and Diamond (2010) state, "although the

course content may be delivered online, most successful programs continue to have a significant

face to face component. This allows students that need additional support to be given the

assistance they require" (p.12). Teachers have transitioned from simply the gatekeepers of

knowledge to something more. Teachers have taken on new roles; not concerned only with

academic results, but the well-being of the whole student comprising their central focus

(Archambault, 2010).

Pesare et.al (2015) sought to shed light on the difficulty that teachers and students face

with assessments, specifically through the lens of the virtual learning environment (VLE). The

authors acknowledge the importance of the formative evaluation and its ability to allow teachers

to adjust to students' abilities and whether they are learning the material. Pesare et.al (2015)

furthered this sentiment by stating, "in e-learning contexts in order make the formative

evaluation significant it could not be limited to quizzes and tests" (p.252). The authors also

believe that digitally enhanced assessments necessitate data analysis using both qualitative and

quantitative methods. Typically, in distance learning, quantitative methods of measuring

assessment through multiple choice tests are primarily used, although they are not always

reliable measures of learning. The authors propose that there is a wealth of data available to

students and teachers that can be obtained through the VLE in a visual form, referred to as a

dashboard.

The dashboard design would give teachers and students real time, up to date information

about progress, and in-depth feedback which would go well beyond quiz and test results. Pesare

et.al (2015) purport, "this reflection can have impact on both the teaching/learning strategies to

be adopted and the type of content to be supplied" (p.254). The authors feel that the dashboard

design should maintain visual information, show the most pertinent data and assist teachers and

students in making learning adjustments. Students remaining on pace, time spent on each lesson

and other vital information is available with VLE dashboards.

Additionally, Pesare et.al (2015) concede, "a deep analysis of data has to be done in order

to discover relationships between the quality of student-system interaction and the students'

outcomes" (p.259). Many different online vendors are now using the dashboard approach to

show student data. Teachers are able to see learning gaps and provide appropriate interventions

in a VLE. They also have the ability to filter data and complete comparisons with other courses

the students may be enrolled in, along with how other students are performing. Promoting ease

of access to these resources ensures that both teacher and student engage in a constructive

learning dialogue.

Chapter 3: Methodology

"Oh, you know we've got to find a way

To bring some understanding here today"

~Marvin Gaye

Any great story, piece of music, breathtaking painting or delicious meal requires a degree

of ingenuity and perspective from its creator. The creator and their perspective have been

influenced by experience, which inevitability contains certain biases that impact the choices they

make. Action research is not immune to these conditions, yet it also provides the researcher an

opportunity to examine their own practice and reflect on ways that it can be improved. As

transformative educators, it is our duty and responsibility to create a classroom environment

based on social justice and equity. Ensuring that both sides of the story are told, a transformative

research paradigm which institutes mixed methods action research has been adopted for the

purposes of this study. Mertens (2007) believed that, "mixed methods within the transformative

paradigm are crucial to obtaining an understanding of reality as it is experienced in culturally

complex communities" (p. 224). As the study focuses on the complicated relationship between

education, economically disadvantaged students and online/virtual learning, the transformative

paradigm provides appropriate context. This section will delve into the specifics of the guiding

research methodology, the transformative research paradigm, the study's setting and participants,

how the researcher is involved in the study and finally a description and analysis of the data

sources.

Transformative Research Paradigm

The transformative research paradigm was developed in an effort to establish guiding

principles for social justice-oriented action research. The basic tenets of the transformative

research paradigm include ontology, epistemology, methodology and axiology. Ontology is concerned with the multiple realities that exist in society and ensuring that those involved in research are aware of this fact. Epistemology, from the lens of the transformative paradigm, focuses on the relationship between the researcher and the participants; specifically, the trust that should exist between the two. Regarding methodology, the transformative paradigm emphasizes the need for adjustments necessary based on the research context, including what is culturally appropriate. Lastly, axiology underscores the connection between the research process and any potential byproducts, which should advance social justice issues (Mertens, 2007). Mixed methods research designs lend credence to the transformative research paradigm. Mertens (2007) postulated, "the intersection of mixed methods and social justice raises questions concerning the underlying assumptions that guide our work, the role of the researcher and the reasons for the conduct of mixed methods research" (p. 212).

Research Design

Choosing the most balanced approach for a research design can be an arduous task. In order to ensure that the researcher is able to answer the proposed questions with the correct type of data, great care should be taken when deciding on the research design. To achieve the type of equilibrium desired, the researcher used a mixed methods research design. Johnson, Onwuegbuzie and Turner (2007) stated, "Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches for the broad purposes of breadth and depth of understanding and corroboration" (p.123). The ultimate goal of a mixed methods design is to gain a greater sense of validity and an increase to the existing knowledge base. Greene, Caracelli and Graham (1989) determined there are five distinct purposes for mixed methods research: 1) triangulation; 2)

complementarity; 3) development; 4) initiation; and 5) expansion (p. 259). Hoping to

accomplish some of the purposes of a mixed methods design, the research used a combination of

quantitative and qualitative data.

Setting

The setting for this research study is a rural/suburban southeastern Pennsylvania school

district. This particular location was chosen by the researcher for several important reasons; the

district's student population, including size, racial/ethnic makeup, and socioeconomics is fairly

typical for the county in which it is situated. The district houses approximately 3,100 students in

its three elementary schools (K-5), one middle school (6-8) and one high school (9-12), with

52% of the students identifying as male and 48% identifying as female. The racial and ethnic

makeup of the district is 86% White, 7% Hispanic, 3% Asian, 2% Black, with the remaining 2%

comprised of two or more races. 35% of its students are considered to be economically

disadvantaged, 18% are eligible for special education services and 2% are English language

learners.

The southeastern Pennsylvania school district also has one of the more extensive online

programs in the county and the number of students enrolled in online courses continues to grow

each year. They established an online program in 2010, so there is a wealth of data that can be

used and analyzed. The southeastern Pennsylvania school district's "Academy", the initial

nomenclature given to the online classroom, was initially created as a credit recovery program

for at-risk high school students who were in danger of not graduating. Many of these students

were exposed to a wide variety of risk factors and the online program provided them the

opportunity to earn the credits they needed to graduate. In 2012, the district chose to eliminate

its "Academy", rebranding the online program, while expanding the course offerings to all

students. There was a procedure established for the intake of potential online students to ensure

they would be placed in the most advantageous position to succeed, shown in Table 1.

Table 1: Online Enrollment Process

Step Number	Description of the Step
Step #1	• Interest is expressed to school counselor or learning facilitator • Interest must be due to: 1) Looking to attend cyber school fulltime 2) Scheduling conflicts 3) Course recovery 4) Enrichment program options 5) Alternative education (expulsion, homebound, etc.)
Step #2	• Surveys are completed (student, parent, teachers, etc.)
Step #3	• Online learning facilitator gathers and summarizes information
Step #4	• Administrative approval is obtained • If student is in need of special education services: Determination of services is completed through the Special Education Office, which may involve a re-evaluation.
Step #5	• Pre-enrollment meeting; includes student, parents, online learning facilitator, school counselor and, if necessary, special education teacher
Step #6	• Recommendation for or against online learning is made
Step #7	• If parents/student decide to enroll, contract is signed and courses are selected (enroll into the school district, if necessary)
Step #8	• Attend student/parent orientation meeting with learning facilitator and teachers of record
Step #9	• Student begins online courses

Participants

The participants for this study were comprised of a stratified random sampling of one hundred teachers in a southeastern Pennsylvania school district, composed of middle school and high school teachers from all content areas. Their experience ranged from novice teachers to those with more than thirty years of instruction. Approximately two hundred teachers were invited to participate via email and provide their responses using Google Forms (see Appendix A). Of those teachers asked to take part in the study, sixty-three consented and provided responses. The survey was open for approximately three weeks for teachers to give feedback.

Alumni students whom were enrolled in online courses that attended the southeastern Pennsylvania school district from the years 2012-2015 were also participants in the study. Approximately three hundred fifty students who graduated from the southeastern Pennsylvania high school that were enrolled in online courses from 2012-2015 and their corresponding data were examined. The information that was inspected included the course the student enrolled in, whether the course was engaged in onsite or offsite, and the grade earned by the student at the end of the semester. For the purposes of this research, the letter grade was not considered, as passing or failing was the measure used for course completion.

All of their information has remained anonymous, stored on a private Excel spreadsheet and has been password protected. This particular type of sampling is required because the researcher attempted to gauge the perceptions of teachers regarding online learning as a tool to increase educational equity and to establish any possible connection between economically disadvantaged students and their completion of online courses. Further delineation of the subjects was made by using school district data to determine the students that were enrolled in online courses and their socioeconomic status. Unfortunately, due to privacy laws, access to the information regarding specific students' socioeconomic status is forbidden without written

authorization from the parents/guardians of the research subjects. The researcher was able to

obtain the aggregated number of students for the school years 2012-13, 2013-14, and 2014-15

that were enrolled in online classes and were eligible for free and reduced lunch.

Role of the Researcher

The researcher has been a teacher for the southeastern Pennsylvania school district for

ten years and been an educator for a total of twelve years. The teacher researcher has taught at

rural/suburban districts for the entirety of his twelve-year teaching career, while instructing

students from grades 7-12 in the traditional classroom setting and the online learning lab. The

researcher has facilitated courses primarily involving social studies content; however, the

researcher has also provided additional instruction in all of the core content areas. The teacher

researcher was also the online learning coordinator of the southeastern Pennsylvania school

district for the first two years of their online program and was a part of the team, including

administrators, that developed ways to expand the district's offerings. The researcher is

currently instructing students that are enrolled in online social studies courses from grades 7-12,

along with 8th grade social studies students in the traditional setting. This provides the researcher

the ability to gain a diverse perspective of how students find success both in and out of the

traditional classroom setting.

Data Collection Resources

More often times than not, there are two sides to a story; a research study involving

mixed methods provides ample opportunity to ensure both sides of the story are told. In

instances when only a single method of research is used in a study, it can unfortunately lead to

disingenuous results. Mertens (2007) affirmed, "in transformative mixed methods research, a

researcher might make use of a variety of quantitative and qualitative methods to determine the

focus of the research, with a specific concern for power issues" (p. 213). The main dilemma in

this socially justice-oriented study is educational equity. This action research study used both

qualitative and quantitative data sets to investigate any possible relationships between

economically disadvantaged students and online/virtual learning. Three data sets of quantitative

information and one set of qualitative data was selected to provide insight into the research

questions detailed in chapter one. Table 2 is an exhaustive list of both the quantitative and

qualitative tools used in this action research study.

Table 2: Quantitative and Qualitative Tools

Type	Data Tool	Detail
Quantitative	Online Student List 2012-2015 School Year	• 844 courses taken • Type of course • Final course grade • Onsite/offsite designation
Quantitative	Free and Reduced Lunch List 2012-2015 School Year	• Aggregated list of online students who qualified for free or reduced lunch program
Quantitative	Online Learning & Instructing Impoverished Youth Survey	• 4-Point Likert-Scale • 10 Items • 63 Teachers
Qualitative	Online Learning & Instructing Impoverished Youth Survey	• Open-ended responses • 4 Items • 63 Teachers

Quantitative Data Sources

The quantitative portion of the research study incorporated three distinct types of information derived from student data for the years 2012-2015 and Likert-scale responses from teachers at a southeastern Pennsylvania middle school and high school. The specific data that was collected included online/virtual course enrollments, online/virtual course completion rate, types of courses taken (required vs. elective) and the percentage of students who were enrolled in online/virtual courses that were eligible for free and reduced lunch. Student records of enrollment in and completion of online courses also provided the researcher the ability to reveal the benefits offered to impoverished youth and how they were able to earn credits toward graduation. The same records delivered additional detail about the type of courses students were enrolled in; required vs. elective courses. All of this data has been kept strictly anonymous; no identifying markers were used for any of the research participants.

