Attention Deficit Hyperactivity Disorder and the Art of Technology: Electronic Devices Used to Create a Differentiated Learning Environment for Students with ADHD in Graphic Design and Production

A Master's Degree Proposal submitted by

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to

Moore College of Art and Design

In partial fulfillment of the requirements for the degree of

MA in Art Education with an Emphasis in Special Populations

Philadelphia, Pennsylvania

August 2015

Accepted:

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Abstract

The action research project explored how Attention Deficit Hyperactivity Disorder (ADHD) is affected with technology that is utilized in the classroom. According to Rief (1998), "Approximately [two)] million children in the United States have been diagnosed with ADHD" (p.5). That is an estimated 3-5% of the student population. These students, if not engaged in the lessons taught, can be disruptive, interrupting learning for all students. The key to engaging these students, is finding what interests the students, and utilizing that to challenge the students academically to move at their own pace. By setting up an online platform, and allowing students to move at their own pace, as well as allowing choice based art through technology, these students can be a productive member of the classroom environment. This study shows how technology is utilized in a Graphic Design course in a suburban high school to engage and challenge a student with ADHD to overcome obstacles that students with ADHD face everyday.

Dedication

For my family: in supporting me in my career, and nurturing my creative talent

throughout my life.

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Chapter 1: Introduction

Attention deficit hyperactivity disorder (ADHD) was formerly divided into two different subtypes: ADHD and ADD (attention deficit disorder). Now, both subtypes are rolled into one category known as ADHD. Students do not need to have hyperactivity to be diagnosed with ADHD. Although it seems more prevalent in younger students, older students may also possess hyperactivity when they are not stimulated and challenged enough in the classroom.

Living with ADHD is like driving a Ferrari through a school zone. While the engine is capable of going much faster, the driving restriction in the zone states that you must drive 15 MPH. Beginning in preschool, I noticed that I had a lot more energy than other students. My emotions were stronger and I was more impulsive than my classmates. Teachers moved at a slow pace, which seemed to attract other students' attention but that pace could not hold mine. For example, when teaching the alphabet song, although I was unable to stand still like the other students, I grasped the song much quicker than others, however, after learning the song, I became fidgety and easily distractible. I looked feverishly around the room for things to do, to engage me in a stimulating activity, while the entire time, my teacher was telling me to sit on the carpet and sing the song. My mind was racing through thoughts, and I was told that I needed to slow down and behave like the other students.

Although I was not diagnosed with ADHD as a child, my entire childhood circled around symptoms of ADHD. Growing up, I learned how to acclimate to my surroundings and "fit in" with other students by masking my urge to run around. Without the use of

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stimulants, I found alternative means of coping with ADHD. For instance, one thing that kept me on track from grade school through college was art. Whenever I was bored in class, I would doodle – not just any doodles, but I would challenge myself to replicate popular cartoon figures, such as Pocahontas and Ren & Stimpy, as accurately as possible.

Once in the third grade, my teacher caught me doodling after teaching long division. I was replicating two of my mom's favorite cartoon characters, Ren and Stimpy. Unaware that I was standing, my teacher told me to "sit down." Looking up, I noticed that she was talking to me, and I impulsively said "Who, me?" Instead of asking if I understood the concept of long division, my teacher assumed that I was disrespecting her and proceeded to write all over my drawing. She wrote a note to my mom, and requested that I bring the drawing home, show my mom, and have her sign and return it the next day. I brought the note home and reluctantly showed my mom. I was ashamed of getting in trouble and upset that my teacher wrote all over my drawing. However, my mom read the note, looked at me and asked "Did you draw this?" I nodded my head. She then turned to the refrigerator and hung the drawing up on the fridge. In response to my teacher's request for a parent/teacher conference, my mom wrote a note back to my teacher and told me that she was going to pick me up after school. When she picked me up, my mom came in and talked to my teacher. She proceeded to tell my teacher that there was nothing wrong with me and that I was a good kid. Looking back, I'm glad my mom defended me at that time. Although school was really difficult for me to pay

attention and keep up with the class work, it was important to know that my mom understood me.

After high school, I decided that I wanted to teach art. I knew the difficulties that I experienced all throughout my schooling and felt that I could make a difference in entering into the education field. I knew that if I taught students the techniques I learned growing up without the use of medications, while trying to capture their attention through various methods of engagement strategies, I could help those students cope and be successful while living with ADHD. Once I earned my teaching certification, I was fortunate enough to land two long-term substitute jobs at Appoquinimink School District. The first was at Appoquinimink High School, and the second at Everett Meredith Middle School (EMMS). After my long-term substitute job ended at EMMS, I was hired full time at Middletown High School (MHS), after successfully interviewing for the Graphic Design and Production job. I was excited to stay within the same district, and even more excited to learn that the middle school students that I taught the previous year were in the feeder pattern to attend the high school where I would be teaching.

Starting at MHS, I noticed that students were very different, in terms of their personalities, demeanors, and actions than they were in middle school. I had taught some of my students the previous year at EMMS and others were new to me (the feeder pattern for the school district splits two middle schools for students to attend AHS and MHS). Between middle school and high school, I saw a transformation in the students. They were more mature and still maintained a great sense of humor. However, I also noticed

that a lot of the students at the high school had some sort of electronic device on them at all times, whether it was a cell phone, calculator, IPad, or laptop. It is a district-wide policy that the students are not permitted to have any electronic device on them in school. It then occurred to me that this policy only made students try to conceal their devices. What if the students were able to use their devices during the school day to enhance their learning environment? What if the use of technology could engage differentiated learners? What doors would open, and what would some of the struggles be?

Graphic Design and Production is a unique course because each student has his or her own computer to work on. Unlike other art classes, Graphic Design and Production is taught on the computer, and students use programs like Microsoft Office and Adobe Creative suites to create their artwork and learn about Graphic Design. One would think this would be engaging enough to students. As I quickly found out, that would not be enough. The students needed to be continuously motivated and challenged to stay sharp and engaged in the lessons. One particular group of students caught my interest. I noticed that some students who were diagnosed with ADHD were having trouble staying engaged in longer lessons. Our school has adopted block scheduling, which means teachers teach students for one semester for an hour-and-a-half per day. For a student with ADHD, that length of class time can seem daunting and overwhelming, their brains are wired differently than students not diagnosed with ADHD.

ADHD is prevalent in approximately 1 out of 20 students inside a regular education classroom (Dupal & Stoner 2004). It is important to keep in mind that even if a

student is not diagnosed with ADHD, they may still portray some characteristics of the condition. According to Lerner & Johns (2009), "ADHD is a chronic neurological condition characterized by (1) inattention (2) impulsiveness, and (3) hyperactivity" (p.202). Students may exhibit anywhere from one to all of the key characterizations of the disorder. Making the learning process interactive is essential in retaining the students attention. Barkley (2005) recommends "delivering the lesson in an enthusiastic yet task-focused style, keeping it brief and allowing frequent and active child participation" (p. 237). In formatting classes this year, I needed to find a way to actively engage differentiated learners while keeping them engaged during the entire block.

In motivating students it is important to find ways to engage them in new and interesting ways. According to their Annual Report of 2013, Appoquinimink School District (ASD) has modeled Stephen Covey's *The 7 Habits of Highly Effective People* to encourage students to take responsibility for their success. As a suburban school district, ASD is a leader in education. ASD is one of the top districts in the state, leading the way in standardized test scores. US News and US Weekly recognized Middletown High School, one of two high schools in the growing district, as the number one school in Delaware in 2014. It's sister school, Appoquinimink High School, was recognized as the number two high school in Delaware.

They have set higher standards through increasing rigor in learning and setting the stage for global success. ASD has adopted the Common Core Standards and also supports the arts and encourages students to be global leaders. While adapting the

Common Core standards, ASD goes above and beyond to encourage students to participate in the arts. They foster the notion that to be a well rounded individual, in addition to the core curriculum subjects, students need to take world languages as well as courses in the arts. This year, as a part of a pilot program, ASD is incorporating the use of electronic devices (cell phones, tablets, lap tops, etc.) in the classroom. Students will be able to use their electronic devices in the classroom as a part of the "bring your own technology" program.

My goal is to engage all students in learning about Graphic Design and Production, as well as cross-curricular subjects such as writing, literature, science, history, and social sciences. To do this, I need to engage differentiated learners in the learning process through the use of cooperative learning strategies, as well as through exploring how technology can improve student interaction and engagement.

Through the use of an online platform, Schoology, I will set up a blended classroom environment, allowing students the ability to move at their own pace through various lessons. Schoology allows me, the teacher, to post assignments online, open discussion boards for students to interact with each other, and post other important class materials, including videos, word documents and quizzes. Students will be able to view Schoology from any computer or electronic device. Even if they are absent from class, they can access Schoology from home.

This thesis will primarily focus on a participant diagnosed with ADHD, that has an IEP or 504, in Graphic Design and Production. This research will also look at the

effects that incorporating electronic devices can have in core subjects, as well as in Graphic Design and Production.

Problem Statement and Research Questions

According to Rief (1998), "Approximately [two] million children in the United States have been diagnosed with ADHD" (p.5). Which is an estimated 3-5% of the student population. Students with ADHD may have an Individualized Education Plan (IEP). In the IEP, special accommodations could be made, informing the student's teachers of how to best accommodate the student's academic plan.

Rief (1998) continues to state "many children with this disorder slip through the cracks. They have/had not been identified or provided with effective interventions" (p. 5). While some students have been identified with ADHD and have an IEP, there are many other students who have attributes of the disorder and could benefit from accommodations. As Rief (1998) recommends, "If a child displays the symptoms of possible ADD/ADHD, school interventions should be implemented at once - regardless of whether the child has been diagnosed with ADHD" (p.29). In teaching a blended classroom, it would benefit all students if the teacher created a dynamic environment to engage the entire population. As Kagan (2009) found through extensive research with Marzano and associates, there were dramatic boosts in achievement in cooperating learning environments; their research has also shown dynamic environments to have a profound impact on closing the achievement gap (p. 3.2-3.3).

As Barkley (2000) stated, the problem with ADHD is more inhibition rather than an attention deficit. Kutscher (2009) illustrates this through the following:

> Children with ADHD typically can pay attention to their video games forever. As long as they are allowed to stay at the most fascinating activity, they are fine. The problem, though, occurs when they are supposed to pay attention to something that is less captivating (e.g., multiplication), while simultaneously filtering out something that is more intriguing (e.g., the birds out the window). That requires putting brakes on "distractions" (p.43).

Looking at ADHD as a lack of inhibitions sparks my interest in engaging students in learning how to utilize technology in the classroom. As illustrated in the above example, students are naturally drawn to technology.

For this study, my research question is:

How can I utilize technology to create a differentiated learning environment in a high school Graphic Design course?

Research Sub Questions:

1) In what ways can technology be used to increase student focus?

    a. How can electronic devices differentiate learning in Graphic Design?

    b. What is each student's accessibility to electronic devices?

    c. What programs or applications can be used on electronic devices to meet curricular goals?

    d. What is the relationship between meeting the student's individualized needs and working with the student's personal electronic devices?

2) To what degree will students engage in utilizing technology in the classroom?

3) How can educators scaffold lesson plans to integrate social interaction between students?

Literary Review

Understanding Attention Deficit Hyperactivity Disorder

In Rief's (1998) "Checklist for Basic Information on ADD/ADHD", the definitions and descriptions of ADHD are summarized into three main categories: developmental, neurological and physiological (p. 5).

Developmental characteristics are identified as inappropriate degrees of inattention, hyperactivity and impulsivity. The inattention is due to underactivity in the attention/inhibitory center of the brain, leading to problems in performance and production. Due to low activity in the area of the brain that controls attention and inhibitory functions, these children have problems focusing on tasks. Impulsivity arises as the students with ADHD are unable to maintain control of their inhibitions. Problems with focusing and controlling inhibitions proves to be problematic in a student's performance, especially when he or she is not engaged by the activity.

Neurological deficiencies in the area of the brain that control impulses, sensory input and focused attention cause the student to have trouble sustaining attention, as well as mental effort, excessive activity level and inhibiting impulses. Connelly states that clinicians have found that motor activity remains high while the child with ADHD is sleeping; this suggests that inattention is not the primary cause of the problem" (p. 30).

Furthermore, Kutscher (2005) states, "…ADHD [is] a deficiency of inhibition, not a deficiency of attention span" (p.43). Although the disorder is known as "attention deficit," the problem is actually a deficiency of inhibitions or motivation. This deficiency of inhibitions and motivations can sometimes be misconstrued as a learning disability. Riccio (1994) found the correlation between ADHD and LD (learning disabilities) is differentiated by children with LDs; those children report trouble with selective attention, whereas children with ADHD appear to have trouble with sustained attention. However, recent "neuroimaging studies have found that…both ADHD and LD children had significantly smaller right frontal widths than the normal control children" (p.316). Kutscher (2005) explains that "the frontal lobes have not been fully woken up by the neurotransmitter norepinephrine. In turn, the frontal lobes do not transmit enough of the chemical dopamine to adequately inhibit other brain activity." (p.43). ADHD is not necessarily a learning disorder, in that the child may not know the information or material; what is really occurring is that the child is having trouble utilizing that information or retrieving it for output, especially in writing. For example, a student may understand the concept of utilizing mathematical methods in Algebra, but may have trouble completing word problems or writing about how such methods are used. Those students are able to solve problems utilizing the mathematical methods, but they are having difficulty putting it into context.

The physiological problems of ADHD are derived from difficulty in controlling one's behavior and impulses, leading to an inconsistency in performance and output.

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Some children may also have hyperactivity. This leads to extreme activity levels, excessive large amounts of distractibility, and excessive responsiveness and emotional reactions. Children may overreact to a situation and become very emotional; whereas other children may not react with such dramatic responses. These behaviors are generally not willful or deliberate. Typically, these children are unaware of their behaviors, nor the impacts that their behaviors have on others.

Consistency is the biggest struggle with these students', they perform a certain task one day, but may not be able to perform the task at all another day. These characteristics arise in early childhood and are considered chronic in nature. ADHD is a lifelong disorder that continues to exhibit symptoms throughout adulthood. As a person matures, symptoms change. Hyperactivity in a young child (running around the classroom, or falling out of chairs) are seen as less overt behaviors as they get older and enter into adolescence and early adulthood (such as fidgeting, pacing) (p. 4-5).

Behavior problems associated with Attention Deficit Hyperactivity Disorder

ADHD affects students' inhibitions, causing hyperactivity or impulsiveness and inattention. Consequently, students with ADHD often find themselves falling behind in classes or acting out in social interactions, whereas other regular education students may be able to better control their inhibitions. Often times students with ADHD find themselves getting frustrated because they are underperforming academically and are unable to control their emotions or activity levels. This can affect the student both

socially and academically. As Rief (1998) explains, students with ADHD present challenging behaviors that stem from their physiological and neurobiological disorder, displaying inappropriate behaviors that are not willful or deliberate, and often times, the student is not even aware of the behavior's impact on others (p.5). While ADHD may present itself as defiance, it is not the same as oppositional defiance disorder (ODD). ODD, which involves violating the rights of others, confronting authority figures and adults, as well as actions that may even result in violence (Connelly, 1999), is very unlike ADHD. The biggest delineation between ODD and ADHD is that ODD is a "distinct disruptive behavior" (Connelly, 1999, p.17) and ADHD is "a lack of inhibitions" (Kutscher, 2005, p.43), which may or may not be disruptive, depending on the situation. For example, a student with ODD willfully defies an adult or teacher in class by acting out or misbehaving, whereas a student with ADHD may unknowingly tap a pencil or kick their foot during class because they are unable to control their activity level and stay still, causing a disruption in class.

Connelly (1999) explains that during activities where a child is expected to be active, that child operates at the same level as a child without ADHD. When that child is placed in a structured setting, such as a classroom, where the expectations are dramatically different, that student operates at a higher activity level than other students (p.30). Take for instance a child's inability to control their impulsive behavior; that child may walk in to a room and begin to explore and forage through the room, and ends up accidently breaks something. Or when a small provocation arises, a student's inability to

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control his/her emotions may result the child reacts in anger and possible physical violence (Connelly, 1999). This can lead the student to be viewed differently than their peers, which can affect their academic success and possibly lead to misconduct. As a result, Otten (2009) urges educators to consider how stressful it must be for these individuals in an environment where both academics and social interactions are the main focus (p.21).

Children with ADHD are more likely to be reprimanded in school for misbehaving than regular education students. In fact, Rief (1998) states that "[c]hildren with ADHD are more likely than their peers to be suspended or expelled from school, retained a grade or drop out of school…" (p. 5). Considering that two million children have been diagnosed with ADHD in the United States (Rief, 1998), treatment and management of this disorder would greatly impact school and student success.

Treating Attention Deficit Hyperactivity Disorder

The most common treatment for ADHD is stimulant medication (Barkely, 2000, Connelly 1999, Kutscher, 2005, Rief, 1998). Stimulants arouse the frontal parts of the brain; these may help ADHD students, because the frontal parts of their brains are underactive. Once the frontal part of the brain is stimulated, the students are then able to focus and filter out distractions more easily. Kutscher (2005) explains that "[t]he medications work in a similar way to caffeine. The children appear calmer because they

are more focused, not because they are sedated" (p.58). Since the frontal part of the brain, which controls the child's ability to focus and control inhibitions, is not active, the stimulants wake the neurotransmitters, allowing the child to focus.

According to Connelly (1999), the most common stimulants are dextroamphetamine (Dexedrine), methylphenidate (Ritalin), and pemolin (Cylert) (p.73). Each has different targeted areas of use and different timeframes in which it remains effective, but all of these drugs help students to become more focused and filter out distractions. However, one major drawback to utilizing and distributing these medications is that they are highly abusable (Connelly, 1999).

In conjunction with drug treatments, environmental adjustments must also be implemented. By reducing distractions and overstimulation by creating quiet spaces, removing distractions, and allowing for preferential seating, the child will be able to focus better. An IEP can also be created to facilitate student success by making subtle changes to a student's seating arrangement, allowing extra time for tests and written papers, and may even include strategies to deal with disruptive behavior (Connelly, 1999). In my class, I allow students to choose their own seats at first. Only after disruptive behavior, do I issue assigned seating. To reduce distractions, I allow students to listen to music while working on assignments. The students are allowed to listen to music as long as they work well independently, and remove their headphones when prompted. This creates both a self-managed distraction free environment that is actually controlled by the educator.

Another type of treatment may include behavior therapy. This type of therapy helps to modify behaviors, with the ultimate goal being for a student to improve on both their behavioral, as well as academic, achievement. According to Connelly (1999), "to be fully effective, the behavioral modification must include both punishment and reward components" (p.79). In addition, Otten (2011) states that currently, the most common approaches to behavior management in schools are lecturing and time-out, which feed into the student's need for attention, and allowing the student to escape or avoid the problem (p.19). Otten explains that the two main causes for misbehavior are to either get attention, or to escape or avoid the problem (which could be a student failing a subject, for example). Subsequently, if a student with ADHD is not doing well in an academic subject, such as math, they may act out to avoid that subject. Connelly (1999) states that: "[b]ehavior modification addresses symptoms that are not addressed by stimulants, although a greater commitment from parents and teachers is required" (p. 80).

Conversely, the symptoms of ADHD are so diverse that setting a standard for treatment for all patients with ADHD is unlikely. The need for individualized treatment is essential for success. Understanding each case and its symptoms is needed to effectively treat and modify behavior to create an environment that is conducive to learning and socializing that needs to be examined on an individual level (Connelly, 1999).

Technology

Our environment is completely inundated with technology. From the cars we drive, the phones in our pockets, to the constant exposure to computers at home, work, and school, we are surrounded by technology. Trying to imagine a world without technology seems impossible. According to Leko, M. M., & Griffin, C. C. (2009):

> The world of the 21st century, the so-called digital age, is one in which technology permeates daily life. IPods, portable digital video disc (DVD) players, digital cameras, and Gameboys have placed entertainment in the palms of our hands. Moreover, the advent of cell phones, Blackberries and personal digital assistants (PDAs) has made communication and organization virtually seamless in a fast paced world. In particular, computers and the Internet have forever changed how we access and store information. (p.70)

Students are using technology everyday in their daily lives. They use computers, Smart Boards, watch television, play on gaming systems, use tablets and laptops, and most students have their own cell phones. With the rising cost of education, purchasing materials for the classroom, including items such as books, computers, stationary supplies, etc., it seems logical that the next step in evolving our schools is to incorporate the use of the students' personal technology in the classroom.

Limitations of Technology

According to Fast Facts (n.d.) in 2009, it was estimated that despite differences in socioeconomic statuses, 54 percent of students were able to bring in their own computers. Out of those who could bring their own computers, 96 percent owned computers that could be supported on the school's Internet. In an environment that only allows for a ratio

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of 5.3 students to one computer, students bringing their own devices would put technology into the hands of more students, and save the school district costs of maintaining and purchasing technology, allowing for funds to be allocated in alternative ways to enhance the student's learning environment further (Fast Facts, n.d.).

Some limitations that may occur within the use of technology in teaching are: adapting lesson plans and strategies to accommodate and support the use of different technology platforms (such as laptops, different types of smart phones), as well as the use of free apps versus paid apps. In working in a public school, it is essential that the school maintain a free and appropriate education for all of the students. In doing so, the school may need to supply students with devices to utilize if they are unable to afford their own device.

Attention Deficit Hyperactivity Disorder and Technology

If the key to treating ADHD is to engage a student and maintain his/her attention, and if students are more engaged when utilizing technology, then it seems logical to utilize technology in education to engage students. Students already engage in activities on their electronic devices such as listening to music, watching movies/television shows, videos, gaming, social networking, researching, writing and more. Channeling that engagement into interactive learning could be the key to reaching and engaging students with ADHD, as well as maintaining their focus for a meaningful education experience.

While research on incorporating technology and ADHD is limited, we do know that schools and doctors have been using adaptive technology in special education for years. This includes, but is not limited to, the use of computers to assist non-verbal students communicate, hearing devices for the hearing impaired, and electronic wheelchairs for disabled persons. Adaptive technology is used as an assistive device that aids a person with a disability in performing daily functions.

As Rief (1998) states, finding what works for students, especially students with diverse symptoms like those associated with ADHD, requires a lot of trial and error, and flexibility and patience. Understanding student's needs, as well as adapting to those needs, will ultimately help the students be successful. While medication and other treatments are currently in use, there is still a need to continue research and find what works to help students with ADHD succeed academically.

Chapter 2: Methodology

Introduction

For this research, I will be using a few different methods of qualitative research and quantitative research. Observing the student in Graphic Design class, gathering student artwork and monitoring the student's computer will be a part of the action research as a part of the qualitative research strategy. The participant will be limited to one student that is diagnosed with ADHD (and has a 504 or IEP). I will compare this student's performance in another course that does not use technology. As an ethnographer, I will be observing the student in my graphic design class as well as in a core subject to research different environments and the effectiveness of technology on the student's engagement in the class. Artifacts such as student's artwork, worksheets, surveys, discussion boards as well as tests or quizzes given will be collected and analyzed to check for understanding and student engagement.

For this research study, the student and class will engage on an online platform called Schoology as part of the Graphic Design and Production. Schoology allows the teacher to post discussion boards, assignments, surveys, quizzes and tests as well as handouts. Students can access Schoology in school, at home, and on any electronic device that has internet capabilities or allows students to download the free application to their device. Schoology also allows parents and guardians to create their own login to follow along with student progress. This will assist the researcher in acquiring artifacts and monitoring student progress and engagement for this research study.

Surveying the entire student body in the school to find out what type of technologies they possess and are familiar with will be a part of the quantitative research (appendix E). Utilizing an anonymous survey form, students will be asked questions about what technology that they currently have available and the technologies capabilities. The results of this survey will help to devise a strategy of implementing the use of technology in the classroom as the data will show what type of technology the students have available to them.

Once data is collected, it will be assessed on how the implementation of technology has affected the students' ability to understand the material and engage in the lessons. The data will help analyze the effectiveness of utilizing technology in the classroom to assist with some of the symptoms of ADHD.

Methods

As an ethnographer, it will be my job to chronicle the student's progress daily to develop the story on how the student progresses with the use of technology in Graphic Design and compare to his/her math class. By showing a comparison between the core class without technology and the Graphic Design class, I will show different perspective on how technology impacts students with ADHD. This study will use technology in Graphic Design class to engage and challenge the student and compare the results with the student's math class which does not use technology. The student will be observed for key characteristics identifying two major components: engagement and understanding

(Appendix F). According to Freeman, single-subject research is beneficial in that the focus is on one subject, rather than a group, enabling the researcher to focus on the child's specific abilities and struggles as well as specific environmental factors (Freeman, 2013). Freeman states:

> Having specific information all the individual student level is critical in special education for the delivery of individualized intervention plans and evaluation of student outcomes. Finally, students with disabilities have a diverse range of learning characteristics, and single-subject research designs allow individual students to serve as their own controls. (p.12)

In focusing my research on one student, I hope to understand the student's specific patterns in identifying the signs of attentiveness, focus and engagement and am able to see where the gaps due to ADHD are and how the student participates differently in each class. By triangulating the data, I will be able to make comparisons as to whether or not technology affects the participants ADHD. According to Creswell (2013), "triangulating the data by testing one source of data against another, looking for patterns of thought and behavior, and focusing in on key events that the ethnography can use to analyze an entire culture." By establishing patterns and interpreting the participants progress, I will be able to pull data to determine how technology affects the participant with ADHD. Creswell states that "[t]he implication of this is that the researcher can then look for similarities and difference among cases" (2013). The researcher can then make naturalistic generalizations that people can use to either learn from or apply to other cases (Creswell, 2013).

Through action research, I will be able to observe the student as a teacher and a researcher. According to Mills (2011), "The first step in making action research a part of daily teaching practices is to become familiar with the process and recognize how much action research is already a part of your daily life as a classroom teacher". As Mills states:

> Creswell (2005) describes action research as a dynamic, flexible process that involves the following steps: determining if action research is the best design to use, identifying a problem to student, locating resources to help address the problem, identifying necessary information, implementing the data collection, analyzing the data, developing a plan for action, and implementing the plan and reflecting on whether or not it makes a difference (p.15).