To enhance the results of the research study, a survey was used to gather additional information. The questions from the survey were devised to gain additional quantitative data were designed using *Yes* or *No* questions and the Likert Scale, with the following options: 4 = *Strongly Agree*, 3 = *Agree*, 2 = *Disagree* and 1 = *Strongly Disagree* as possible responses. The teacher piloted the survey with four teachers, two of which have been teachers of record for online courses and two that have not been involved with online courses in any capacity. The first two questions in the survey asked teachers which content area they currently teach and to select *Yes* or *No* if they have ever been a teacher of record for an online course, in an attempt to gauge their experience level in this area. The next several survey questions are designed to elicit the opinions of teachers about online/virtual learning. Two items representative of these questions are "students that enroll in offsite online courses are less likely to complete them" and "students that enroll in onsite online courses are more likely to complete them".

Additional survey questions were created to gain insight into teacher's opinions about the instruction of economically disadvantaged students. Two of these questions were designed with *Yes* or *No* options, asking, "in your opinion, do economically disadvantaged students require differing instructional strategies" and "does the school district provide you with a list of students are economically disadvantaged". One additional question used a 4-point Likert-scale and inquired "economically disadvantaged students have significant barriers to learning". (See Appendix A)

Qualitative Data Sources

Endeavoring to achieve triangulation and corroboration, the researcher solicited feedback from teachers via open-ended survey questions, which produced qualitative data. The survey attempted to ascertain the perceptions that teachers have about whether online learning provides an equitable solution for impoverished youth to achieve greater success in school. The survey provided teachers an opportunity to provide their insights and opinions based on their personal experience. This added another dynamic to the research design and serves to complement the quantitative portion of the study.

The two open-ended questions sought to inform the research question that seeks to determine how teachers perceive the usage of online/virtual learning as a tool to create equity for economically disadvantaged students. One question asked what teachers would do if they were provided information about students who were considered economically disadvantaged. The second item requested any additional information teachers would like to add that would be relevant to the topics presented in the survey. Most respondents were willing to provide their opinions based on their teaching experience with a variety of students.

Data Collection Methodology and Analysis

The research proposal was presented to the Institutional Review Board (IRB) of Kutztown University for approval. Upon endorsement by the IRB, the researcher contacted the southeastern Pennsylvania school district to obtain their approval for the study. The researcher met with the district's superintendent to discuss the research study, specifically the purpose of the study, the questions in the teacher survey, and the online/virtual student data. The researcher was ultimately informed that due to privacy laws, the free and reduced lunch data would not be attached to individual students, however it would be shared in aggregate.

Qualitative Procedures

Once this permission was granted, the teacher survey was piloted with four teachers. Upon the conclusion of this pilot study and any subsequent revisions, the survey was sent to the teachers of the southeastern Pennsylvania high school and middle school through their school email, describing the study and seeking their participation. Google Forms was used to create the questionnaire and tabulate the results. The survey was administered during the fall of 2019 and was open for a three-week period. This time frame was chosen due to the school year being underway for at least two full months, in the hopes that more individuals would respond to the survey. Once the time window for survey completion ended, the researcher analyzed the information about teacher perception of online learning, with specific regard to the impact its use has on impoverished youth. All responses remain anonymous and the data acquired from the responses are stored in a password protected computer file.

Following a codification of the acquired survey responses, the researcher was able to categorize the information to begin making more sense of how it would help inform and possibly answer my research question. Ground theory guided the researcher to ensure the development of categorical themes from patterns which emerged in the qualitative data set. NVIVO software

was used to input the open-ended teacher responses and create specific categories for the major

themes that emerged. Specifically, the codes and categories brought to the surface several ideas

that have seemingly reinforced previously held notions and were predicted to occur, but also

showed alternative perspectives. Larger, more encompassing, umbrella terms were used, and

color coded to visually distinguish one from another. Although there are only two questions in

the survey that would be considered qualitative in nature, the information gleaned from the

responses will be imperative to gain a deeper understanding of the study's research third

question.

Quantitative Procedures

At the conclusion of the 2018 school year, the teacher researcher gathered the

information from the school's online learning database, that houses all of the enrollments and

grades from online students and downloaded it to an Excel spreadsheet. The spreadsheet is

password protected and stored on the researcher's personal laptop. The archival data that the

researcher accesses is a list of online courses taken by students that have graduated from the

southeastern Pennsylvania school district from August 2012- June 2015. This list includes the

name of the course, whether it was a required course, or an elective course and the grade

achieved by the students. This data was accessed digitally by the researcher and did not include

any identifying information.

Once the online student data was compiled for the three school years, tables were created

to analyze the information in an attempt to answer the first two research questions listed in

chapter one. The data was organized into tables based on the location in which students were

taking the course (onsite or offsite). It was then split into required courses and elective courses.

Lastly those courses were divided into those that students passed and failed. This provided

percentages for all of the courses that students had enrolled in during the three-year time frame that was being examined.

Additionally, archival data of students that were eligible for free/reduced lunch from August 2012- June 2015 was accessed by the researcher. The retrieval of this data set was completed through a digital medium and does not contain any identifying information. The full list of online students from 2012-2015 was provided to the southeastern Pennsylvania school district and cross referenced with the students eligible for free and reduced lunches. The researcher was then provided the total number of online students in the school years 2012-13, 2013-14 and 2014-15 that qualified for free and reduced lunches. Using statistical analysis, the percentage of eligible online students from each of those years was tabulated.

Once all of the necessary survey data had been procured, the researcher analyzed the information about teacher perception of online learning, with specific regard to the impact its use has on impoverished youth. The 4-point Likert-scale responses were downloaded to Excel and statistical analysis was performed to determine the mean, median and range of scores. The responses were also divided into two groups; teachers with online experience and teachers without online experience. This was done to determine how their perceptions of online learning may be different and further inform the third research question mentioned in chapter one.

Rigor, Validity and Trustworthiness

In an effort to maintain rigor as a vital component of this action research study, several surveys were analyzed. Due to the nature of this mixed methods study, both quantitative and qualitative surveys were examined. The researcher has ensured the trustworthiness and integrity of all data sources through participant anonymity and password protection of digital information. All data sets, both qualitative and quantitative, were triangulated and examined for

complementarity. As this process was continually ongoing, the researcher kept precise records

using an audit trail of the steps taken to perform the data acquisition and the reasoning behind

decisions that were made during the action research process.

Although there may be potential threats to trustworthiness and validity in this study,

mostly due to the researcher's position as an online educator in the district from which the data

was gathered, these have been acknowledged. Marshall and Rossman (2016) stated, "usefulness

to participants may be more important than methodological rigor. The researcher, as participant,

may become a trusted insider with access seldom possible in more traditional observer roles" (p.

277). This type of study will be difficult to compare with other districts for a variety of reasons,

most notably the multitude of differing variables that exist from one school district to another.

Multiple individuals, educators outside the district, who were not research participants have

viewed the survey questions and did not find them to be confusing or misleading in any way.

The researcher also consulted with a highly qualified statistics professor to verify and ensure the

quantitative data regarding online students was developed appropriately. Marshall and Rossman

(2016) believed, "qualitative research does not claim to be replicable; so, you purposely avoid

controlling the research conditions and concentrate on recording the complexity of situational

contexts and interrelations as they occur naturally" (p. 263).

Chapter 4: Results

"And no message could have been any clearer

If you want to make the world a better place

Take a look at yourself, and then make a change"

~ Michael Jackson

The education profession has been in a constant state of flux since the passage of the No

Child Left Behind Act (NCLB) (2001), in which evidence and data are imperatives when making

decisions in the classroom. Although NCLB does not exist in its original form, it has been

rebranded and packaged to compare the United States' education system with the rest of the

world and to ensure student achievement. Much of the need for data gathering is due to an

increased focus on standardized testing that the state and federal government use to justify

funding for school districts. Teachers are tasked with tracking student performance on a variety

of assessments to gain insight into the effectiveness of their classroom practices and to make

adjustments accordingly. This search for data provides teachers the opportunity to use their

classrooms as quasi laboratories, where they get to experiment with different teaching methods

through differentiation and instructional styles to ascertain how to improve student learning.

Degrasse-Tyson (2014) stated, "Follow the evidence, wherever it may lead. If you have no

evidence, reserve judgment."

This chapter endeavors to illustrate the data gathered from 2012-2015 of online students

enrolled in the southeastern Pennsylvania school district. Results from this process will be

presented in two sections; quantitative data and qualitative data. In the first section, the

quantitative data examined the online courses from the school years 2012-2015, both aggregately

and individually. Students that were eligible for the free and reduced lunch program (FRLP) that

enrolled in online courses will be discussed. Quantitative data from the teacher survey in the form of Z-test results from the comparison of Likert-scale responses will also be considered. The qualitative data results presented in the second section are also from the teacher survey's open responses that have been coded for common themes, including direct quotes from survey participants.

Results for Quantitative Data

2012-2013 School Year

The 2012-2013 school year was the first year that the southeastern Pennsylvania school district opened its online offerings to all students, including the option to complete online courses offsite. During this school year, a total of 109 students from grades 9-12 were enrolled in online courses. 114 courses were taken onsite, while 157 were taken offsite, for a total of 271 courses overall. The offsite courses are divided into those required for graduation and those which are electives, chosen by students based on their specific interests. Of the 157 offsite courses that students enrolled in, 112 were required courses and 21 were elective courses (see Figure 1).
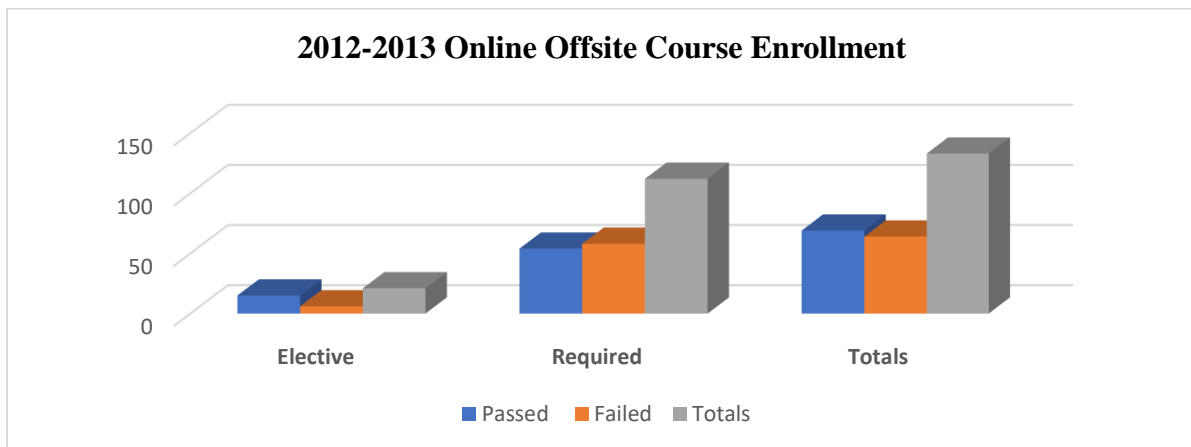
Figure 1: 2012-2013 Online Offsite Course Enrollment

The remaining 24 courses were either dropped by the student or incomplete, continued by the

student the following school year. Of the 21 elective courses that offsite, online students

enrolled in, 15 courses were passed, with 6 failures for a pass rate of 71% and a failure rate of

29% (see Figure 2). Regarding offsite required courses, of the 112 courses that students enrolled

in during the 2012-2013 school year, 54 courses were passed, with 58 failures for a pass rate of

48% and a failure rate of 52% (see Figure 2).

Figure 2: 2012-2013 Offsite Course Pass/Fail Rates

The data shows that students who were enrolled in courses offsite/off campus that were electives

were much more likely to pass them than courses that were required.