I will be able to analyze the student's response to the use of technology and the impact that it has on the student's academics by triangulating the data collected from jottings of observations in both the core class and graphic design class, as well as collecting artifacts: student artwork, surveys and screen shots. By collecting this data, I will answer the question outlined in Mills (2011) "What is going on here", documenting what is happening in the classroom for a better understanding of how technology affects students with ADHD.

As teachers, we constantly collect data throughout our daily teaching methods. Mills states "[a]ction research gives us a systematic and rigorous way to view this process of observation" (p. 74). Teachers are active participant observers in that; we are actively engaged with teaching and the outcomes of the teachings of students. By recording daily I can create systematic approach to action research through recording daily observations of the participant. Teachers cannot physically record everything that happens in an

observation period (Mills, 2011). By keeping a running record of important events during the observational period, I will be able to record a broad overview of the events to use for the research.

The second form of data collection used in this research will be interviewing and questioning techniques. Since the participant may omit important data when being interviewed or filling out a questionnaire, it is important to pair these methods with observations. Mills (2011) states: "pairing observation and interviewing provides a valuable way to gather complementary data." Utilizing the informal ethnographic interview technique as outlined by Mills (2011), I will be able to interview my student in a more casual manner by asking the "5Ws and H: who, what, where, when, why and how." The student will more likely feel at ease with this type of interviewing, rather than formal structure.

Email interviews and questionnaires will be utilized to gather information from the participant, parents and other teachers on the student's progress throughout the research. According to Mills (2011), "Questionnaires allow the teacher researcher to collect large amounts of data in a relatively short amount of time…" By sending out questionnaires to participants, teachers and parents, I will be able to gather important quantitative research in which the participants, teacher and parents can rate the student's progress on a scale of 1-5 (Appendix J).

Sampling

The type of sampling utilized for this research will be convenience sampling. Teaching Graphic Design and Production at MHS will allow me full access to the participant's, Alex, progress in Graphic Design, as well as access to observe the participant in a core class: math. Maxwell (2013) advises to select "participants with whom you can establish the most productive relationships, ones that will best enable you to answer your research questions" (p. 99).   This research will focus on one student, enrolled in Graphic Design and Production. Alex will also be enrolled in a core class that does not utilize technology. Maxwell states, the "purposeful selection can be to establish particular comparisons to illuminate reasons for differences between settings or individuals (p. 98, 2013).   The student will be chosen based off of the student's IEP that identifies Alex as having ADHD. The IEP will give a clear understanding of Alex's educational needs. The researcher will collect data from surveys, observations and screenshots to monitor Alex's progress.

The entire student body will also be surveyed to ensure that a broader data collection to show the majority of students accessibility to technology. To survey the school, a technology survey (Appendix E) will be issued to students in grades 9-12 during advisory class. The questionnaire will be concentrated to 5 questions regarding what kind of technology that students have readily available to them. Maxwell (2013) explains that in order to capture the heterogeneity in a population is important to "ensure conclusions adequately represent the entire range of variation, rather than only the typical

members or some "average" subset of this range" (p. 98). By surveying the entire school

rather than just the Graphic Design and Production class, I will capture a broader range of

students' accessibility to technology. Since students taking Graphic Design typically have

an affinity for technology, surveying just students in Graphic Design and Production

would limit the results to a specific group. Teachers will be given instructions to issue the

surveys to the students to ensure all students understand that this is an anonymous survey

(Appendix F).

Data Analysis

As an active participant observer, I will be able to analyze the use of technology

and level of understanding as a part of observing Alex's grades in graphic design and

production. By comparing Alex's grades in math as well as observations, I will be able to

start coding and find common patterns through the research and unite my findings in my

research notes. Creswell (2013) explains that "coding involves aggregating the text or

visual data into small categories of information, seeking evidence for the code from

different databases being used in a study, and then assigning a label to the code" (p. 184).

Interviews will be analyzed and compared to the notes to ensure accuracy of the

observations and to ensure that the teacher and student's views on level of engagement

and understanding have been met.

The survey data will show what technologies are available to the student body.

There is little to no documented research to support what technologies that students in

this district high school possess. The collection and analysis of this data will how technology affects students with ADHD in the classroom and what technologies the students have access to. For example, if a student has a device that is only capable of calling and texting versus another student whose device is capable of downloading applications then the teacher will need to find a way for all students to engage in activities. Paper surveys will be distributed to students during advisory and the data will be entered into SurveyMonkey.com. Mills (2011) explains "[d]ata are easily downloaded into statistical and spreadsheet programs.." in graphic and statistics form that can be utilized in other programs like PowerPoint (p. 85).

Ethics

Informed consent will be obtained from the participants, participant's parents or guardians, teachers and administration for this research study. Participants and teachers names will be changed to maintain confidentiality. Neither participants, participant's parents, guardians, teachers, nor administration will receive compensation for participating in this research study. At any point and time, without penalty, participants, participant's parents or guardians, teachers and administration can choose to withdraw from this research study. All data gathered will be stored in a secure, password encoded, online storage platform, under a pseudonym to protect the participant's identity.

Limits and Validity

As the student's graphic design and production teacher, it is important to keep my role as a researcher separate from my role as an educator. Both Alex's participation as well as the math teachers' participation in this research is voluntary. If I am unable to observe and interview the student or the teacher, another student will be selected to participate in this research.

Since this is a single student research, the findings will be limited to that student's actions and observations. Students with ADHD, as well as other special needs, are individuals with unique needs. This research is being conducted by an educator and not a medical professional, therefore the views and data is of that limitation. Since the student may be on medication, the student's attentiveness may differ depending on the time of day that medication is issued to the student. I will make an attempt to observe the student in both Graphic Design and Production, as well as their core subject.

The data collected will reflect a single participants views and opinions in that the student may state that he/she is more interested in Graphic Design class because he/she enjoys graphic arts and may not enjoy the core class as much.

The data collected from this study will be primarily from observations and screenshots of the student's computer from Graphic Design and Production class. Therefore, the artifacts will show the students progress and engagement in real time. Artifacts from the core classroom will be limited to photographing the student in class and copying student's work from the core classroom. The differences in collecting data

may show a gap in the student engagement as Schoology shows real time engagement

while copying student's work will be from previous work submitted. Interviewing the

teacher is essential in collecting data on the student's engagement in class.

Chapter 3: Action Research

Data Collection and Interpretation

Research question: *How can I utilize technology to create a differentiated*

learning environment in a high school Graphic Design course?

Research was collected in the forms of surveys issued to Alex (Appendix J),

artwork, screenshots, informal interviews and jottings. For the duration of the six-week

Graphic Design curriculum, student work in the form of digital artwork, screenshots, and

worksheets were collected. Additionally, informal interviews with teachers and students

were conducted throughout the research to find out the students' level of interest and

engagement in the subject matter. As a teacher researcher, I made jottings of student

behavior that I witnessed during Graphic Design class, and in Alex's math class. I

carefully recorded how the student utilized technology and adapted my lesson plans as

the course progressed to interpret the students' focus and interest in the subject matter. In

addition to monitoring Alex in graphic design class, I also monitored him in math class,

which allowed him to use calculators, but no other form of technology in the class. To

understand Alex's interest in both graphic design and math class, a survey (Appendix J)

asked him to rate his level of interest in both classes on a scale of one to five (one being

the least and five being the highest).

The data has shown the Alex's level of engagement and vested interest in the

subject matter increased once he was allowed to use technology and was encouraged to

challenge himself. The data shows a progression of how Alex responded favorably to

different levels of trust, risk taking as well as choice and responsibility. This research

chronicled how allowing a student with ADHD to use technology to challenge himself

can enrich his education. Analysis of information interviews of the student in reference to

his interest and engagement level will be revealed. This project specifically assessed how

an individual student feels about his interest level in the classes being taught, both with

and without the use of technology, and the parallels of his progression and value in his

education. Observations, student surveys and informal interviews, allowed me to assess

Alex's engagement and interest levels. Most importantly, the level of communication that

Alex was ultimately able to exhibit throughout this research, allowed me to effectively

document his level of vested interest in learning the subject matter.

Alex was selected for this research was based on his IEP that identified him as

having ADHD. I waited a few weeks before starting my research to get to know Alex in

graphic design. At first Alex was reluctant to participate because he did not want to be

photographed. Once I discussed that I would not photograph him, he agreed to participate

in the study.

Observing Alex throughout the art making process was helpful in determining

whether or not he was engaged in the lesson or not. I was able to observe Alex was

engaged in the lesson and completing his work and when he was not engaged in the

lesson and exhibited off-task behaviors.

Engaging the student in online discussions and individual meetings allowed me to

understand what Alex's interests were and how to continue to engage him in class

discussions, socialize with other students, and stay organized. By surveying Alex I was able to understand his level of engagement and interest in graphic design versus math. Alex was very candid about his interests in graphic design and felt comfortable telling me when he wanted additional work to keep him interested in the subject.

Data was collected in both graphic design and math classes, focusing on Alex's attentiveness, focus and advancement of curricular goals. Throughout the projects, Alex was prompted and redirected throughout graphic design class. These verbal and nonverbal prompts assisted Alex and me in finding out why he lost focus and how we could work together to maintain his focus. In contrast, Alex was not redirected or prompted in math class. Interviews were conducted informally to Alex and the teacher. Alex was asked questions about what distracts him, what holds his attention, what interests him in graphic design and what projects he would like to work on. The questions were directed to find the source of Alex's inattentiveness, and find out what interested him to help engage him in the class. When talking to the core teacher, the questions were directed in finding out how she handled Alex's inattentiveness in class.

Lesson Plan Summaries

The lesson plans were designed to engage differentiated learners in Graphic Design and Production. Although this thesis is focused on students with ADHD, there are wide array of students with differentiated needs. There are four main lesson plans that the student worked on throughout this research: Contemporary Graphic Designers (appendix

K), About Me poster (appendix L), Introduction to PhotoShop (appendix M) and Surrealism landscape (appendix N). The lesson plans were designed to introduce graphic design to the student, then slowly build off of previous skill sets.

Schoology was used as an online platform to work congruently with the lesson plans to engage all the students in the class. Assignments, discussions, resources, tests and quizzes were posted on Schoology. There was also a "Finished Early" folder in which students can access throughout the course if they finished an assignment early. The folder contained extra tutorials that the students could work on at any time during the class.

Observations and Assessments

Observations were completed while teaching Graphic Design and Production every day, and observing the student in math class once a week. When observing Alex in graphic design class, NetSupport was utilized to take screenshots and monitor Alex's progress in the class, as well as the other students in the class. When Alex became off-task, private messages were sent to his computer, redirecting him to get back on task and resume the assignment.

In observing Alex in class, I watched his computer to determine if he was engaged in the lesson or if he was exhibiting off-task behaviors. When observing Alex in math class, I looked to see if he was engaged in the lesson by completing the assignments or if he was distracted and talking to his peer instead of completing the work.

Alex was assessed in graphic design class and math classes with curricular assessments. Alex completed quizzes and tests in both subjects to test his proficiency in the subject area. Alex's proficiency showed whether or not he understood the subject matter.

Data Presentation and Documentation

The data collected was collected in three different ways: screenshots, surveys and tests, and informal interviews with the student.

Stage 1: Understanding the student

Alex arrived in graphic design class with no prior experiences with me as an educator. It was important for me to learn and understand how all my students processed information and completed work. This would help me to determine what interested them in class and how to engage them in the lessons.

The informal interviews with Alex revealed a number of secondary issues, including anxiety, and also some personal issues that interfered with his education. Alex revealed during our initial discussion that he had severe social anxiety. With this, Alex was very nervous around other students. He did not like other students sitting behind him, and he was unable to speak in front of the class. Alex also had a habit of chewing his fingers and fingernails. Often times, he was not aware that he was even chewing on them. This affected his ability to work at times, because his fingers would be bandaged up and he had trouble typing and using the mouse. Alex also told me that his girlfriend was

pregnant and this was often a distraction. He would miss classes due to appointments and emergencies that would come up.

Stage 2: Using technology to Adapt Lesson Plans

During the first few days of Graphic Design and Production, a seating chart was made, and students were assigned seats for the semester. Alex approached me after class and requested to move his seat because he had a lot of anxiety with having students sitting behind him. As per previous chapters, anxiety is often associated with ADHD. I agreed to move Alex to the back of the classroom as long as he was not disruptive and he completed his work.

Alex worked on his contemporary graphic artist PowerPoint and turned the assignment in. Once Alex turned the assignment in, he explored the "finished early" folder on Schoology to work on additional assignments after he turned in his work.

The next step was to have all the students in the class present their artwork in front of the class. Alex discussed with me, that he had severe social anxiety and did not feel comfortable presenting his PowerPoint in front of the class. Since this was a major part of his grade, he was concerned that he would not pass the class without presenting in front of the class. Discussing different options with Alex helped to ease his anxiety about failing graphic design. By having a conversation with Alex, it showed him that I was willing to work with him, and also showed him that I wanted him to succeed in my classroom.