Out of the 114 courses taken online onsite, 97 were required courses and 8 were elective

courses (see Figure 3).
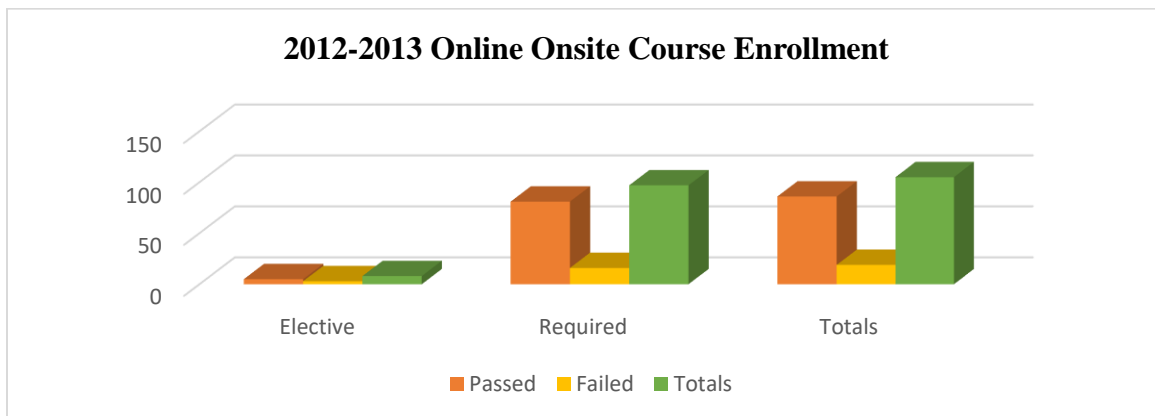
Figure 3: 2012-2013 Online Onsite Course Enrollment

Of the remaining 9 online onsite courses, 7 courses were dropped by students, 1 was incomplete

and 1 student transferred out of the district. Of the 8 elective courses students enrolled in onsite,

5 courses earned passing grades, with 3 failures for a pass rate of 63% and a failure rate of 37%

(see Figure 4). For the 97 required courses students attempted online onsite, 81 were passed and

16 were failures, for a pass rate of 84% and a failure rate of 16% (see Figure 4).

2012-2013 School Year Onsite Elective Course Pass/Failure Rates	2012-2013 School Year Onsite Required Course Pass/Failure Rates
37% 63%	16% 84%
▪ Onsite Elective Course Pass Rate ▪ Onsite Elective Course Failure Rate	▪ Onsite Required Course Pass Rate ▪ Onsite Required Course Failure Rate
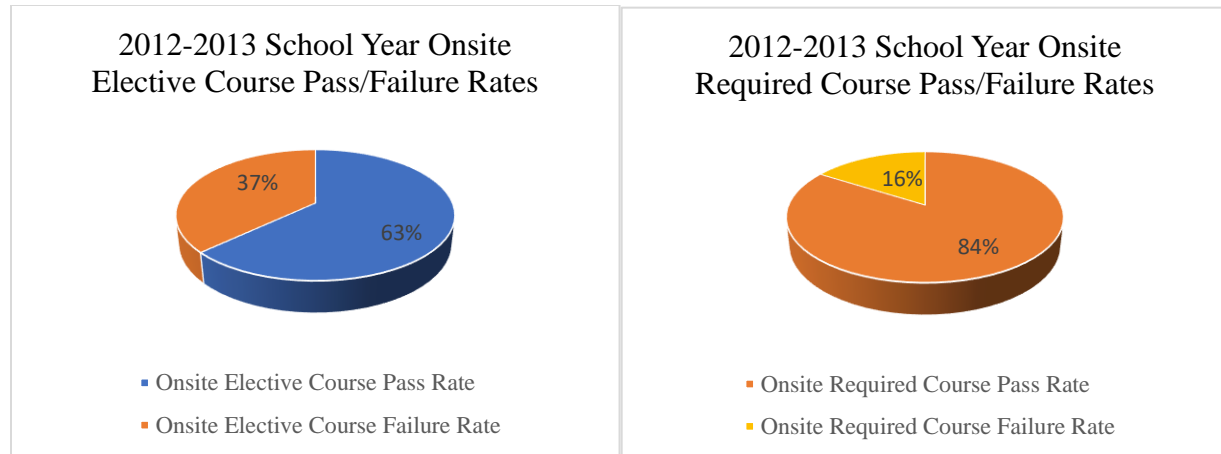
Figure 4: 2012-2013 Onsite Course Pass/Fail Rates

This data is somewhat different when compared to the offsite online data from the same school

year. Students had a much higher passing rate when completing online required courses onsite

(84%) than students who completed required offsite (48%). The converse was also true; students

who completed elective courses offsite had a higher pass rate (71%) than students who enrolled

in elective courses onsite (63%).

2013-2014 School Year

The southeastern Pennsylvania school district's online program was subject to some

changes during 2013-2014. The process for enrolling in an online course became more

streamlined and selective; students would have to meet certain criteria in order to obtain

enrollment permission for online courses. Also, the student body saw an overall decrease in

sophomore and junior students, which are the majority of those who enrolled in online courses.

The 2013-2014 school year saw 111 students enroll in online courses from grades 9-12. 94

courses were taken onsite, an 18% decrease from the previous school year, while 178 courses

were completed offsite, a 13% increase from the 2012-2013 school year; a total of 272 online

courses that students enrolled in for the 2012-2013 school year. Of the 178 online offsite courses

that students enrolled in, 32 courses were of the elective variety and 146 were required courses

(see Figure 5).

2013-2014 Online Offsite Course Enrollment
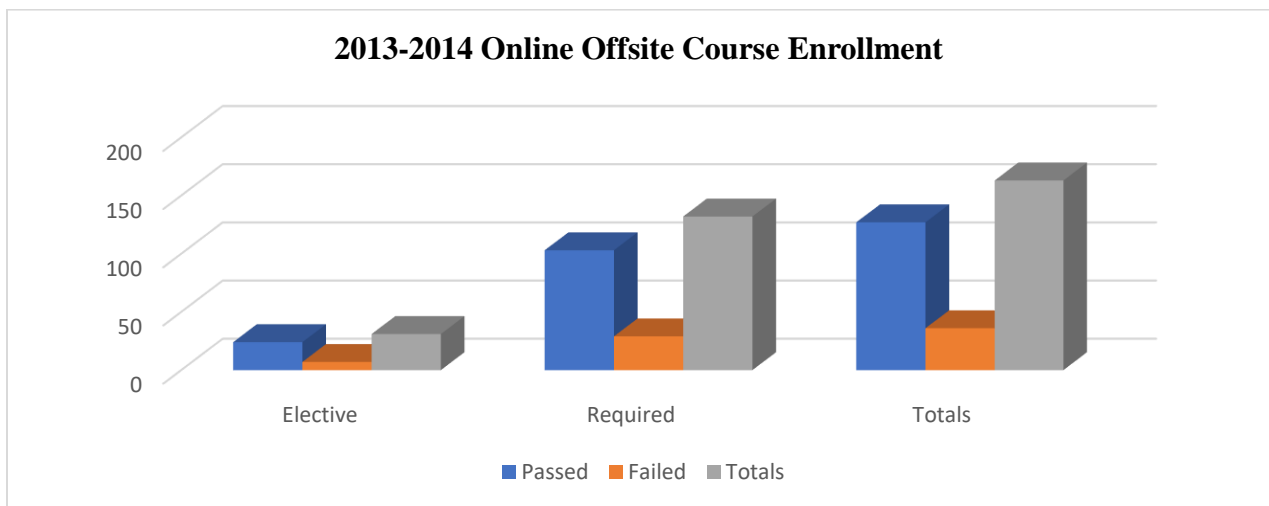
Figure 5: 2013-2014 Online Offsite Course Enrollment

The remaining 15 courses either had students drop the courses or withdrawal from the

district's online program. From the 31 online offsite elective courses that students participated

in, 24 were passed, indicating a pass rate of 78%, while 7 courses were failed, for a failure rate of

22% (see Figure 6). Regarding the 146 online offsite required courses, 103 of those were passed

by students, denoting a pass rate of 78%, while 29 courses were failed, showing a failure rate of

22% (see Figure 6).
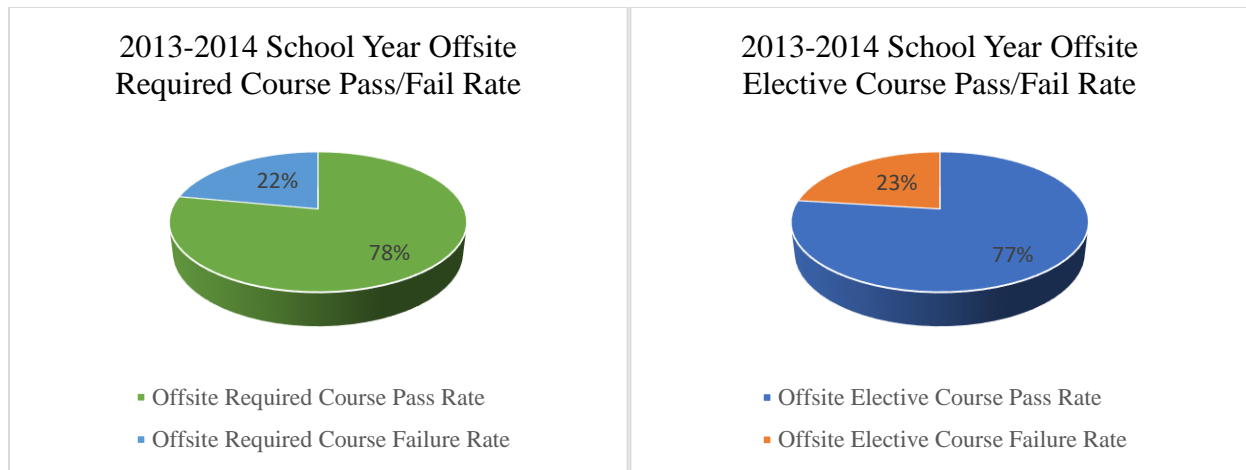
Figure 6: 2013-2014 Offsite Course Pass/Fail Rate

The passing rate for online offsite required courses increased from 48% in 2012-2013 to 78% in 2013-2014, a dramatic shift in how successful students completing those types were. This also indicates a significant drop in the failure rate of students engaging in the same type of courses. Similarly, there was an increase in the passing rate of students who enrolled in online offsite elective courses; from 71% in 2012-2013 to 77% in 2013-2014. This information suggests that during the 2013-2014 school year, online offsite students had an almost equal chance of passing their course, irrespective of whether it was a required course or an elective course; a noteworthy change from the previous school year.

The 2013-2014 school year saw a slight decrease in the number of students who enrolled in onsite online courses; from 114 in 2012-2013 to 94 in 2013-2014. 56 of the onsite online courses that students participated in were required courses, while 27 were elective options (see Figure 7). Additionally, 2 students withdrew from online onsite elective courses, 2 dropped required courses and 7 students withdrew from required courses.