While the rest of the students presented their PowerPoint's in front of the class, the students were assigned to complete a mind map to follow along with the presentations. The students were given a paper handout to complete throughout the presentations. Looking at Alex's mind map, he was particularly interested in a presentation about Shepard Fairey. Alex elaborated when writing about this presentation by stating in the favorite presentation box "Shepard Fairey[.] [H]e made Obey[.] [M]y favorite company". By completing the mind map, it showed me that Alex was engaged and attentive during the presentations. It also built trust with Alex, as adapting the lesson for him was successful.

After thinking of different ways that Alex could still present his PowerPoint without standing in front of the class to present his PowerPoint, I decided to allow him, along with a few other students, to present on Schoology. Since there were four students absent the day that we presented, and another student advised me that she had social anxiety as well, I made a discussion board on Schoology, allowing the students to post their PowerPoint presentations, and type up a few sentences presenting their work online. Since it was a group of students presenting online, this helped Alex to feel more comfortable presenting online, because he would not stand out. Alex posted his presentation on Schoology (figure 1) and shared his work with the class. Alex received positive feedback from his peers which gave Alex confidence that he was doing good work in Graphic Design class.
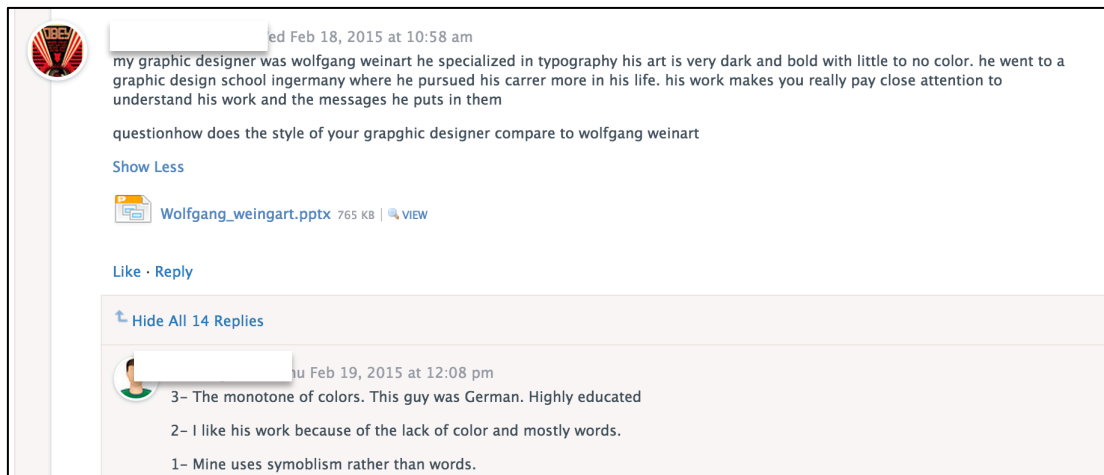
Figure 1: Alex's online presentation of his PowerPoint on Wolfgang Weinart. Alex was able to present online using Schoology instead of in front of the class.

When starting the color wheel, the students were asked to color in the color wheel with colored pencils. Students made their own color wheel and answered questions about the color wheel and color relationships: tertiary, monochromatic, analogous, complementary, primary and secondary. Alex was really engaged in coloring the color wheel. He preferred to work by himself, even when the students in the class were allowed to partner up. Alex spent a lot of time coloring the coloring wheel, ensuring there was even color coverage and no white spaces left.

For the ticket out, the students had the choice between posting an advertisement that showed a color scheme that we learned about, or coloring in one of the posted pictures on Schoology. Alex decided to color in a minion coloring book page. He asked for assistance in saving because the computer glitched and was not showing the "file" in the menu bar.

The next day, we learned about advertisements and what advertisements are saying and how they reach their target audiences. Alex was not engaged in the presentation, he had his head down the whole time. When the students were assigned to post an advertisement and talk about it, I was able to look at NetSupport to see what Alex was looking at. I found that Alex was watching YouTube videos. I sent Alex a message through NetSupport redirecting him to pay attention and complete the assignments as instructed (figure 2).
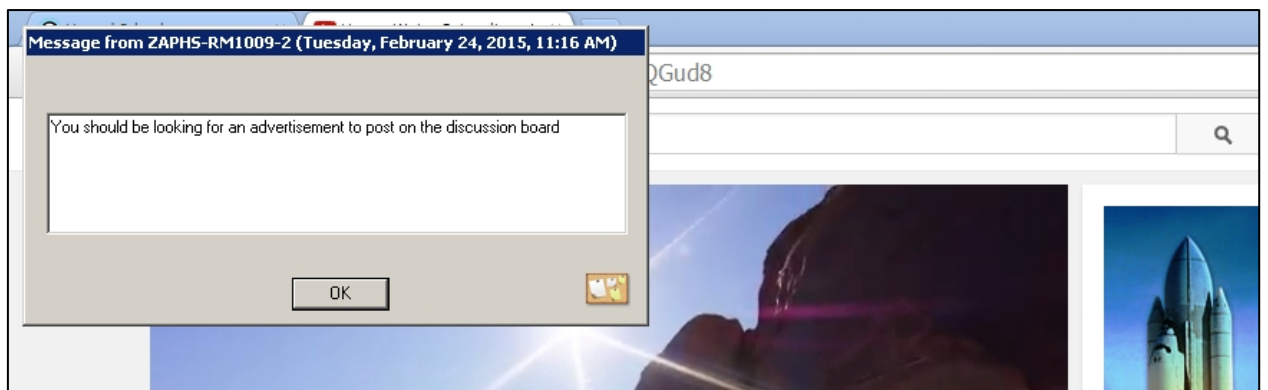

Figure 2: Message sent to Alex via NetSupport asking him to find an advertisement and participate in the class discussion.

After the prompt, Alex went to Schoology and posted the response, an advertisement as well as a description of the advertisement in the group discussion board on Schoology. The students were then instructed to respond to three different students projects with different responses for each. The student's responses were short and not substantial. I sent another message on Schoology asking Alex to elaborate on his responses more. Alex responded to the ticket out question by summarizing what he learned that day.

Alex worked on his "About Me" poster advertisement and he made his black and white and emphasized tattoos because he said he wants to be a tattoo artist. Alex said he chose the color scheme because he did not want to include colors in it. Alex made a conscious decision to omit color from his design. Alex said he was thinking of it like a black and white tattoo and adding color was too distracting and also he could not think of what colors he wanted to add to the poster. Alex said that the colors overly complicated the poster and he wanted it to be clean and simple. We discussed the use of colors versus using a gray scale. Alex received an "approved exception" from me, allowing him to use a gray scale instead of color scheme. Alex chose to use gray scale after researching the contemporary graphic designer Wolfgang Weinart (figure 3).

Figure 3: Alex's finished about me poster that highlights his interests including: Shepard Fairey, Tattoo art and music. This project was originally supposed to be in color, but Alex received an approved exception to complete the assignment in black and white.

Alex explains his "About Me" poster in his online presentation on Schoology by stating:

> my poster is about my art and tattooing i made my poster about me what i like, i had to use contrast tools to blend my oictures with the back ground, i put fancy lettering and selff made stuff in my poster to give my audience more of a feel to get to know me more and what i like to do i didnt put much color because i dont put color in my work i like black, white , and grey. who els likes the style of my poster and what is the best thing about it (Alex's presentation on Schoology)

Stage 3: Implementing Structure in Choice through Technology

To teach Photoshop, I created e-workbooks (word documents), so the students could download the e-workbooks from Schoology and follow along in class as I guided the class through the e-workbooks. The e-workbooks contained step-by-step directions, questions and activities for the students to complete as they are learning Photoshop. I talked to Alex after the class was dismissed for lunch and he told me that he was very excited to work in Photoshop and he was already familiar with a lot of the tools in Photoshop. As I was watching his computer, I saw him working ahead instead of staying with the group (which the e-workbooks allow students to learn at different paces). Since I gear my class at a slower rate than what some students may be capable of, those students may choose to work ahead to challenge themselves. There are "Stop" points in the e-workbooks in which tell the students to stop at or give additional challenges if the students are ahead of the class. Alex definitely took advantage of these check points. One thing I did notice that really stood out to me is that once Alex finished the workbooks, he

continued to work in Photoshop. Below is an example (figure 4) of one of the activities

that were in the workbook that the student finished earlier than the rest of the class.
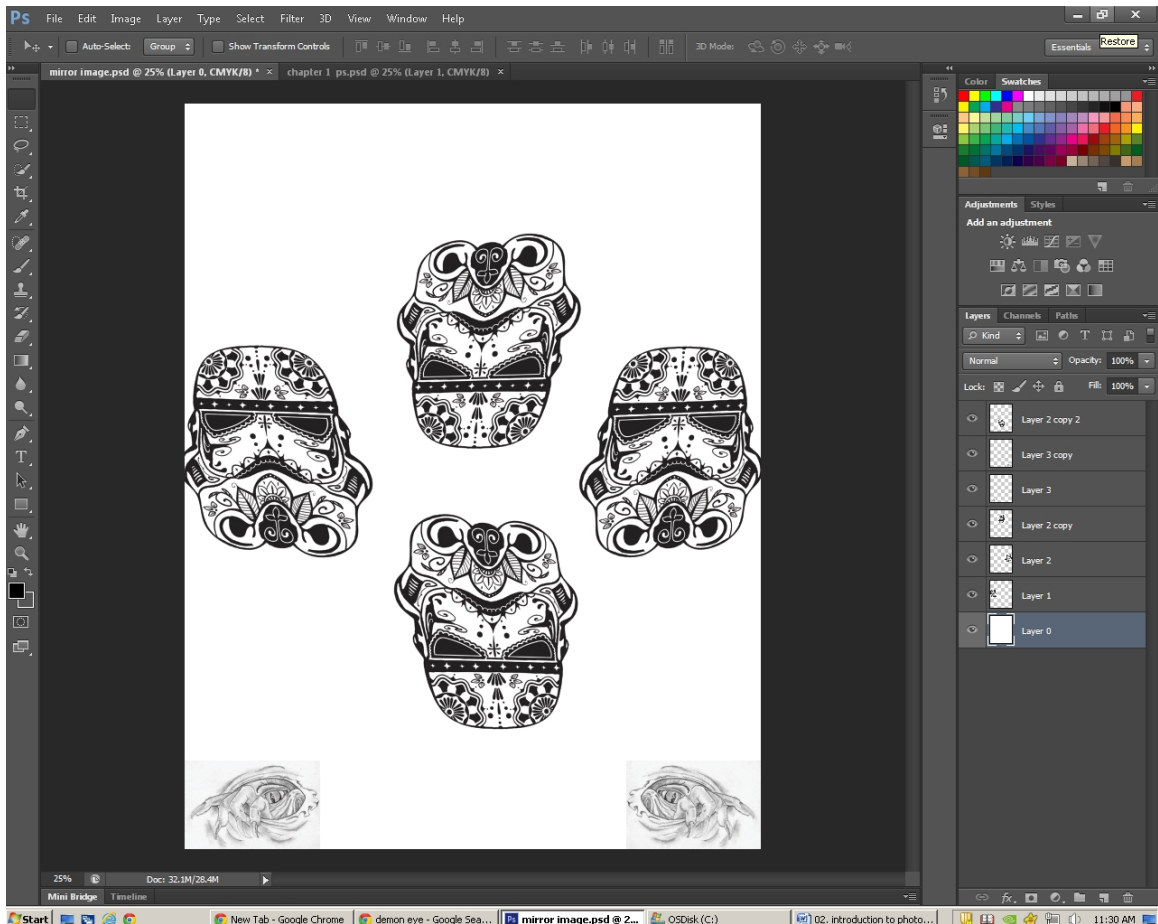

Figure 4: The above screenshot shows Alex creating the "windmill picture" assignment from the Photoshop e-workbooks. Alex worked ahead of the class and created this without any additional instructions.

After Alex completed this assignment he began working on a universe artwork in

Photoshop. Alex was so engaged in Photoshop and so excited to work in Photoshop that

he requested to come back during 4th block (the student's English class). I told Alex, he

could come back during 4th block if he had permission from his teacher (a written pass)

and he had to work quietly in class in Photoshop, and not watch YouTube videos. Alex

agreed. When he returned, Alex worked on a Universe artwork.

Alex did not respond to the warm up on Monday. When watching Alex's

computer I noticed he was again working ahead. Alex took the "CMYK/RGB" (print

versus screen colors in graphic design) quiz on Schoology and achieved a 60/60.

This shows that Alex understood the content of what he was learning in the e-

workbooks. After Alex took the quiz, he stopped working in the workbooks and

continued to add to his Universe artwork instead. Alex showed proficiency in

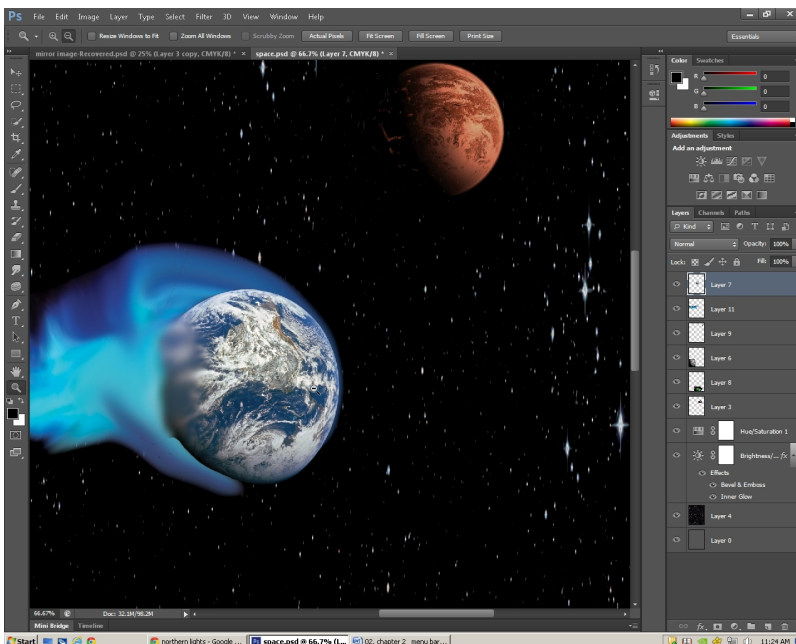Photoshop and it was becoming apparent that the workbooks were below his skill

level.

Figure 5: This is the Universe that Alex created in Photoshop as an extra project, not a required assignment in Graphic Design class. In this screen shot, Alex is showing proficiency in utilizing layers within Photoshop to add depth to the artwork.

In the above example (figure 5), Alex had added multiple layers showing proficiency in the days' lesson about layering. Alex also altered the layers by creating effects "Bevel & Emboss" and "Inner Glow" to the one layer. These are techniques that students learn in later projects towards the end of the semester. Alex showed significant proficiency with Photoshop. While it was good to see the student was working in Photoshop and not on YouTube videos, my new concern shifted to his grade in my class. The e-workbooks were worth a grade therefore his work was to be evaluated for a quantitative grade that shows growth and understanding in the content. I decided that I wanted to talk to Alex and see what he thought about challenging himself in Graphic Design class.

Alex advised me that chapters 1-4 were below his skill level and he was not learning anything from the Chapters. We discussed his grade and how we could evaluate how he would challenge himself to show growth in class. Both Alex and I came to an agreement that he would continue to work in the e-workbooks and follow along in class, so if there was something he did not know he could learn it, but would turn in additional Photoshop projects in lieu of the workbooks that would show continuous growth in Photoshop from project to project. Alex was challenging himself in each project to use different techniques and to grow his knowledge at his own pace that would most benefit him.
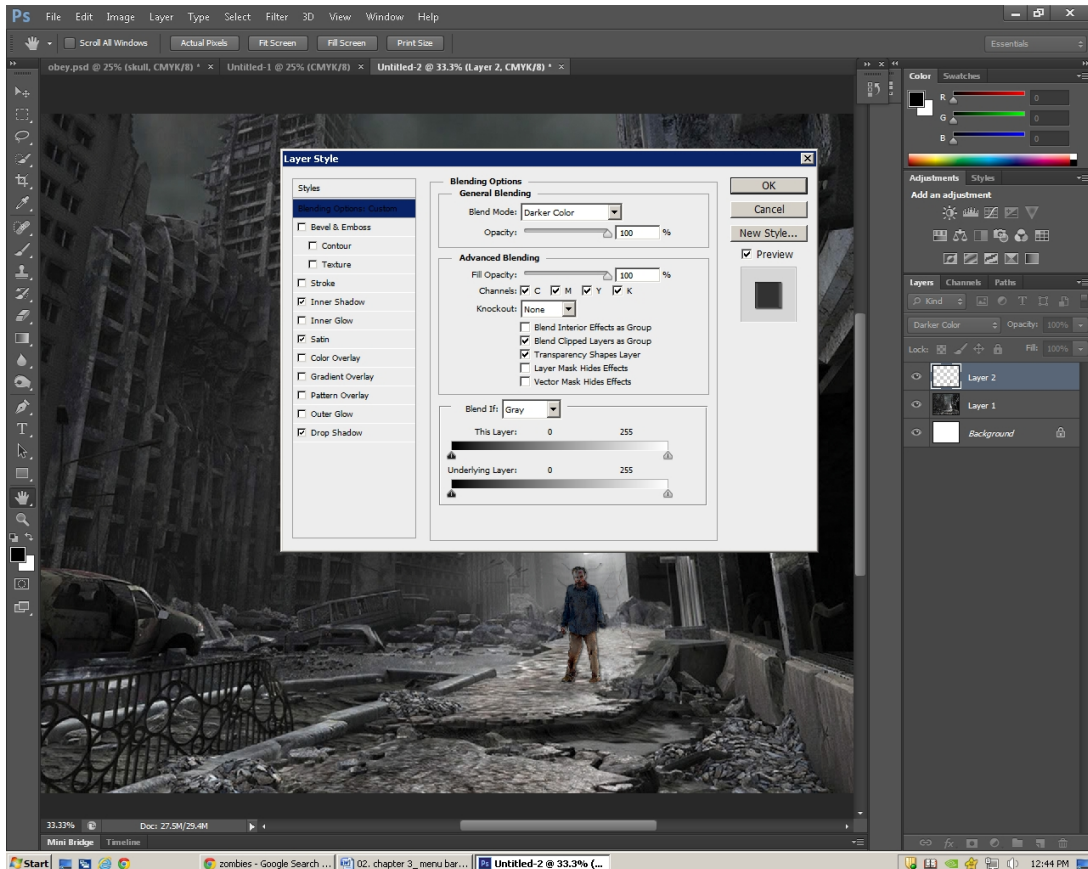
Figure 6: Alex deviated from the workbooks to create his own artwork in Photoshop. In this artwork, Alex was adding Inner Shadow, Satin and Drop Shadow to this Photoshop document. This is beyond what is taught in Graphic Design 1.

The above screenshot (figure 6) is the beginning of the third independent

Photoshop project that Alex began in Graphic Design class. In the screenshot you can see

that Alex is altering the layer to add Inner Shadows, Outer shadows, Satin, as well as

Drop Shadows. Alex showed growth in this project by going into each alteration and

exploring what each alteration does to the image and how it could benefit the overall look

of the artwork.

At times, both my student aide and I were tied up assisting students, and other

students needed assistance. Alex got out of his seat to assist the students face to face. This

was one of the first times that I saw Alex step out of his comfort zone to assist other students and interact with them. I was very happy to see that Alex was stepping out of his comfort zone and was assisting students and sharing his talent for Photoshop.

Alex continued to follow along in the e-workbooks. As well as work in Photoshop and assist other students. Below is a screenshot showing that the student had three windows open: Photoshop, Google search (for images) and Microsoft word (the e-workbooks) (figure 7).
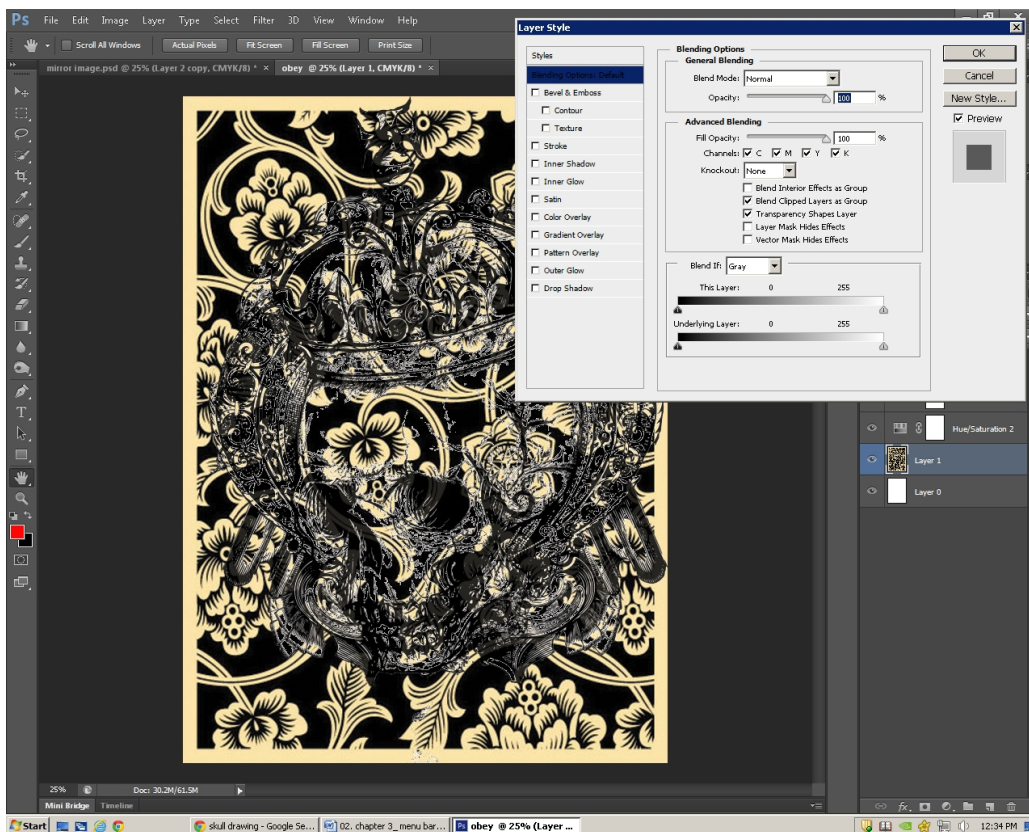

Figure 7: Alex working in Photoshop, changing the elements within the layers to add outer glow to the image. Alex was switching through three programs: Google Chrome, Word and Photoshop, showing responsibility.

Alex followed along in class with the group lectures, demonstrations on the different tools in Photoshop and continued to complete his own artworks in Photoshop. Alex continued to grow and expand his knowledge and understanding of Photoshop and continued to try out the tools in the toolbox as we were learning them in class.

One day, after the class was dismissed for lunch, Alex asked for another project because he advised me that, while he was learning a lot, he needed a break from Photoshop but still wanted to do something creative in Graphic Design. I suggested that Alex assist with Yearbook and advised him that I would have my student aide show him how to work Yearbook Avenue (an online program from Jostens, the yearbook publisher, that the student could create yearbook layouts and pages). Alex was excited that I gave him an additional task. He told me that he works better when he can switch between assignments and challenge himself. Alex agreed to continue to follow along in the e-workbooks and turn assignments in as well as work in Yearbook Avenue.
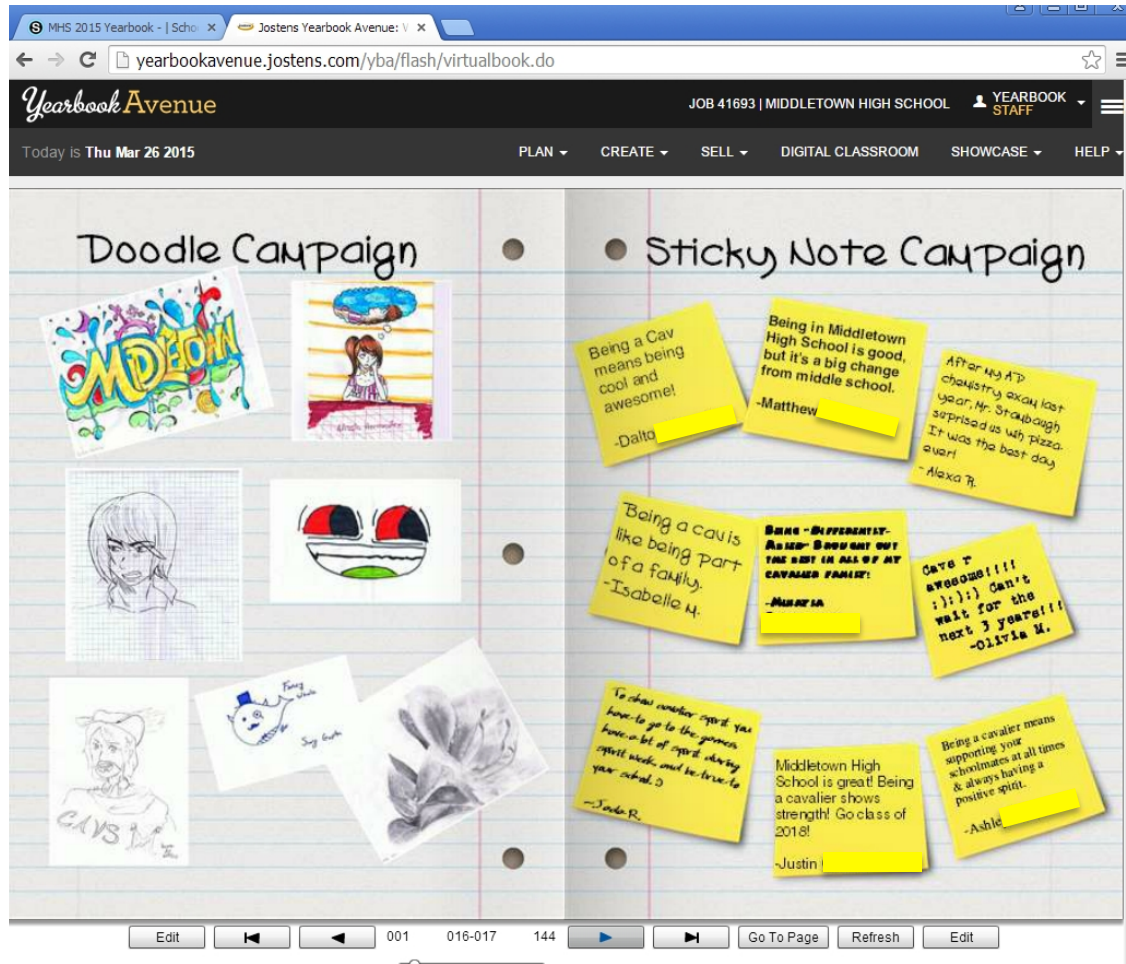
Figure 8: Alex taking a break from Photoshop to work on the 2015 yearbook in Yearbook Avenue. Alex was working on re-formatting the design of this spread. By taking a break he worked to go above and beyond what was expected in the graphic design class.