Figure 7: 2013-2014 Online Onsite Course Enrollment

Of the 11 online onsite elective courses that students enrolled in, 11 students passed the

courses, showing a passing rate of 100% and a failure rate of 0% (see Figure 8). For the 72

online onsite required courses that students participated in, 56 courses were passed, for a pass

rate of 78%, while 16 courses were failed, indicating a failure rate of 22% (see Figure 8).
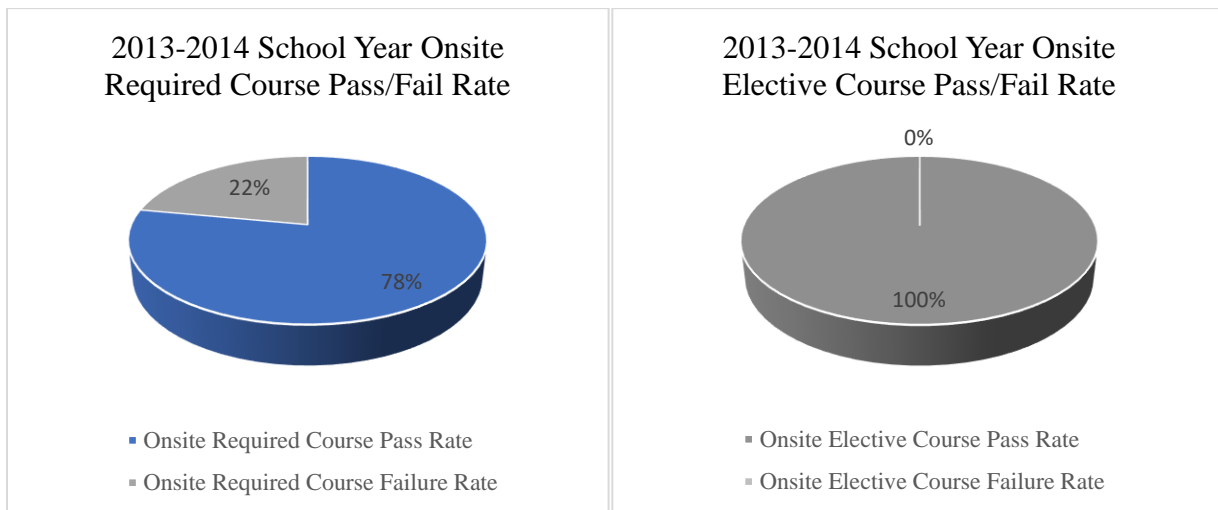
Figure 8: 2013-2014 Onsite Course Pass/Fail Rate

The passing rate for online onsite elective courses increased substantially, from 63% in

2012-2014 to 100% in 2013-2014, which accordingly, signifies a decrease in the failure rate of

37% in 2012-2013 to 0% in 2013-2014. Conversely, the same does not hold true for online

onsite required courses, which saw a decrease in the passing rate from 84% in 2012-2013 to 78% in 2013-2014. This also shows an increase in the failure rate of online onsite required courses from 16% in 2012-2013 to 22% in 2013-2014. The data presented here would suggest that students had an increased chance of passing an onsite elective course as opposed to an onsite required course, which is a departure from the 2012-2013 school year's findings.

2014-2015 School Year

The 2014-2015 school year saw a return to the district's norm for enrollment of sophomore and junior students, along with an increase in the number of seniors who decided to enroll in online courses, both onsite and offsite. 132 total students participated in 300 online courses during the 2014-2015 school year, a 16% increase from the previous school year. Of the 300 total online courses students signed up for, 248 were required courses, while 52 were electives. Online offsite student course enrollment increased from 178 courses to 181 courses, while online onsite student course enrollment dramatically expanded from 94 courses in 2013-2014 to 119 in 2014-2015. Of the 181 online offsite courses that students enrolled in, 40 courses were of the elective variety, while 118 were required courses (see Figure 9). Furthermore, 4 students dropped from online offsite elective courses, 2 students enrolled in electives transferred outside the school district, 14 students dropped required courses and 3 students enrolled in required transferred outside the school district.

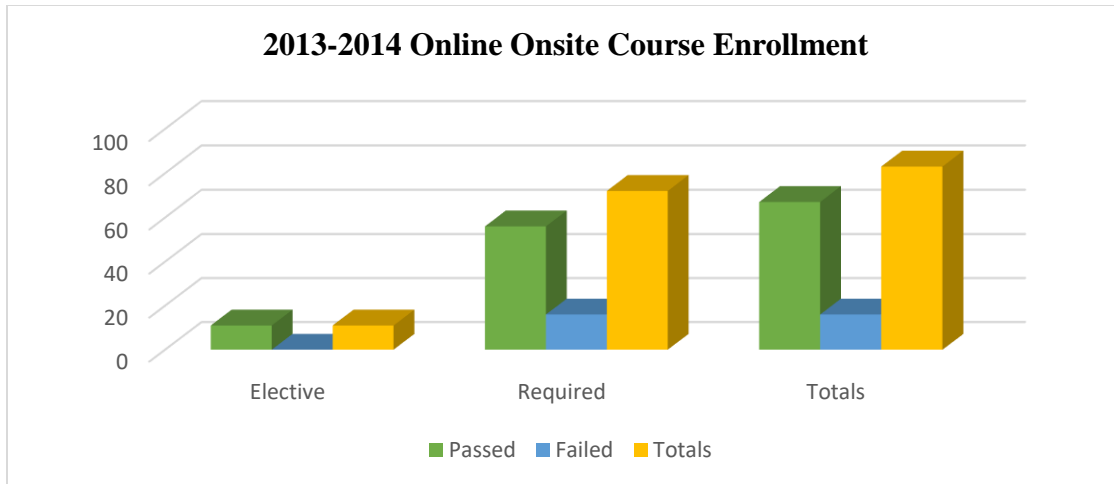**2014-2015 Online Offsite Course Enrollment**
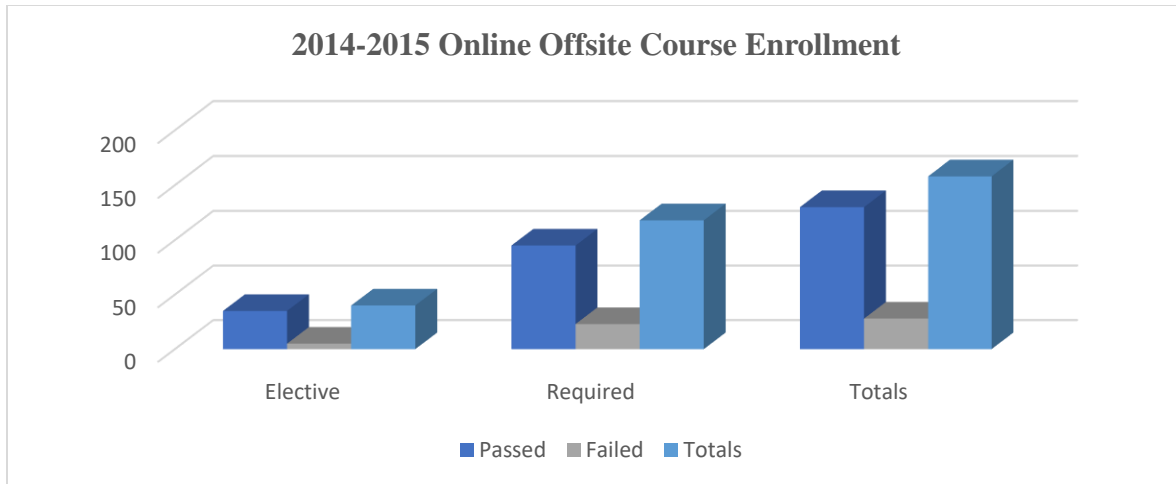
Figure 9: 2014-2015 Online Offsite Course Enrollment

Of the 40 online offsite elective courses that students enrolled in, 35 students passed the

courses, showing a passing rate of 88% and a failure rate of 12% (see Figure 10). For the 118

online offsite required courses that students participated in, 95 courses were passed, for a pass

rate of 81%, while 23 courses were failed, indicating a failure rate of 19% (see Figure 10).

2014-2015 School Year Offsite Required Course Pass/Fail Rate

2014-2015 School Year Offsite Elective Course Pass/Fail Rate
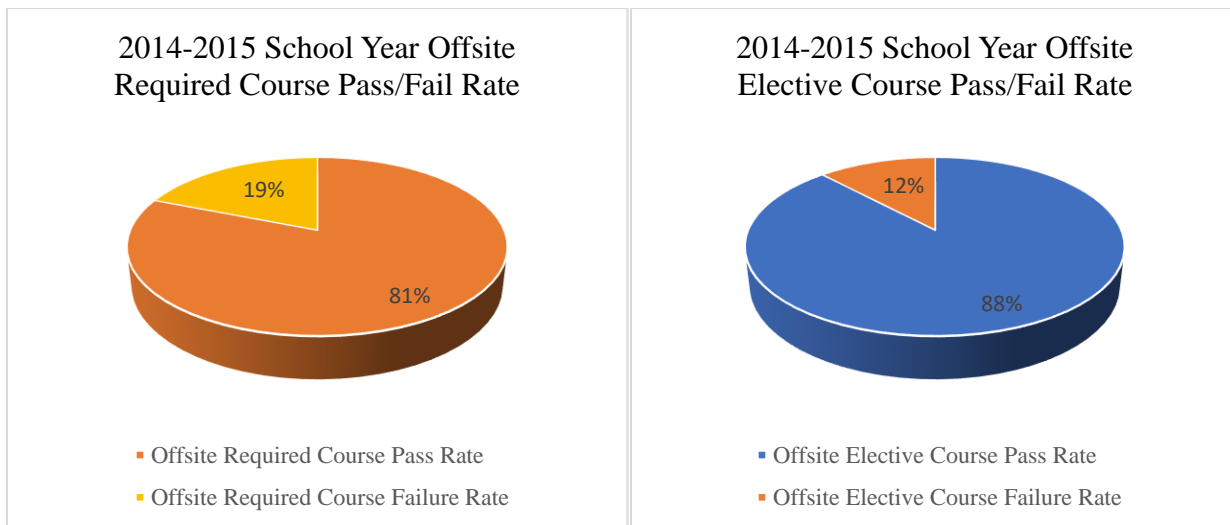
Figure 10: 2014-2015 Offsite Course Pass/Fail Rate

The passing rate for online offsite required courses increased from 78% in 2012-2013 to

81% in 2013-2014, a minimal shift in how successful students completing those types were. This

also indicates a miniscule drop in the failure rate of students engaging in the same type of

courses. Similarly, there was an increase in the passing rate of students who enrolled in online

offsite elective courses; from 77% in 2013-2014 to 88% in 2014-2015. This information

suggests that during the 2014-2015 school year, online offsite students had a greater chance of

passing an elective course than a required course.

The 2014-2015 school year saw a considerable increase in the number of students that

enrolled in online onsite courses; 94 enrolled in 2013-2014, whereas 119 engaged in online

onsite courses in 2014-2015, an increase of 21%. 105 of the onsite online courses that students

participated in were required courses, while 6 were elective options (see Figure 11).

Additionally, 5 students dropped required courses, 2 transferred outside the district and 1 student

withdrew from required courses.
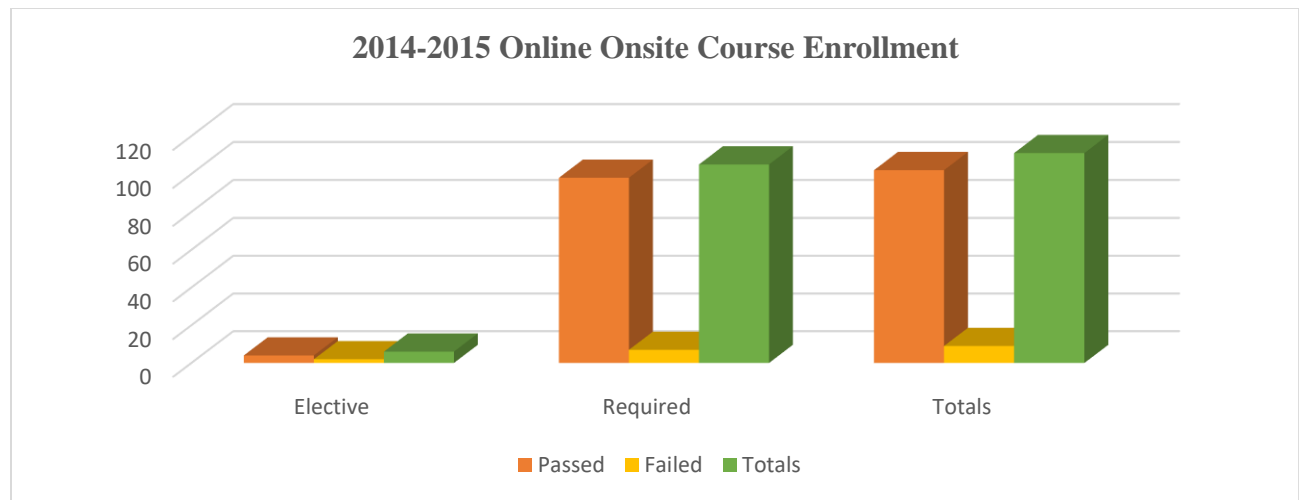
Figure 11: 2014-2015 Online Onsite Course Enrollment