As discussed, my student aide showed Alex how to use Yearbook Avenue after lunch and set him up with a username and password. Alex continued to work in the workbooks and switch between the workbooks and Yearbook Avenue. Alex got up a few times to assist some students next to him that got stuck using some of the tools in Photoshop.

In observing Alex the next day, I noticed that he was engaged in the class and was very excited to come to class. When watching his computer, he had Photoshop open and was working on another artwork.

Alex continued to work in Photoshop and assist other students in the class. Alex switched effortlessly between Photoshop and Yearbook Avenue. He completed three pages in Yearbook Avenue over the span of three total class hours. He returned to Graphic Design class on Thursday during fourth block (with permission from his English teacher) to work on Yearbook Avenue. Alex also made a promotional poster (figure 9) in Photoshop to promote the sale of the Yearbook and to express that time was running out for students to order their yearbooks.

Figure 9: Alex creating a poster to advertise for Yearbooks telling students that time is running out. Alex was taking a break from Yearbook Avenue to create this poster in Photoshop.

Since Alex had essentially "tested out" of the toolbox portion of the e-workbooks and showed proficiency in Photoshop, I allowed him to work on Yearbook. Alex was really excited to be a part of the yearbook staff. He worked on adding in different elements throughout the yearbook to show the theme "Notebook" and was really excited when he came up with an idea to add in a place for students to write their schedules and some fun facts about their classes and activities. This went well with the yearbooks' theme, as the yearbook was meant to be formatted around a student's notebook and be personalized by the students.

Alex's computer stopped working and he had to be moved to another computer that did not have NetSupport. This meant that in order to observe him, I would need to walk around to the back of the class and check in with Alex. At first, this concerned me, as I was worried that Alex would miss important information if he was engaged in other activities like Photoshop or Yearbook Avenue. These concerns quickly diminished as I was leading the class in lecture about surrealism and discussing Salvador Dali as well as other artists. Alex was engaging in the class discussion by asking questions and raising his hand to participate.

Before Alex left for lunch, he stopped to ask about the movie that I had mentioned in class that Salvador Dali and Luis Bunuel made called "Un Chien Andalou". Alex asked if I could show the movie in class if the students had signed permission slips from their parents stating it was okay for them to watch the movie. I explained to Alex that, although he may not find it too disturbing, other students would probably be horrified by

the film. The film was made in 1929 and is still considered to have the most horrific

scene in film history in which a series of match cuts elude to a man slicing a woman's'

eye with a razor blade. As I explained this to Alex, he understood why the film could not

be shown in class. I told him I would bring the DVD in so he can look at the cover, but

we were not permitted to watch it. He was excited that I had the movie and he was

intrigued to see the cover.

Observations in Math Class

Observations in Math class showed that Alex talked throughout the class and

completed some problems that the teacher assigned. Alex would watch the teacher at the

board and then start talking to his partner or doodle in his notebook. Alex would start the

class by listening to the teacher and completing some problems in his notebook, but after

about 10-15 minutes, Alex would start doodling or exhibiting inattentive, non-disruptive

behaviors. An informal interview with Alex revealed that he became bored with math

class because he felt like the material was "boring". Alex stated that he understood the

concept and didn't understand why he had to do multiple problems that went over the

same information. An informal interview with his Math teacher brought to light that,

although Alex understood the material, he was not passing math because he did not turn

in homework and was absent for a few tests, and never made the tests up. The teacher felt

that Alex did understand the material, but stated that without the homework and test

grades, he would not pass math.

Technology Survey Issued to the whole school

Research sub question: *What is each student's accessibility to electronic devices?*

A technology survey was issued to the entire school to find out what type of technology the students have access to. Below are the results of the survey.
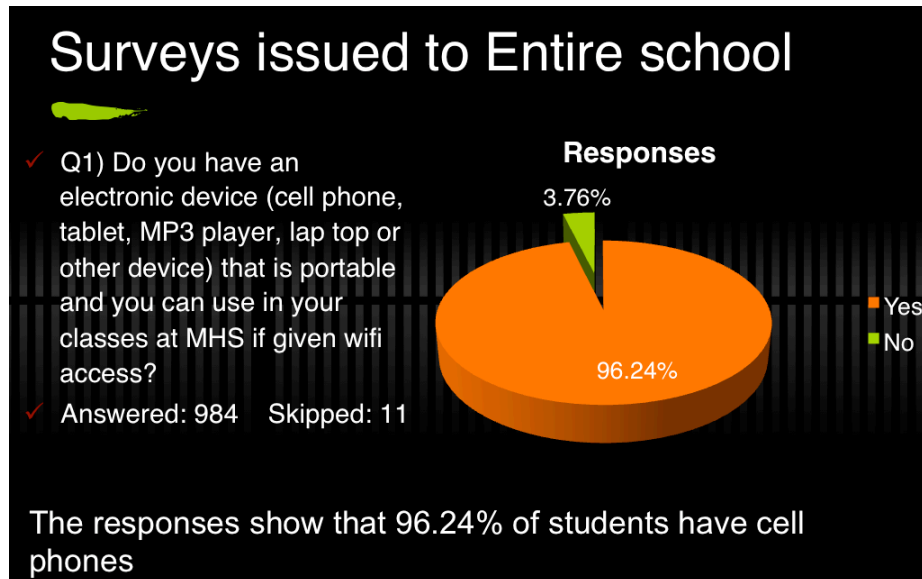
Figure 10: Question asking if students have an electronic device that can be used in classes at MHS if given wifi access. 96.24% of students responded that they do have a device that they can use with wifi in school.

The first question in the survey asked if students had an electronic device that can use wifi, that students could use in their classes at MHS. Out of 984 responses, 96.24% of students stated that they do have a device that they can bring to school to use wifi with. This question is important because it shows what percentage of students that actually have devices that can use platforms like Schoology.

50
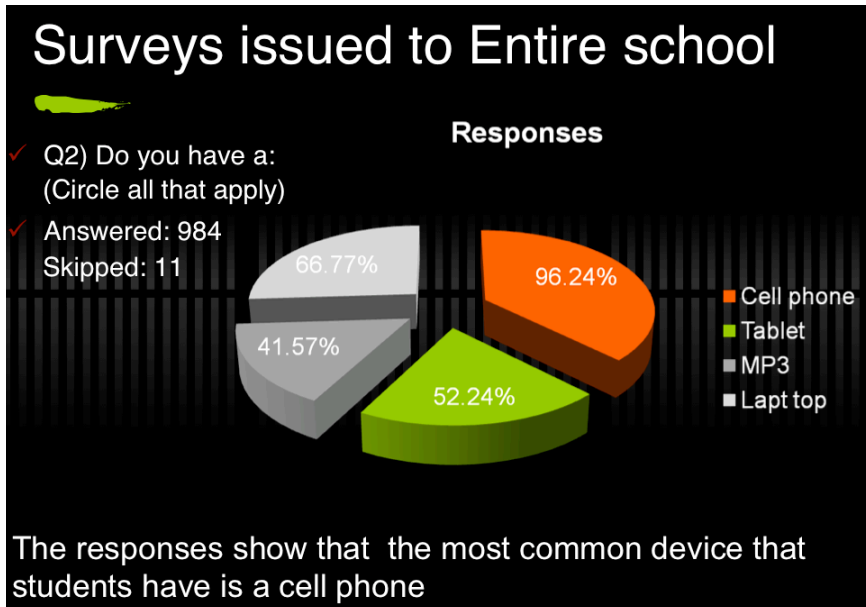
Figure 11: This question shows what type of devices the students have that they can use with wifi in classes at MHS.

This question shows what types of devices that students have. The students were able to choose more than one answer on this question. The results of this questions shows that the most common devices that students have are cell phones. 96.24% of students have a cell phone that they can bring to school to use platforms like Schoology.
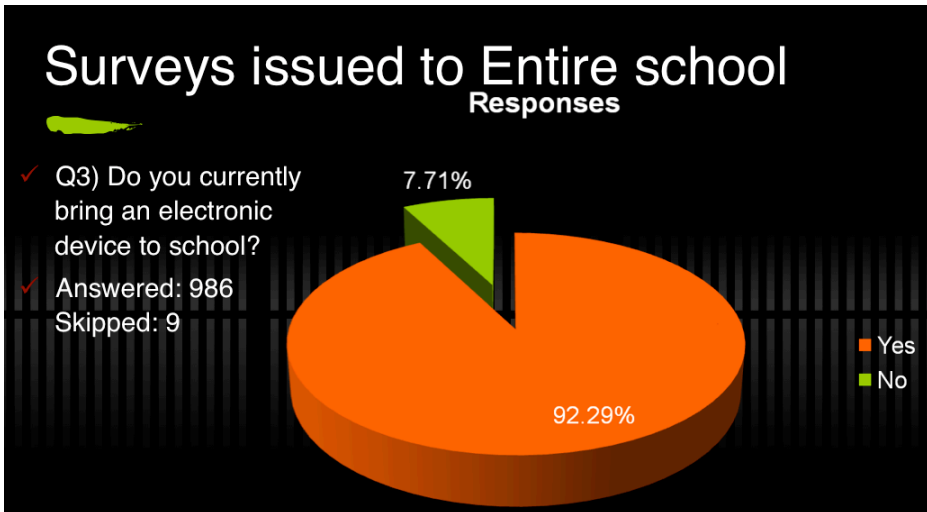
Figure 12: Students were asked if they currently brought an electronic device to school. 92.29% of students stated that they currently bring an electronic device to school.

Despite district policy stating that students are not permitted to bring electronic devices to school, 92.29% of students stated that they currently bring an electronic device to school.
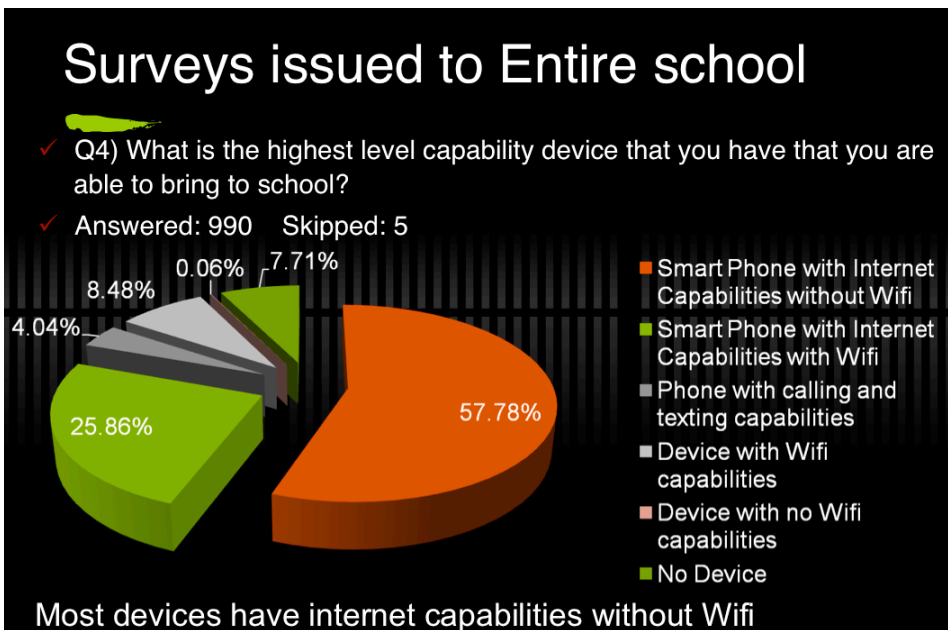
Figure 13: Students reveled that most of their devices can be used with out wifi. This means that students can access the internet with out using the schools wifi.

In a meeting with the technology department at MHS, we discussed students' accessibility to the schools' guest wifi. The school talked about the current wifi accessibility throughout the school, including some locations where the wifi was not accessible to students. The biggest concern that the district had was that if all students had access to the wifi, than the system would be overloaded and students would be kicked off the network intermittently. This year, the students were not given wifi access at all. The district was working on the wifi throughout the year, and they did not give students access to the wifi. This survey is important, because it shows that 57.78% of students have access to the internet without connecting to the schools wifi. Even if each student does not have a device of their own, students can work in partners or groups to use Schoology.