Concerning the 6 online onsite elective courses that students enrolled in, 4 students

passed the courses, showing a passing rate of 67% and a failure rate of 33% (see Figure 12). For

the 105 online onsite required courses that students participated in, 98 courses were passed, for a

pass rate of 93%, while 7 courses were failed, indicating a failure rate of 7% (see Figure 12).
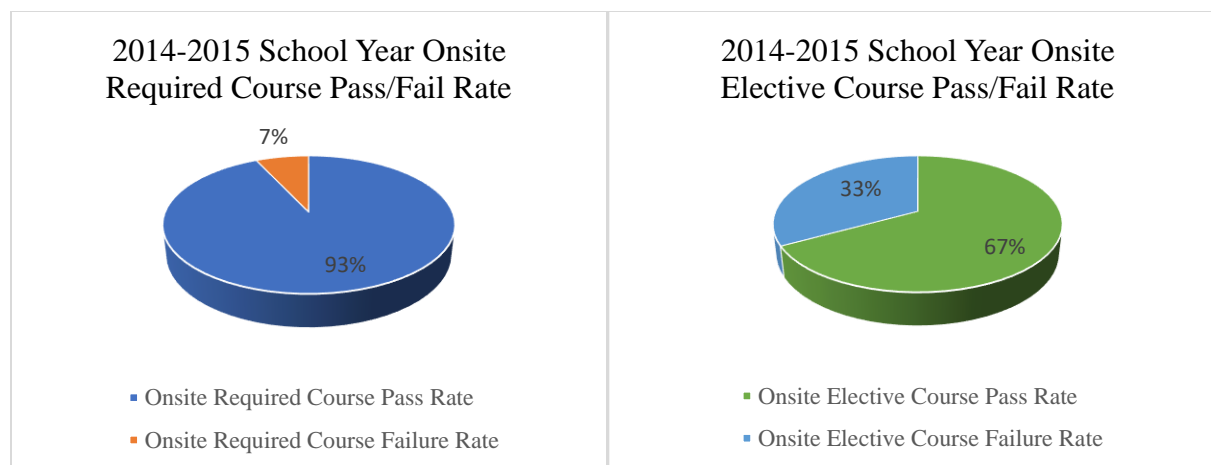
Figure 12: 2014-2015 Onsite Course Pass/Fail Rate

The passing rate for online onsite elective courses decreased substantially, from 100% in

2013-2014 to 67% in 2014-2015, which accordingly, signifies an increase in the failure rate from

0% in 2013-2014 to 33% in 2014-2015. This is partially due to the small sample size which

leaves little margin for error. The same cannot be said for online onsite required courses, which

saw a dramatic increase in the passing rate from 78% in 2013-2014 to 93% in 2014-2015. This

also shows a significant decrease in the failure rate of online onsite required courses from 22% in

2013-2014 to 7% in 2014-2015. The data presented here would suggest that students had an

increased chance of passing an onsite required course as opposed to an onsite elective course,

which is a difference from the findings of the 2013-2014 school year.

2012-2015 School Years Aggregate Data

Although the phrase "the whole is greater than the sum of its parts" is often misquoted

and attributed to the Greek philosopher Aristotle, it has an appropriate application in the present

study. More accurately, Aristotle stated, "In the case of all things which have several parts and

in which the totality is not, as it were, a mere heap, but the whole is something besides the parts"

(Metaphysics, VIII, 1045a.8-10). Looking introspectively at all of the online course data from

the years provides a clearer picture than viewing each school year individually. For instance,

there seems to be little rhyme or reason as to why from one year to the next students passed more

offsite elective courses than required courses and the same appears to be true when examining

the passing rate of onsite required courses as opposed to elective courses. Therefore, this section

will provide an overview of all online courses students enrolled in from 2012-2015, along with

the results of a Chi Square statistic used to show the relationship between the different variables.

From 2012-2015, a total of 352 students enrolled in online courses through the southeastern

Pennsylvania school district.   During this time frame, students participated in 299 courses in an

onsite capacity and 454 offsite, totaling 753 online courses (see Figure 13). 90 additional

students initially enrolled in online courses from 2012-2015, however they either dropped the

courses, withdrew from the online program, or transferred to a different school district. The

majority of elective courses that students enrolled in during the three school years were taken in

an offsite capacity by almost a 4 to 1 ratio; 92 electives were completed by students offsite,

whereas only 25 had been engaged in onsite. There is not as large as of a disparity regarding

required courses; 362 required courses were attempted by offsite students, while students

endeavored to finish 274 required courses in an onsite capacity.
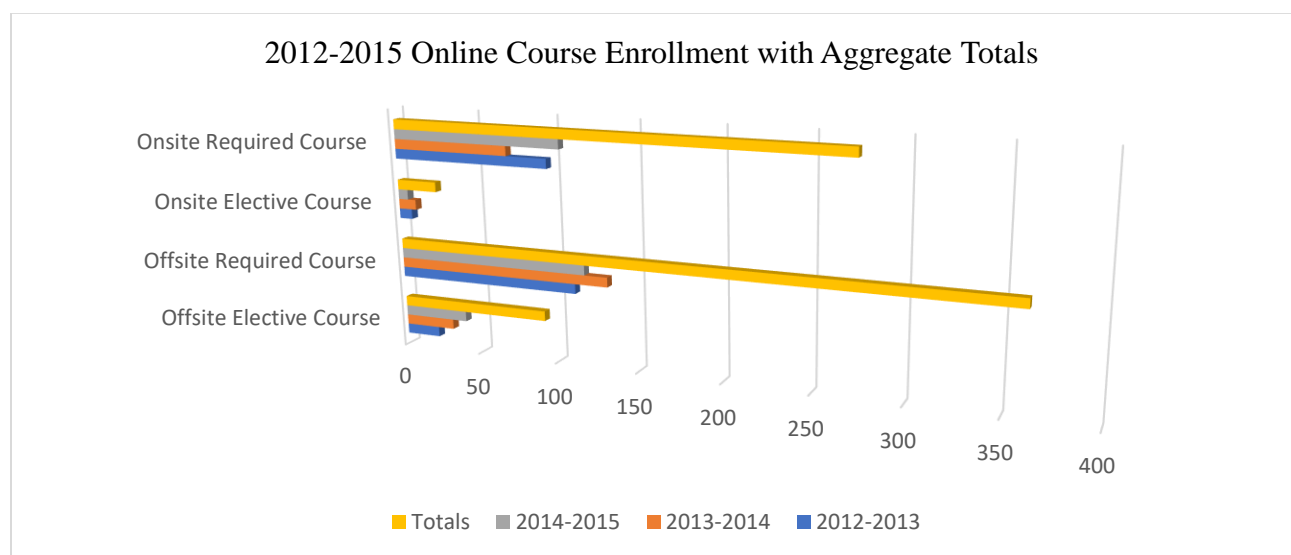
Figure 13: 2012-2015 Online Course Enrollment Totals

The most important evidence that was gathered from the study was the difference in the pass/fail rate of students enrolled in elective courses and the pass/fail rate of students who participated in required courses. Based on the outcomes of the data gathered and subsequent χ^2 tests of independence that were administered, using $\alpha = .05$ as the criteria for significance, students performed considerably better when they attempted to pass an online onsite required course than students who took an online offsite required course. The χ^2 results show a substantial difference in the passing and failing rate for the location in which a student takes an online required course, χ^2 (1, n=636) =22.684, p<.001, which is statistically significant (see Table 3).

Table 3: *Online Required Courses χ^2 Results*

Type	Fail	Pass	Total
Offsite	7.48309916	2.289490298	9.772589
Onsite	9.88643028	3.02480105	12.911232

In terms of percentages, 87% of students passed required courses when they did so onsite, whereas 70% of students passed required courses in an offsite capacity. The passing and failure rates for students who engaged in online elective courses, were identical, at 80% and 20%, respectively, for both onsite and offsite enrollees. Therefore, online elective course location did not appear to have any impact on whether students passed or failed those courses. The χ^2 results show little variation in the passing and failure rate based on the location in which a student takes an online elective course, χ^2 (1, n=117) =0.002353, p>.05, which is not statistically significant (see Table 4).

Table 4: Online Elective Courses χ^2 Results

Type	Fail	Pass	Total
Offsite	0.000403923	9.88322E-05	5.027552E-04
Onsite	0.00148644	0.0003637	0.00185

Cogitating all three school years, the passing rate for online onsite courses was 85%, with a failure rate of 15%, whereas the overall passing rate for offsite online courses was 72%, with a failure rate of 28%. This data shows the immediate impact of having a teacher present to aid students when they require reteaching, remediation, further explanation of key concepts and extrinsic motivation.

Free and Reduced Lunch Data

Attempting to answer the first two research questions presented in Chapter One, an examination of the Free and Reduced Lunch Program (FRLP) data was undertaken for the school years 2012-2015 at the southeastern Pennsylvania school district. Due to privacy laws, it was not possible to connect specific online students and their ability or inability to qualify for the FRLP. The data that was provided was the number of students from 2012-2015 who enrolled in online courses and qualified for the FRLP. The numbers of online students who were eligible for the FRLP for each school year that were provided by the school district are fairly similar to those of its overall student population; in the range of 30%-40% in any given year (see Table 5).

Table 5: Students who Qualified for the FRLP and enrolled in online courses

School Year	Students Qualified for FRLP	Percentage of Total Online Students
2012-2013	24	31%
2013-2014	27	33%
2014-2015	32	35%

Based on an examination of both the passing and failure rates of students enrolled in online courses from 2012-2015, coupled with the percentage of students who qualified for the FRLP, it appears to make little difference whether the course is required or an elective. As previously stated, the main factor that determines the success rate of an online course is the location in which it is completed; onsite as opposed to offsite.

Survey Responses

In order to inform the third research question presented in Chapter One, the teacher survey was distributed and analyzed based on the perceptions of the respondents. There were 62 respondents from the district's middle school and high school faculties. Of those respondents, 36 were comprised of middle school teachers (58%) and 26 were composed of high school teachers (42%). To gain a more precise interpretation of the opinions of teachers regarding online learning and the instruction of economically disadvantaged students, it was useful to sort the respondents into two categories; those with online teaching experience and those with no online teaching experience (see Table 6).

Table 6: Teachers with online teaching experience and those with no online teaching experience

School Building	With Experience	Without Experience	Percentage With Experience
Middle School	7	13	35%
High School	13	29	31%

Survey respondents were asked seven different questions about online learning and the instruction of economically disadvantaged students based on a 4-point Likert Scale, with the following options: 4 = *Strongly Agree*, 3 = *Agree*, 2 = *Disagree* and 1 = *Strongly Disagree*. The scores were tabulated and mean, median, and range values were calculated for all seven

questions, including teachers with online teaching experience (see Table 7) and those with no

online teaching experience (see Table 8).

Table 7: *Survey Question Score Values for Teachers with Online Teaching Experience*

Survey Question	M	SD	Mdn	Ra
Question #5	2.8	0.77	3.0	3.0
Question #6	2.7	0.73	3.0	2.0
Question #7	3.15	0.75	3.0	2.0
Question #8	2.9	0.72	3.0	3.0
Question #9	3.15	0.75	3.0	3.0
Question #10	2.15	0.75	3.0	2.0
Question #13	3.3	0.57	3.0	2.0

Table 8: *Survey Question Score Values for Teachers without Online Teaching Experience*

Survey Question	M	SD	Mdn	Ra
Question #5	2.7	0.60	3.0	2.0
Question #6	2.6	0.74	2.5	3.0
Question #7	2.9	0.68	3.0	2.0
Question #8	3.1	0.63	3.0	2.0
Question #9	3.3	0.63	3.0	2.0
Question #10	2.4	0.73	2.0	3.0
Question #13	3.3	0.64	3.0	2.0

Question #5 of the survey asked respondents to indicate whether they: 4 = *Strongly*

Agree, 3 = *Agree*, 2 = *Disagree* and 1 = *Strongly Disagree* with the statement "students enroll in

online courses at the secondary level to avoid social interaction". A z-test for means was

conducted comparing the means for teachers with online instruction experience (*M=2.8,*

SD=0.77) to the mean value of all survey respondents (*M=2.74, SD=0.65*). The result was not statistically significant (*z=-0.06, p>.05*), which indicates teacher's opinions regarding Question #5 that have taught online courses did not vary greatly from the opinions of all respondents. A z-test for means was also performed comparing the means for teachers without online instruction experience (*M=2.7, SD=0.60*) to the mean value of all survey respondents (*M=2.74, SD=0.65*). The result was not statistically significant (*z=-0.05, p>.05*), which indicates teacher's opinions regarding Question #5 that have never taught online courses did not vary greatly from the opinions of all respondents.

Question #6 of the survey requested respondents to answer if they: 4 = *Strongly Agree*, 3 = *Agree*, 2 = *Disagree* and 1 = *Strongly Disagree* with the statement "students who enroll in offsite online courses at the secondary level are less likely to complete them". A z-test for means was conducted comparing the means for teachers with online instruction experience (*M=2.7, SD=0.73*) to the mean value of all survey respondents (*M=2.60, SD=0.73*). The result was not statistically significant (*z=0.90, p>.05*), which indicates teacher's opinions regarding Question #6 that have taught online courses did not vary greatly from the opinions of all respondents. A z-test for means was also performed comparing the means for teachers without online instruction experience (*M=2.55, SD=0.74*) to the mean value of all survey respondents (*M=2.60, SD=0.73*). The result was not statistically significant (*z=-0.04, p>.05*), which indicates teacher's opinions regarding Question #6 that have never taught online courses did not vary greatly from the opinions of all respondents.

Question #7 of the survey entreated respondents to reply if they: 4 = *Strongly Agree*, 3 = *Agree*, 2 = *Disagree* and 1 = *Strongly Disagree* with the statement "students who enroll in onsite online courses at the secondary level are more likely to complete them". A z-test for means was

conducted comparing the means for teachers with online instruction experience (*M=3.15, SD=0.75*) to the mean value of all survey respondents (*M=2.95, SD=0.50*). The result was not statistically significant (*z=0.18, p>.05*), which indicates teacher's opinions regarding Question #7 that have taught online courses did not vary greatly from the opinions of all respondents. A z-test for means was also performed comparing the means for teachers without online instruction experience (*M=2.86, SD=0.68*) to the mean value of all survey respondents (*M=2.95, SD=0.50*). The result was not statistically significant (*z=-0.08, p>.05*), which indicates teacher's opinions regarding Question #7 that have never taught online courses did not vary greatly from the opinions of all respondents.

Question #8 of the survey beseeched respondents to answer if they: 4 = *Strongly Agree*, 3 = *Agree*, 2 = *Disagree* and 1 = *Strongly Disagree* with the statement "students who enroll in elective online courses at the secondary level are more likely to complete them". A z-test for means was conducted comparing the means for teachers with online instruction experience (*M=2.90, SD=0.72*) to the mean value of all survey respondents (*M=3.05, SD=0.66*). The result was not statistically significant (*z=-0.15, p>.05*), which indicates teacher's opinions regarding Question #8 that have taught online courses did not vary greatly from the opinions of all respondents. A z-test for means was also performed comparing the means for teachers without online instruction experience (*M=3.12, SD=0.63*) to the mean value of all survey respondents (*M=3.05, SD=0.66*). The result was not statistically significant (*z=0.08, p>.05*), which indicates teacher's opinions regarding Question #8 that have never taught online courses did not vary greatly from the opinions of all respondents.

Question #9 of the survey requested respondents to respond if they: 4 = *Strongly Agree*, 3 = *Agree*, 2 = *Disagree* and 1 = *Strongly Disagree* with the statement "students who enroll in

required online courses at the secondary level are more likely to complete them". A z-test for

means was conducted comparing the means for teachers with online instruction experience

(*M=3.15, SD=0.75*) to the mean value of all survey respondents (*M=3.23, SD=0.66*). The result

was not statistically significant (*z=-0.07, p>.05*), which indicates teacher's opinions regarding

Question #9 that have taught online courses did not vary greatly from the opinions of all

respondents. A z-test for means was also performed comparing the means for teachers without

online instruction experience (*M=3.26, SD=0.63*) to the mean value of all survey respondents

(*M=3.23, SD=0.66*). The result was not statistically significant (*z=0.03, p>.05*), which indicates

teacher's opinions regarding Question #9 that have never taught online courses did not vary

greatly from the opinions of all respondents.

Question #10 of the survey asked respondents to indicate if they: 4 = *Strongly Agree*, 3 =

Agree, 2 = *Disagree* and 1 = *Strongly Disagree* with the statement "students enrolled in an online

courses at the secondary level due to previously failing the class are more likely to complete

them". A z-test for means was conducted comparing the means for teachers with online

instruction experience (*M=2.15, SD=0.75*) to the mean value of all survey respondents (*M=2.32,

SD=0.74*). The result was not statistically significant (*z=0.16, p>.05*), which indicates teacher's

opinions regarding Question #10 that have taught online courses did not vary greatly from the

opinions of all respondents. A z-test for means was also performed comparing the means for

teachers without online instruction experience (*M=2.40, SD=0.73*) to the mean value of all

survey respondents (*M=2.32, SD=0.74*). The result was not statistically significant (*z=0.08,

p>.05*), which indicates teacher's opinions regarding Question #10 that have never taught online

courses did not vary greatly from the opinions of all respondents.

Question #13 of the survey entreated respondents to reply if they: 4 = *Strongly Agree*, 3 = *Agree*, 2 = *Disagree* and 1 = *Strongly Disagree* with the statement "economically disadvantaged students have significant barriers to learning". A z-test for means was conducted comparing the means for teachers with online instruction experience (*M=3.30, SD=0.57*) to the mean value of all survey respondents (*M=3.30, SD=0.62*). The result was not statistically significant (*z=0.00, p>.05*), which indicates teacher's opinions regarding Question #13 that have taught online courses did not vary greatly from the opinions of all respondents. A z-test for means was also performed comparing the means for teachers without online instruction experience (*M=3.30, SD=0.64*) to the mean value of all survey respondents (*M=3.30, SD=0.62*). The result was not statistically significant (*z=0.00, p>.05*), which indicates teacher's opinions regarding Question #13 that have never taught online courses did not vary greatly from the opinions of all respondents.

Results for Qualitative Data

The qualitative data that was gathered during the research process was based on the open-ended survey responses from the final two questions, Question #14 and Question #15. Question #14 asked respondents, "if the school district provided you with information about which students are economically disadvantaged, would you modify your instructional strategies? How would you do so?" Question #15 requested that teachers provided any information they believed was pertinent to the topic; some chose to respond 14 (23%), while the vast majority did not 48 (77%). The qualitative results are depicted into themes and then assertions resulting from the analysis procedure.

Themes

The codebooks that were created allowed an organization of some of the central tenets of

the survey responses that were received. Approximately 25 different codes emerged during the

initial phase of qualitative data analysis. The codes were categorized into five different themes

that were indicative of the responses put forth by the respondents. These themes connect to the

research question on several different levels. The five themes that materialized were

personalized learning, teacher behaviors, learning environments, data gathering and demographic

information. Table 9 presents the themes, including how those themes are defined and the

assertions developed during the analysis process.

students.

Table 9: Themes, Theme Definitions, and Assertions

Theme Definition	Themes	Assertions
Adjusting instruction and assessment based on student need.	Personalized Learning	Teachers mentioned adapting resources, worksheets, assessments, etc. Some stated they would be more cognizant of assigning electronic items and being lenient with graded assignments if they knew students were economically disadvantaged.
The location and manner in which student learning occurs.	Learning Environments	Several teachers felt providing materials, resources and extra support to students who struggle outside of school would help. In addition, some indicated that foreign languages should only

		be taken in the classroom, not online.
The approaches school personnel use to interact with students.	Teacher Behaviors	Teachers indicated they are able to determine a student's SES through building rapport and in some cases by using a questionnaire. More professional development was requested on how to better instruct economically disadvantaged students.
Information that describes a student's background.	Demographic Information	Teachers believed that knowing their SES would give them additional insight into why a student may be struggling and that they may have differing priorities. Some teachers mentioned the connection between students with IEPs and economically disadvantaged students.
The methods used by instructors to determine the extent of student learning.	Data Gathering Tools	Teachers alleged that instruction and assessment provide data which allows them to gain an awareness of a student struggles, in and outside of the classroom. Some

teachers felt they would allow for additional time for economically disadvantaged students to complete work if they noticed a pattern developing.

_____

Personalized Learning: Assertion 1. Teachers mentioned adapting resources, worksheets, assessments, etc. Some stated they would be more cognizant of assigning electronic items and being lenient with graded assignments if they knew students were economically disadvantaged. Some of the initial codes that were responsible for the theme of personalized learning were terms such as "adaptation", "remediation" and "modification". In many instances teachers were using language and terminology that is typically used when discussing and developing plans for the instruction of students with Individualized Education Programs (IEP). There were several respondents who indicated that they would alter their instruction and assessment of economically disadvantaged students in a similar way to those who receive special education services. This would include, but is certainly not limited to eliminating multiple choice options on tests and quizzes, providing extended time to complete assignments, having a test or quiz read aloud, etc.

Learning Environments: Assertion 2. Several teachers felt providing materials, resources and extra support to students who struggle outside of school would help. In addition, some indicated that foreign languages should only be taken in the classroom, not online in an offsite capacity. During the initial coding phase, many teachers used phrases such as "outside school", "home life", and "in the building". These lead to the creation of a theme centered around learning environments. As this study continually attempted to ascertain information

regarding the performance of students completing onsite courses and offsite courses, this

deepened the already extensive information on the topic. Teachers believed that there a

multitude of factors that contribute to a student's well-being, including their home settings. This

also influences how successful they are with learning. Some teachers believed that certain

subjects should only be taught with a teacher on hand, such as foreign languages. Others

indicated that economically disadvantaged students would receive the best instruction in an

environment that was constantly monitored by a teacher, so they were able to receive immediate

assistance and additional supports.

   Teacher Behaviors: Assertion 3. *Teachers indicated they are able to determine a*

student's SES through building rapport and in some cases by using a questionnaire. More

professional development was requested on how to better instruct economically disadvantaged

students. This theme was generated using words and phrases from teachers such as

"understanding", "flexibility", "observation", and "conversations". Respondents mentioned the

importance of building relationships with students to ascertain why they may be having difficulty

with school and additional life circumstances. Teachers are more likely to be patient with

students regarding the completion of schoolwork if they knew about their situations. They also

believed that speaking with other educational stakeholders, such as principals, guidance

counselors and social workers would be beneficial to their understanding of a student's

circumstances. Some teachers felt as though more professional development, in the form of in-

service opportunities was needed to be able to better assist students who may be economically

disadvantaged.

   Demographic Information: Assertion 4. *Teachers believed that knowing their SES*

would give them additional insight into why a student may be struggling and that they may have

differing priorities. Some teachers mentioned the connection between students with IEPs and

economically disadvantaged students. The words and phrases, "IEP", "gifted", "race",

"ethnicity" and "socioeconomic status" were stated in the survey responses of several teachers

and were instrumental in creating the theme demographic information. Teachers are provided a

wealth of information about students even before they enter the classroom; test scores, grades,

medical information, 504/IEP/GIEP status, etc. In the opinion of several teachers, they would

find knowing whether a student is considered to be economically disadvantaged helpful. They

indicated that these students should be instructed using trauma-based practices and have

something similar to an IEP. Due to privacy concerns and laws which protect them, teachers are

not provided information regarding a student's socioeconomic status. This can make it

challenging to ensure economically disadvantaged students receive the assistance they need;

however, it appears as though many teachers are already finding ways to do so.