Data Analysis

Surveys issued to Alex revealed that he found that Graphic Design class was more interesting than Math class (figure 14).
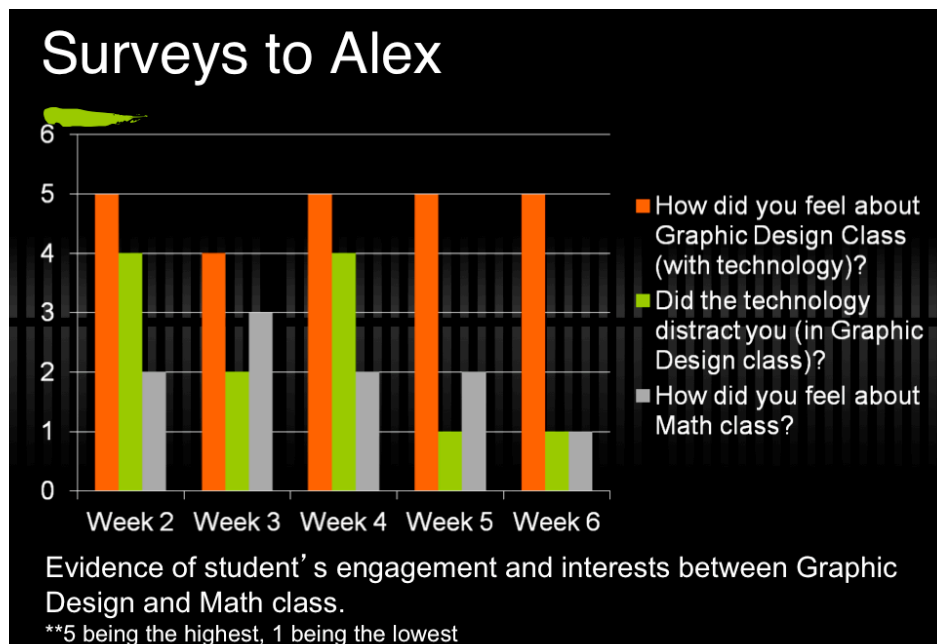
Figure 14: Alex reported a continued interest in Graphic Design class that utilizes technology, over Math class, which does not utilize technology.

As this graph shows, Alex reported that he continued to hold a high interest in Graphic Design class by responding to the survey question "How did you feel about Graphic Design class (with technology)? Alex reported that the first few weeks, the technology was distracting, but after discussing alternative assignments, giving Alex choice in assignments through technology allowing Alex the ability to switch between assignments to keep himself engaged and interested in the class. Finally, Alex reported a declining interest in Math class, the class that does not utilize technology in the class, other than calculators and the smart board.

My observational data revealed that Alex was distracted in the beginning of the research, often watching YouTube videos when he was not interested in the subject matter being taught. In discussing different options with the student and finding out what his interests were, I was able to adapt the lesson plans to help Alex become more focused, and ultimately successful in Graphic Design class. Alex challenged himself in different ways throughout the research, and was able to step out of his comfort zone to move forward socially, technically and in curricular goals.

Findings

In completing this research, I found that when given choice in using technology to challenge his skill sets, and challenging the student to advance his techniques, the student was more engaged in the lesson. When not challenged, the student is not invested in his education and becomes distracted.

Alex has shown huge growth between when class initially started and he was very quiet and barely said a word, to a student who was able to multitask, stay engaged in the class discussions and add meaningful thoughts and processes to the class discussions. By allowing Alex the flexibility to work on projects outside of the workbooks and challenge himself to lead his own learning that it helped Alex to maintain attention in my class and engage him in the activities.

In giving Alex responsibility, he was able to challenge himself and complete the assignments, and go above and beyond what was expected in class. He was able to teach

his peers and take on extra projects, like the yearbook, creating a poster for yearbook and creating additional projects in Photoshop, in graphic design class.

I learned that trusting students, using technology to engage and scaffold my lesson plans for differentiated learners will help build a mutual trust with the students. This mutual trust is an invaluable tool in the classroom, especially when the students assist other students.

Chapter 4

Summary and Conclusions

When Alex first entered my classroom, there were a lot of behavior problems with the class as a whole. I struggled with maintaining control of the class the first day of class and issued assigned seats the second day of class. I like to give the students the benefit of selecting their own seats and taking ownership over their behavior. Their reward is being able to select their seats and sit next to their friends. The students lost this privilege quickly because the students were not behaving according to the classroom rules. I moved Alex from the back row to the middle of the classroom. Alex approached me and requested to sit in the back row. I was reluctant at first, because I wanted to assert myself as the teacher, but my gut instinct told me to give this student a chance. There is always opposition when giving assigned seating in class, but I felt that this student made a good point, and we came to a reasonable mutual agreement that he would need to prove himself capable of sitting in the back row.

As the class progressed, I made a few other compromises, including allowing the student to work ahead and deviate from the lesson plan, ultimately placing the student on independent learning assignments. Placing the student on independent study was a huge risk for me, as I have only done this on limited circumstances in the past and I knew those students for a longer period of time. I had only met Alex and known him for a few short weeks before I decided to place him on independent study. I think that some teachers might be reluctant to place students with ADHD on independent study as it

might distract them from what was being taught. I found by allowing Alex to challenge himself through technology, and allowing him to multi-task and switch between different assignments. This led Alex to advancing his Photoshop skills and stretching his capabilities.

His test scores improved when he was able to switch between assignments and he became invested in the class instead of just occupying class. There was a mutual trust that was established and the role of the educator was then shared between the student and the teacher. When Alex had questions about processes, he took it upon himself to set the bar and establish what challenges he faced. Alex challenged himself daily, and he went from being completely off task, watching YouTube videos to switching between two or three different on task assignments.

From observing Alex in math class, it appeared that he was engaged in the lesson. After a few minutes into the task, the student then became distracted and worked on off task assignments such as doodling or talking to his neighbor. According to the surveys issued, the student showed increasing engagement and interest in Graphic Design class versus Math class.

Using computers in the classroom it makes it easier to switch between tasks and have multiple projects open at the same time. As I recorded in the beginning of this research, Alex was easily thrown off task with access to online games as well as YouTube videos. It was through taking risks, allowing Alex to work on his own, thinking of different ways to challenge him, and discussing these challenges with the student that

Alex took control of his own education and used the technology for improving his skill

sets and continuing to challenge himself in a multitude of tasks. Once Alex was given

choice, and the freedom to challenge his Photoshop abilities and create artwork that

showed growth with more advanced Photoshop techniques he took control of his

education and challenged himself. Once comfortable with his skillsets, Alex gained the

confidence to socialize and assist other students that needed assistance in the classroom.

Action Plan

      The next steps are to present the findings to the district and implement an

integrated class with students own electronic devices in the classroom to increase student

engagement. As the surveys have shown, the students have access to the technology. It is

up for us, as educators to use that technology to engage our students, and make them an

active part of their education. In presenting my findings to the district, I hope to bring

back the "bring your own technology" program allows students to bring in their own

technology and use it in the classroom.

      One quote stands out to me when reflecting on this research and how it has

affected Alex. "I think that the world has sped up in a lot of ways, and education hasn't"

(Digital_Nation). Students are already using technology, and they have their devices on

them in school. As educators, we can use this technology to challenge and engage

students in the classroom.

APPENDICES

Appendix A
Timeline of Research

Week 1
Locate student to be sampled, send out consent and assent forms to the student, guardian and the students core teacher.

Week 2
Start observing student in Graphic Design class. Keep notes on their attentiveness and their understanding of the subject. Start collecting artifacts such as student's quizzes and worksheets.

Observe student on same day in regular education classroom- take notes and collect artifacts.

Week 3
Observe student in Graphic Design class. Keep notes on their attentiveness and their understanding of the subject. Start collecting artifacts such as student's quizzes and worksheets.

Observe student on same day in regular education classroom- take notes and collect artifacts.

Week 4
Interview student and teacher on progress in classes.

Survey school on technology.

Week 5
Observe student in Graphic Design class. Keep notes on their attentiveness and their understanding of the subject. Start collecting artifacts such as student's quizzes and worksheets.

Observe student on same day in regular education classroom- take notes and collect artifacts.

Week 6
Data analysis: review week 2, 3 and 5 data and formulate research analysis.
Survey: Find out results of technology survey.

Appendix B
INSTITUTION SUPPORT FORM

Dr. Matthew B. Donovan
MHS
120 Silver Lake Rd
Middletown DE 19709

December 18th, 2014

To Whom It May Concern:

I, Dr. Matthew B. Donovan, give permission to Crystal Samuels to conduct an action research project in MHS during the spring 2015 semester in order to fulfill the requirements of her Master's thesis at Moore College of Art and Design. I understand that this project is intended to research the affects of art on students with ADHD and technology. I understand that Crystal Samuels will be a teacher researcher that will be teaching art while gathering data during the regular school day. I understand she will be collecting data with various methods including observation, interviews, surveys and conversation with selected teachers.

Sincerely,

Dr. Matthew B. Donovan
Principal
MHS
120 Silver Lake Rd
Middletown DE 19709

Appendix C
PARENTAL CONSENT FORM FOR PARTICIPATION IN RESEARCH

Crystal Samuels
Graphic Design and Production
Middletown High School

I give consent for my child _____ to
participate in the research titled, "ADHD and the Art of Technology: Electronic Devices
used to create a differentiated learning environment for students with ADHD in Graphic
Design and Production" which is being conducted by Crystal Samuels, Graduate Student
at Moore College of Art & Design. I understand that this participation is entirely
voluntary; my child or I can withdraw consent at any time without penalty, and have the
results of the participation, to the extent that it can be identified as my child's, returned to
me, removed from the records, or destroyed.

1. The reason for the research is to discover if technology can assist students with
ADHD in Graphic Design class.
2. The benefits that my child may expect from the research are: better organization
skills, time management, accountability and social etiquette for electronic devices in a
professional environment.
3. The procedures are as follows: The research will take place from January – May
2015. During this time, I will be collecting data using observation, and interview
techniques, through Schoology, surveys and online critiques.
4. No discomforts or stresses are foreseen.
5. No risks are foreseen. My child's participation is voluntary. Non-participating
students will not be penalized in any way. Grades will not be affected if a student elects
to not participate.
6. Participant's identities are strictly confidential. Results will not be personally
identifiable. Data collected from the research will be kept secure, locked in a file cabinet
off site. Pseudonyms will be used when quotes from individual children are transcribed
into data.
7. If there are further questions now or during the research, I can be reached at
crystal.samuels@appo.k12.de.us.

Research at Moore College of Art & Design, that involves human participants, is
overseen by the Institutional Review Board. Questions regarding your rights, as a
participant should be addressed to:

Professor Lynne Horoschak
Moore College of Art & Design
20th and the Parkway, Phila., PA 19103

215 – 965 – 6811
lhoroschak@moore.edu

Initials: _____

Date: _____

Additionally, I will be taking still images and video footage of teachers, students, and student artwork. I may use these in the presentation of my thesis, as well as in any articles/book chapters I publish in the future. You have the right to deny permission (as indicated below) for any photographs or video footage. If you deny permission, I will ensure that you do not appear in photographs or videos taken while conducting this research.

****

I give permission to be photographed/videotaped in the following forms (choose one):

_____ Photographs and video footage of me are both ok

_____ ONLY photographs of me (no video footage)

Statement of Consent: I have read the above information and have received answers to my questions. I give my consent for my child/ward to participate in this study.

Printed name of Participant_____

Signature of Participant _____

Date_____

Please sign both copies of this form. A duplicate will be provided for you.

Signature of Researcher: _____

Thank you,

Crystal Samuels
Graphic Design and Production
Middletown High School
120 Silver Lake Rd
Middletown DE 19709

Appendix D
Assent Form for Minors

Crystal Samuels
Graphic Design and Production
Middletown High School
120 Silver Lake Rd
Middletown DE 19709
302-376-4141

ASSENT TO PARTICIPATE IN RESEARCH

1. I am a Graduate Student at Moore College of Art & Design working under the direction of Professor Lynne Horoschak. I will conduct research for my Thesis for my Masters in Art Education with an Emphasis on Special Populations from January 2015 – May 2015.

2. I am asking you to take part in a research study because I am trying to learn more about using electronic devices (cell phones, Ipads, Iphones, laptops) in the classroom to enhance your education. The study is for my thesis (for me to complete my Master's degree), and I'll be researching how using the electronic devices can enhance your education in Graphic Design. This study is not an evaluation of you.

3. If you agree to be in this study, I will be walking around the classroom and talking with you as well as other students to see how you are using the electronic devices to find out if they are assisting you with your education. I will be asking you a lot of questions about how the devices assist you in and out of school, but you can choose not to answer something if you don't feel like sharing that information. However, I hope that anyone who agrees to participate is willing to answer most of my questions so that I can learn about each person's experiences. I will also be observing you and any other study participants in action in the art classroom.

4. There is very little risk to you in this study. Any information you share with me is confidential, and I will keep all recordings and transcriptions (word-for-word write-ups) of our interviews in password protected folders on my computer. When I do the final write-up for my thesis, I will be talking about students' stories but changing all of my participants' names. However, there is some chance that people who read it and know you may be able to recognize who you are. Throughout our interviews and even after the interviews are complete, you can tell me if there are particular details or things you've said to me that you don't want me to include in my final write-up. I will keep

track of your requests and make sure not to include anything you don't want to have included.

5.   You may benefit from my research by getting added individual attention and/or enrichment programming in the arts

6.   Please talk this over with your parent(s)/guardian(s) before you decide whether or not to participate. I will also ask your parent(s)/guardian(s) to give their permission for you to take part in this study. But even if your parent(s)/guardian(s) say "yes" you can still decide not to be in this study.