    Data Gathering Tools: Assertion 5. *Teachers alleged that instruction and assessment*

provide data which allows them to gain an awareness of a student struggles, in an outside of the

classroom. Some teachers felt they would allow for additional time for economically

disadvantaged students to complete work if they noticed a pattern developing. Terms such as

"quizzes", "tests", "instruction", "assignment" and "assessment" were employed by respondents

when they discussed gaining a more in-depth understanding of student learning, especially for

those who may be struggling and not be receiving special education supports. Through the

assembling of information, teachers believed they would be able to adjust their instruction,

provide additional resources, allow for extended time and modify assessments accordingly.

Several teachers mentioned completely changing the manner in which they attempt to acquire

student learning data by using non-electronic means, for example allowing a student to create a

physical project instead of a digital project. Others also have started to engage in the process of

excusing students from assignments when they become aware of patterns that show missing

work.

Chapter 5: Discussion

"So you think you've found the solution

But it's just another illusion

So before you check out this tide

Don't leave another cornerstone standing there behind"

~Bob Marley

The rationale driving this research study was to determine how online/virtual learning may be an adequate solution by ensuring equity for students who may be economically disadvantaged. Many students who struggle in school have difficulty due to the plethora of circumstances beyond their control and educators can have an incredible influence on whether students are able to overcome those barriers. Truly transformative teaching and learning begins with an introspective look into one's own practice and that is what this particular action research study provided me the opportunity to do. I was able to view the processes and results of the online/virtual program for the southeastern Pennsylvania school district over a three-year time frame and cross reference that information with the school's economically disadvantaged population. In order to more appropriately examine the data, I sought to answer the following questions:

1. For economically disadvantaged students, is the completion rate of online/virtual courses impacted by whether the course is required or an elective?

2. How does an online/virtual course's location (onsite or offsite) impact the course's completion rate?

3. How do teachers perceive the use of online/virtual learning as a tool to create equity for economically disadvantaged students?

These questions were the impetus behind the gathering of quantitative and qualitative data from

the southeastern Pennsylvania school district's online program and its teachers. This chapter will

assess the results of the study's quantitative and qualitative data, including how they complement

one another. Also, the findings of the study will be related to the research questions posed at the

commencement of the research process. Lastly, the chapter will offer the study's limitations, its

implications in research and practice and concluding considerations.

Integration of Quantitative and Qualitative Data

Maintaining balance is the key to scrutinizing and analyzing data that has been amassed

during a research study. A mixed methods study provides the researcher the ability to find that

delicate balance and more deeply comprehend the social phenomena under present consideration.

The current action research study incorporates quantitative and qualitative methods to achieve a

degree of complementarity. Greene (2007) indicated that mixed methods inquiries pursue,

"broader, deeper and more comprehensive social understandings by using methods that tap into

different facets or dimensions of the same complex phenomena" (p. 101). Combining the

qualitative data from teacher survey responses with the quantitative data sets, a greater

understanding of online/virtual learning and the instruction of economically disadvantaged

students is possible.

Personalized Learning. According to the results of the teacher survey and the students

who participated in online/virtual courses from 2012-2015, there is a slight disconnect between

what teachers and students believe is most appropriate for learning. Online/Virtual course

enrollment has continually increased from one school year to the next and students have been

clamoring for additional online/virtual course options. Online/virtual courses provide students

the ability to curtail their learning using their preferred modality; many students have embraced

this notion. Conversely, based on the teacher survey results, teachers agreed, with an overall

mean score of 2.74, that students were enrolling in online/virtual courses to avoid social

interaction. Their additional perceptions through open-ended responses also indicate that

online/virtual students are not receiving the same rigor in instruction as their traditional

classroom setting counterparts. This feeling was consistent amongst all teacher respondents and

did not vary between teachers who have online/virtual instructional experience and those who

did not.

Learning Environments. The disparity between teacher's and student's perceptions

regarding the location where students engage in an online/virtual course persists in this instance

as well. During the time period of 2012-2015, students enrolled in 753 total online/virtual

courses. Of that total, 454 courses were attempted in an offsite capacity, with the remaining 299

taken onsite. That is a ratio of 3 offsite course enrollments for every 2 onsite course enrollments,

which indicates more students are engaging in online/virtual courses away from the confines of

the school. Students who enrolled in onsite required courses passed them with much higher

frequency, 87%, than offsite required courses, 70%.

Based on the teacher survey results, teachers agreed, with an overall mean score of 2.60,

that students were less likely to complete an offsite online course. They also agreed, with an

overall mean score of 2.95, that students were more likely to complete an onsite online course.

When comparing required and elective courses, teachers agreed, with mean scores of 3.22 and

3.05 respectively, that students were likely to complete their online/virtual courses. Several

teachers implied in their open responses that certain courses should not even be attempted online,

as a physically present instructor is necessary for student comprehension of the subject matter. It

is readily apparent that the quantitative and qualitative results show how vital the learning

environment is to the student's chances of passing a required online course.

Teacher Behaviors. By means of the teacher survey's Likert-scale responses and open-

ended responses, the quantitative and qualitative data suggests teachers believe economically

disadvantaged students required differing instructional strategies. Of the 63 respondents, more

than 50% responded "Yes" when asked if economically disadvantaged students required

differing instructional strategies. Only 4 respondents, or 11%, indicated "No" and the rest stated

"sometimes" or it "depends". The majority of teachers stated the need to modify or adjust their

instruction and grading procedures for students who are economically disadvantaged. Also, of

note, was the importance teachers placed on developing positive relationships with students to

better determine their needs and adjusting based off those conversations.

Demographic Information. When using the percentages of students enrolled in

online/virtual courses from 2012-2015 who were eligible for the FRLP, and the teacher survey

responses, complementarity of the data is achieved. Between 30% and 35% off all students who

enrolled in online/virtual courses were eligible for the FRLP, which mirrors the numbers of

students throughout the district who qualify. Therefore, it is safe to conclude that the

instructional needs of students enrolled in online/virtual learning who are eligible for the FRLP

are similar to those of the traditional setting who qualify for the FRLP. Based on the teacher

survey results, teachers fell between strongly agreeing and agreeing, with an overall mean score

of 3.31, that economically disadvantaged students face significant barriers to learning. Teachers

are not provided with this information due to privacy laws, yet many indicated in their open

responses that they feel as though this information would be useful when developing lesson

plans, creating assessments and grading materials.

Data Gathering Tools. Making an informed decision on the manner in which the instruction and assessment of students will achieve the greatest results should be based on data, both quantitative and qualitative. Many online/virtual students from the southeastern Pennsylvania school district were primarily enrolling in courses that they had previously failed in the traditional classroom, as it was initially designed as a credit recovery program. The data showed that the majority of the students who enrolled in the courses for the second time were able to pass them. Usually, these credit recovery courses were required, not electives and completed onsite. However, based on the teacher survey results, teachers slightly disagreed, with an overall mean score of 2.32, that students who enrolled in an online course due to previously failing are more likely to complete them. Moreover, this shows a difference in teachers perceptions of online/virtual learning and the ability of students to pass courses they may have previously failed.

Discussion of Findings

This portion details the manner in which both theory and additional examinations of the topic connect to the results of the action research study. It is centered on the questions presented and information ascertained by the researcher.

Research question #1 *For economically disadvantaged students, is the completion rate of online/virtual courses impacted by whether the course is required or an elective?* Following an examination of three years of quantitative data, in which all online courses taken by students was considered, it was determined that students who enroll in online offsite courses that are electives have a slightly higher pass rate than those students who register for required courses. Over the three-year time frame studied, impoverished students comprised 30%-35% of those who enrolled in online courses. The pass rate for students completing elective courses was 80%, while the pass

rate for students taking required courses was 78%. In order to properly comprehend why there is

a marginal difference between the two pass rates, Vygotsky's work in developing the Zone of

Proximal Development (ZPD) may provide some guidance.

Vygotsky's ZPD is concerned with how a student may be able to master a certain task or

skill and the area in between what they already know and what is unknown. Vygotsky believed

that students in the ZPD, under adult guidance and assistance, would be able to achieve their goal

of knowing. This adult and is some cases a peer, or what Vygotsky (1978) refers to as a more

knowledgeable other, should be present in some capacity to interact with the learner to share and

create knowledge.

In concordance with Vygotsky's ideas, Kozulin (2007) believed in the importance of

activating a student's prior knowledge to create meaningful learning. For the genesis of

tomorrow's knowledge to be possible, it is imperative that students are able to create meaningful

connections for a successful learning process and is especially important for those who are

economically disadvantaged. Through meaning making, conceptual change and task awareness,

students are able to fully comprehend the knowledge they are attempting to gain, and teachers

will have the capacity to guide them there.

Research question #2 *How and to what extent does an online/virtual course's location*

(onsite or offsite) impact the course's completion rate? After viewing the three-year data of

courses completed online, those courses were separated into those taken on campus (onsite), in a

computer lab monitored by a teacher, and off campus (offsite). During that time frame, students

enrolled in 299 online courses on campus, while there were 454 courses enrolled in by students

in an offsite capacity. Of the 299 onsite online courses taken by students between 2012-2015,

255 courses were passed, for an effective passing rate of 85%. For the 454 offsite online courses

enrolled in by students from 2012-2015, 326 courses were passed, for an effective passing rate of

72%. These numbers would indicate that students who enroll in courses onsite will pass the

course more frequently than those offsite. This would seem to support the conclusion that the

environment where students engage in a course has an effect their ability to pass the online class.

Bronfenbrenner's (1994) bioecological systems model specifically discusses the manner in

which the environment impacts the learning process.

Bronfenbrenner (1994) believed that there is a constant interplay of the environment in

which individuals live and learn. Relationships and interactions among people can help or hinder

the development of individuals to create a system of symbiosis. Positive emotional attachments

are also an important facet of a child's development and provide the backdrop for a stable,

advantageous environment. When students are enrolled in online courses onsite, they are

monitored and assisted by a team of teachers that is able to ensure they make adequate progress

and can provide additional instruction when needed; students do not have to actively seek this

out. For students completing offsite courses, students are not monitored as closely as their onsite

counterparts and if they need assistance when attempting to learn material they may find

difficult, they have to request it from their instructors; it requires additional effort on the

students' part to garner the help they seek.

Research question #3 *How do teachers perceive the use of online/virtual learning as a*

tool to create equity for economically disadvantaged students? To determine how teachers

consider these two topics, asking them to voluntarily complete a fifteen-question survey

appeared to be the most efficient and appropriate avenue to pursue. Sixty-five respondents, with

varying degrees of teaching experience, from both the middle and high school levels of the

southeastern Pennsylvania school district that was studied, provided a plethora of thoughts and

opinions on the areas of online learning and economically disadvantaged youth. After analyzing

their responses, several codes emerged: adaptation, modification, instruction, observation and

understanding. Amongst those codes, several themes rose to the surface that were fairly common

in most teacher responses to the survey; those themes were personalized learning, data gathering,

learning environments, teacher behaviors and demographic information. Teachers with

experience instructing online courses were more apt to believe that learning modality gives

students more personalized learning, affording the opportunity for economically disadvantaged

students to learn at their own pace in a supportive environment of their choosing. Those without

experience instructing online courses, were more inclined to state that virtual instruction is not as

effective as traditional classroom instruction and that economically disadvantaged students

would be better served by modified instruction in the physical classroom. An examination of

Freire's ideas regarding societal oppression can deliver some appropriate context as to why

teacher's opinions may be juxtaposed.

Freire's (1970) "banking concept" of education puts for the notion that teachers are the

disseminators of information and students are to be the proverbial sponges, soaking in all they

are told is important. For much of the history of education throughout the world, this is the exact

process that has been followed and many teachers continue to instruct students in this manner.

Individuals that teach in this way continue the oppression of students, furthering the student-

teacher relationship divide. Whether intentional or not, when teachers fail to co-create

knowledge with students, they continue the cycle of oppression. Educators should be seeking out

new ways to instruct their students, even if that means using methodology and pedagogical

practices which may be outside of their comfort zone. The importance that this transformational

role that both educator and student play cannot be understated.

Bourdieu also found that schools can reproduce social inequalities and educators are in some cases willing participants. Harker's (1984) work with Bourdieu's idea of habitus indicated that this dominance of students by teachers through instruction constitutes a type of symbolic violence of marginalized groups. The education system itself therefore continues to perpetrate the oppression of students who are in need of the most assistance. The culture of each individual school can have a deleterious impact on those who exist outside of its dominant norms. The practices of school and its educators need to be challenged, obliterating the status quo for the benefit of those most marginalized by its relative indifference to their plight.

Limitations

Every action research study that is undertaken will be inevitably shackled by constraints that may or may not be within the researcher's control. Herr and Anderson (2015) stated, "researchers are charged to think about representation in the data and ask how the participatory processes can produce counter stories that challenge business as usual which is seen as natural understandings or explanations" (p. 156). Working within one's own educational setting provides the researcher a significant amount of convenience, however it may also limit the scope and breadth of their findings. Although the results of this action research study may show a positive correlation between the use of online courses in bridging the achievement gap between economically disadvantaged students and their counterparts, several limitations may impact the outcomes. First, the number of participants in the survey may be too small to be able to generalize any findings. There were 753 online courses examined over a three-year time frame, yet there were many students that were taking multiple online courses, providing them with a level of experience that would have impacted the results in a positive manner; the opposite could be true for students without any online course experience. Also, the online program was in its

infancy during the time period that the data was collected and analyzed. Changes have been

made to the program in subsequent years that may limit the extension of the findings.

Due to confidentiality barriers, it was not plausible to track specifically which students

qualified for the free and reduced lunch program and which online courses they enrolled in;

using a percentage hampered the potential findings. There are also some potential drawbacks

with the survey that was distributed to the middle school and high school staff. The individuals

that chose to respond may be eager to share their opinions on the subjects of online learning and

the instruction of impoverished and provide a positive view of online courses, whereas non-

respondents with differing, more disparaging views could significantly alter the discoveries.

Another potential drawback of the study is the homogenous nature of both groups of

participants. The teachers of the district and its students are primarily white, with similar

religious and cultural affiliations. Responses and opinions may have greater variation if a more

diverse group of individuals comprised the survey respondents and students. The researcher also

knows the faculty completing the surveys and the students that have participated in online

courses which could potentially impact the results of the research. An additional limitation is the

geographical location of the study; a rural/suburban area. Results may be significantly altered if

the same research was completed in an urban area, with a more diverse student population and

heterogenous faculty.

Implications for Research

When an individual undertakes an action research project, the process usually begins with

a broad ideal about how they would like or hope to transform their own practice in some way.

Some people have grand thoughts about changing the entire educations system, while other

simply want to positive shape their classroom experiences. Dana and Yendol-Hoppey (2014)

articulated, "teacher inquiry is not about doing an action research project that is completed at one

point in time and it is over. Rather, teacher inquiry is a continual cycle or circle that all educators

spiral through throughout their professional lifetimes" (p. 213). Through a constant process of

reflection, a multitude of additional questions arose following the completion of the research

study that merit exploration.

Both the quantitative and qualitative data that was gathered and analyzed provided some

clarification, it also presented some additional threads to be explored. Additional research could

potentially ask these questions: How does the subject matter (STEM, Humanities, other) of the

online course impact the pass rate? How does the pass rate of online courses compare to those of

the traditional brick and mortar setting? To what extent can the southeastern Pennsylvania school

district improve the performance of offsite online students completing required courses? How

would an increase in communication between online students and teachers of record influence

the pass rate of those courses?   How would video remediation sessions benefit offsite online

students? What information should teachers be provided to greater serve economically

disadvantaged students, while protecting the students' confidentiality? Most importantly, how

would the research outcomes be the same or different in an urban setting?

The avenues that can be pursued with all of these additional lines of questioning are

many and create an incredible amount of opportunity to increase student learning. If I were to

follow these trails through further research, I would first determine how the southeastern

Pennsylvania school district's online program could be improved and also attempt to track, with

their signed consent, individual students eligible for free and reduced lunch who enroll in online

courses. Once I have completed that study, I would then attempt to branch out to an entirely

different context, in an urban location to determine how online learning may be beneficial to

impoverished youth there.

Implications for Practice

　　This study was designed to incorporate current brain and learning research in order to

show the lasting impact that online learning may have on economically disadvantaged students

and the other ways in which the use of digital means of knowledge acquisition can continually

transform the classroom environment. After ruminating upon the results of the research study, I

determined that there were three main implications that the quantitative and qualitative data sets

led me to. These implications are tied directly to the research questions that were initially asked

in the action research process.

　　Firstly, and most obviously, is that student choice matters. Students were found to have a

greater pass rate offsite if they were enrolled in elective courses than if they were taking required

courses. There is a significant amount of research that indicates this to be true in all education

settings, not just the online environment. Jensen (2005) indicated, "choice matters more to older

students than to younger ones, but we all like it. The critical feature is choice must be perceived

as choice to be one" (p. 109). Jensen (2005) furthers this assertion by communicating, "many

savvy teachers allow students to control aspects of their learning, but they also work to increase

students' perception of that control" (p. 109). Students during the 2012-2015 school years were

required to take twenty credits worth of courses, with the remaining eight credits as electives,

which were limited to specific content areas. Thankfully, the southeastern Pennsylvania school

district has subsequently modified their graduation requirements to reflect the ideas of student

choice. Students now have fewer required courses needed for graduation and are permitted to fill

the total credit requirements with elective courses of their choosing. This process of increased

student choice should continue based on my viewing of the data.

An additional implication from the research findings is that for students enrolled in

required online courses, where the student takes the course impacts the results. The physical

environment in which students engage in learning is an important cog in the wheel of

information comprehension. Jensen (2005) emphasized, "for students to learn, grow, behave and

perform optimally, a smartly designed, high-performance environment is necessary" (p. 93).

Students that are taking offsite required courses may need more support simply due to the

fact that they have no choice but to take the course, subsequently reducing their motivation level.

Offsite students may also need supplemental instruction that the online vendor used by the

district does not provide and therefore, hosting video remediation sessions would be beneficial to

offsite online students. In order to increase the achievement of students completing online offsite

required courses, an increase in the frequency and type of communication would be invaluable.

To effectively implement the proposed changes to the southeastern Pennsylvania school

district's online program and increase the pass rate of offsite students taking required courses,

there will need to be additional professional development to ensure that all instructors and

administrators have the tools and knowledge necessary to support this endeavor. The best way to

accomplish this would be through in-service training and staff development. Ensuring that

teachers are able to use online communication tools such as Zoom or Google Hangout, training

will need to be available for those who need it. Both the middle school and high school have

individuals who assist other teachers with technology needs (Building Technology

Coordinators), and they would be an asset for this type of training. Teachers are already trained

in using our email system, as well as our other communication platform, Schoology, which will

also be used as part of the initiative. All these components of this potential online learning

initiative coincide with the district's current goal entitled P.A.C.T. The "C" in the P.A.C.T.

stands for communication, which is what the main focus of the changes to the southeastern

Pennsylvania school district's online program would be, perfectly aligning with the anchor of the

district's present vision.

The final implication was gleaned from the results of the staff survey which middle

school and high school teachers of the southeastern Pennsylvania school district had the

opportunity to participate in. After analyzing the data and sorting through the feedback provided

by almost sixty-five teachers, it was apparent that teachers wanted more information about how

online courses are used. Only one third of all respondents had current or prior experience

facilitating online courses. Teachers were also of the belief that economically disadvantaged

students required additional supports in and out of the classroom, yet they are not provided the

information that would assist them in doing so. Due to student confidentiality, teachers have to

rely on intuition and experience to know how to assist impoverished students. I believe there is a

way to provide teachers instructional strategies that would give them greater ability to provide

economically disadvantaged students more tools to succeed. Professional learning communities

would be an efficient way to begin discussing how to address this dilemma, while providing

teachers a forum to generate solutions and seek input from administrators. Parents and guardians

from the local community could also be part of these discussions in an effort to provide their

opinions on how to deliver assistance for those students who need it the most.

Conclusion

Injustice and inequality remain rampant in society due to the educational structures that

have become shackles. Federal, state and local policies have done little to reduce the opportunity

gap that is prevalent amongst economically disadvantaged students. Considerably more research

is necessary to provide more impactful and appropriate solutions to this conundrum. Thankfully,

this is not a hopeless endeavor. There are ways that educators can, even in the absence of

beneficial information, provide assistance to students that need it the most.

        This study sought to determine if online/virtual learning would be an effective method to

reduce the opportunity gap for economically disadvantaged students. Although it was

impossible to view the specific students who qualified for the FRLP that enrolled in online

courses, the data still showed high completion rates for almost all online courses, specifically

with elective courses and required courses that were taken onsite. Teachers were provided the

opportunity to share their opinions and insights regarding online/virtual learning, as well as the

instruction of economically disadvantaged students. Their powerful insights showed the

importance they place on establishing positive relationships with students so they can deliver

quality instruction for the most marginalized of students. The majority of teachers also believed

that online/virtual courses may be a viable means of instruction and learning, it is not for

everyone or for every type of course. Unfortunately, not all students that might benefit from

online/virtual learning have the economic means to engage in these courses. Several solutions

have been proposed to help rectify these concerns, including a more rigid online student

selection process and requiring more frequent communication with students completing online

courses in an offsite capacity. It is much easier to be reactionary than it is to be proactive and

even more difficult to change when programs find measures of success. Transformational

change requires an even deeper commitment from all stakeholders to a shared vision for the

future and ensuring that those without the financial means to succeed are given every opportunity

to break down the barriers placed in their pathways.

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Appendix A

Online Learning & Economically Disadvantaged Students Survey

1. By completing and submitting this survey you are indicating that you are 18 years of age or older and voluntarily consent to participate in the study. *

Check all that apply.

☐   I agree

2. Please check the box that corresponds to the level you primarily teach: *

Check all that apply.

☐   Middle School

☐   High School

3. Please check the box that indicates the area in which you currently instruct students *

Check all that apply.

☐   English Language Arts

☐   Math

☐   Science

☐   Social Studies

☐   Art

☐   World Language

☐   Physical Education/Health

☐   Counseling Services

☐   Family Consumer Science

☐   Learning Support Business

☐   Education Technology

☐   Education

☐   Other: _____

4. Have you ever taught an online course and/or been a teacher of record for an online course at the secondary level? *

Mark only one oval.

◯   Yes

◯   No

5. If you answered yes to the above question, please indicate the name and grade level of the course:

6. Students enroll in online courses at the secondary level to avoid social interaction *

Mark only one oval.

	1	2	3	4	
Strongly disagree	◯	◯	◯	◯	Strongly agree

7. Students that enroll in offsite online courses at the secondary level are less likely to complete them *

Mark only one oval.

	1	2	3	4	
Strongly disagree	◯	◯	◯	◯	Strongly agree

8. Students that enroll in onsite online courses at the secondary level are more likely to complete them *

Mark only one oval.

	1	2	3	4	
Strongly disagree	◯	◯	◯	◯	Strongly agree

9. Students that enroll in elective online courses at the secondary level are more likely to complete them *

Mark only one oval.

	1	2	3	4	
Strongly disagree	◯	◯	◯	◯	Strongly agree

10. Students that enroll in online courses that are required for high school graduation are more likely to complete them *

Mark only one oval.

	1	2	3	4	
Strongly disagree	◯	◯	◯	◯	Strongly agree

11. Students enrolled in an online course at the secondary level due to previously failing the class are more likely to complete them *

Mark only one oval.

	1	2	3	4
	◯	◯	◯	◯

Strongly disagree   Strongly agree

12. In your opinion, do economically disadvantaged students require differing instructional strategies? *

Mark only one oval.

◯   Yes

◯   No

13. Does the school district provide you with a list of students that are economically disadvantaged? *

Mark only one oval.

◯   Yes

◯   No

14. Economically disadvantaged students have significant barriers to learning *

Mark only one oval.

	1	2	3	4	
Strongly disagree	◯	◯	◯	◯	Strongly agree

15. Your observations and opinions are greatly valued. Please add any additional information you deem pertinent to the topic.

_____

_____

_____

_____

_____