7.   If you don't want to be in this study, you do not have to participate. Remember, being in this study is up to you and no one will be upset if you don't want to participate or even if you change your mind later and want to stop.

8.   You can ask any questions that you have about this study. If you have a question later that you didn't think of now, you can contact me at crystal.samuels@appo.k12.de.us or ask me the next time you see me. You can also contact the Graduate Program Manager in Art Education, Lynne Horoschak, with any questions, concerns or complaints at (215) 667-6811 or lhoroschak@moore.edu.

9.   Signing your name below means that you agree to be in this study. You and your parents will be given a copy of this form after you sign it.

Print Participant's Name: _____

_____   _____
Participant   Date

_____   _____
Researcher   Date

Appendix E
Technology Survey

Technology Survey

Instructions for Survey: <u>Do not write your name on the Survey</u>. **Circle the best answer.**

1) Do you have an electronic device (cell phone, tablet, MP3 player, lap top or other device) that is portable and you can use in your classes at MHS if given wifi access?   Yes No

2) Do you have a: (Circle all that apply)
a. cell phone
b. tablet (like an IPad)
c. MP3 (electronic music device)
d. Lap top

3) Do you currently bring an electronic device to school?   Yes   No

Circle only one response.
4) What is the <u>highest-level capability device</u> that you have that you are able to bring to school?
a) Smart Phone with internet capabilities (without wifi) and access to Google Play, App Store
b) Smart Phone with wifi internet capabilities and access to Google Play, App Store
c) Phone with calling and texting capabilities only
d) Device with wifi internet capabilities and access to Google Play, App store
e) Device with no wifi or Google Play, App Store capabilities
f) No Device

Appendix F
Instructions for Technology Survey

Teachers,
Please distribute the technology surveys to the students during advisory class. Read these instructions to the students:
"You will be taking a brief technology survey during this advisory class. You will receive a list of 4 questions. Do not write your name on the survey. Your answers are confidential. Please answer the questions with the best-fit answers. Once you are finished, bring the survey up to me."
Place completed surveys in Miss Samuels's mailbox by the end of day on Tuesday. Email crystal.samuels@appo.k12.de.us with any questions or concerns.

Thank you,

Crystal Samuels

Appendix G
Observation of student in Graphic Design and Classroom

- Engagement in the lesson

    o Is the student paying attention?
    o Is the student interacting with other students?
    o Is the student engaging in the activity?
- Understanding

    o Does the student understand what is being taught (does the student look perplexed or confused?)?
    o When asked a question, does the student answer the question with confidence?
        ▪ If possible- ask the student what they are doing in class to check for understanding.

Appendix H
Student Interview

I would like to thank you for taking time to meet with me today. The questions I'm about to ask you are in reference to a study that I am doing for my research on how technology affects students with ADHD in school. Your answers will be used to help me with my study to understand how you see technology in the classroom. Your opinion is very important to me. Feel free to add any other views you have on technology in the classroom at any time. Your name will not be used in the study; instead a pseudonym, or fake, alternative name like Sally Mae or Johnny will be used. If you have any questions during the interview, or after the interview, please contact me at any time and I will be happy to answer your questions.

1) Do you have a cell phone?

2) What kind of cell phone?

3) What do you use your cell phone for?

4) Do you have any other electronic devices?

5) Have you ever used these devices to help with homework or class work?

6) Do you bring your device to school?

7) Have you ever used your device in class?

8) What have you used your device in class for?

9) What do you think about the current school policy that says you are not allowed to have electronic devices in school?

10) Would you change the policy and why?

11) Do you have trouble paying attention in class?

12) Can you explain what happens when you start losing attention in class, and how you regain attention?

Appendix I
Teacher Interview

I would like to thank you for taking time to meet with me today. The questions I'm about to ask you are in reference to a study that I am doing for my research on how technology affects students with ADHD in school. Your answers will be used to help me with my study to understand how you see technology in the classroom. Your opinion is very important to me. Feel free to add any other views you have on technology in the classroom at any time. Your name will not be used in the study; instead a pseudonym will be used. If you have any questions during the interview, or after the interview, please contact me at any time and I will be happy to answer your questions.

1) Do you have a lot of students with ADHD in your classes?

2) What would you say is the biggest obstacle in teaching these students?

3) What are some methods you use to gain their attention?

4) Do you have any problems with kids using electronic devices in your classroom?

What are they? How do you handle it?

5) Have you ever used technology in your classroom (this can include smart board,

TV, projectors)?

6) Have the kids ever used technology in your class that applies to your class?

7) Do you ever have the kids work in pairs or groups?

8) How do you engage the students in the lesson plan?

9) Do you have any other information that you would like to share?

Appendix J
Student Survey and Questionnaire

How do you feel about Art Class (Graphic Design class)? (1 being the least interesting and 5 being the highest interest level) 1 2 3 4 5	What are you learning in Graphic Design Class?	What type of technology did you use in Graphic Design class today?
Can you describe a time today in any class that you lost focus, the reason you lost focus and how you re-gained focus?	Did the technology distract you? (1 being the least distracting and 5 being the highest distraction level) 1 2 3 4 5	How do you feel that technology assisted you in that task?
How do you feel about Math Class (Core subject class)? (1 being the least interesting and 5 being the highest interest level) 1 2 3 4 5	What are you learning in Math Class?	What type of technology did you use in Math class today?

Answer the following questions the best you can. Give as much detail as possible.

Your opinions and thoughts really matter to the research!!

1) How many hours of sleep did you get last night? _____

2) On average how many hours of sleep do you get a night? _____

3) Do you feel that you get enough sleep?

4) If you do not get enough sleep or have trouble falling asleep- is there anything that impacts your ability to go to sleep?

5) How does getting enough sleep impact your attention throughout the day? Are you more tired or energetic in the morning/afternoon? Do you find yourself "daydreaming" or being "inattentive" in classes?

6) Currently, what is the most engaging or interesting class and thing that you are learning in class? Why?

7) What can you do to make your other classes more interesting?

Appendix K
Contemporary Graphic Designer Lesson Plan

Crystal Samuels
Graphic Design 1
MHS

Lesson:	**Contemporary Graphic Designers**
Class:	**Graphic Design One**
Time:	90 Minutes

Standards:
Arts, A/V Technology & Communications Career ClusterTM (AR)
1. Analyze the interdependence of the technical and artistic elements of various careers within the Arts, A/V Technology & Communications Career ClusterTM.
3. Analyze the lifestyle implications and physical demands required in the arts, audio/visual technology and communications workplace.
4. Analyze the legal and ethical responsibilities required in the arts, audio/visual technology and communications workplace.
5. Describe the career opportunities and means to achieve those opportunities in each of the Arts, A/V Technology & Communications Career Pathways.
6. Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career ClusterTM.

Key Learning:
Students will learn about Contemporary Graphic Designers and their careers.

Knowledge/Skill Objective:
Students will learn how to create an effective and appealing PowerPoint presentation.

Essential Questions:
What is a contemporary Graphic Designers role in society?

Vocabulary and Concepts:

Color Theory	Rule of thirds	Color relationships
Contemporary	Presentation skills	
Rule of phi	Target audience	

Motivation:
Discuss different contemporary graphic designers and show their important work that shapes today's world from clothing to text design.

Students will look at different contemporary graphic designers and research them and their achievements.

Activities and Procedures:
Students will research 5 different contemporary graphic designers. Students will choose one graphic designer to write their paper on and research. Students will write a 3 page paper, including citations about their contemporary graphic designer.

Students will create a dynamic and interesting PowerPoint presentation for their peers utilizing the design elements that we learned in class.

Students will present their contemporary graphic designers to the class.

Supplies:
Computers with Microsoft Word, PowerPoint and internet connection.

Adaptive Strategies:
Students may use larger font up to 20 pt font (longer paper).
Students may present their PowerPoint presentations online.

Assessment:
A rubric will be used to assess the students PowerPoint (100 points), Paper (100 points) and presentation (50 points)

Appendix L
About Me Lesson Plan

Crystal Samuels
Graphic Design 1
MHS

Lesson: **About Me**
Class: **Graphic Design One**
Time: 90 Minutes

Standards:
Arts, A/V Technology & Communications Career ClusterTM (AR)
1. Analyze the interdependence of the technical and artistic elements of various careers within the Arts, A/V Technology & Communications Career ClusterTM.
3. Analyze the lifestyle implications and physical demands required in the arts, audio/visual technology and communications workplace.
5. Describe the career opportunities and means to achieve those opportunities in each of the Arts, A/V Technology & Communications Career Pathways.
6. Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career ClusterTM.

Big Idea:
Students will learn how to make an effective advertisement about them.

Knowledge/Skill Objective:
Students will choose a focal point about themselves to advertise. Students will create a poster to advertise the focal point. Students will drive the consumer to purchasing a product.

Essential Questions:
What are you trying to sell?
Who are you selling it to?
Why do they want to buy it?
How can layout be used to interest a consumer to purchase a product?
How can you utilize the principles of design in your advertisement?
How does advertisement drive consumers?

Vocabulary and Concepts:

Advertising	Rule of Thirds	Four Principles of
Target Audience	Focal Point	Design
Phi		Proximity

Repetition   Contrast   Alignment

Motivation:
Students will look at some contemporary advertisements. Students will identify the product that the advertiser is selling and who the target audience is. Students will learn what a target audience is and what the focal point of the advertisement is. Students will identify the focal point in the advertisements. Students will then look at another advertisement that is not as clear as to what they are selling. We will talk about what we think works in the advertisement and what does not work. Students will then look up an advertisement and print it out. Students will answer a few questions about the advertisement. They will identify the focal point, the product and the target audience. Students will then pair up and compare the two advertisements and talk about what is similar and what is different between the two advertisements. Students will then share out what they found about the two advertisements. Students will then work in a group and look at all their advertisements and discuss what works in all the advertisements and what does not work. Students will then share out to the class of what works and what does not work. Students will know how to identify a good graphic design versus one that is not that clear.

Activities and Procedures:
Students will print out and use an advertisement and identify what works and what does not work in the design. Students will then create an advertisement about them. They will need to identify a focal point and choose one thing to advertise about themselves. This will be the "product". Students will use phi and the rule of thirds to create an advertisement in a Word Document.

Supplies:
Computers with Microsoft Word and internet connection. Digital Cameras/Cell Phones for portraits.

Adaptive Strategies:
Students may use larger font up to 20 pt font (longer paper). Students may create the poster on paper.

Assessment:
A rubric will be used to assess the students Poster (100 points), Paper (50 points) and presentation (100 points)

Appendix M
Introduction to Photoshop Lesson Plan

Crystal Samuels
Graphic Design 1
MHS

Lesson:	**Introduction to Photoshop**
Class:	**Graphic Design One**
Time:	90 Minutes

Standards:
Arts, A/V Technology & Communications Career ClusterTM (AR)
3. Analyze the lifestyle implications and physical demands required in the arts, audio/visual technology and communications workplace.
5. Describe the career opportunities and means to achieve those opportunities in each of the Arts, A/V Technology & Communications Career Pathways.
6. Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career ClusterTM.

Key Learning:
Students will learn how to use the tools and functions in Photoshop.

Knowledge/Skill Objective:
Students will learn how to use Adobe Photoshop.

Essential Questions:
What is Photoshop and how can I use the tools in Photoshop to create graphic works of art?

Vocabulary and Concepts:
Toolbox, options bar, menu bar, document window, layers panel, status bar, move tool, marquee, lasso, gradient, burning, dodging, shallow depth of field, deep depth of field, masking

Motivation:
Discuss different uses for Photoshop in today's society. Show "dove video" that shows a model transformation from a photo shoot through editing process. Talk about how this shapes our perception of what beauty is.

Students will start by exploring the layout of windows in Photoshop. We will move through all the tools and tabs via workbooks with step by step directions and videos.

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Activities and Procedures:
Students will learn about a tool or function in Photoshop, use the tool in Photoshop, then answer questions about the tools.

Each workbook has a summarizing activity that students make a piece of artwork in Photoshop utilizing the tools they learned in that workbook.

Supplies:
Computers with Adobe Photoshop, Microsoft Word and internet connection. Paper and pencils for worksheets.

Adaptive Strategies:
Students may use larger font up to 20 pt font (longer paper).
Students may create alternative artwork in Photoshop to test out of the workbooks.

Assessment:
Worksheets will be graded on point values assigned. Quizzes will be given to test understanding of the materials. Workbooks will be graded based on the point values assigned. Artwork will be graded based on point values assigned.

Appendix N
Surrealism Lesson Plan

Crystal Samuels
Graphic Design 1
MHS

Lesson:	**Surrealism Landscape**
Class:	**Graphic Design One**
Time:	90 Minutes

Standards:
Arts, A/V Technology & Communications Career ClusterTM (AR)
1. Analyze the interdependence of the technical and artistic elements of various careers within the Arts, A/V Technology & Communications Career ClusterTM.
6. Evaluate technological advancements and tools that are essential to occupations within the Arts, A/V Technology & Communications Career ClusterTM.

Key Learning:
Students will learn how to make a Surrealism Landscape Adobe Photoshop.

Knowledge/Skill Objective:
Students will learn how to create a Surrealism Landscape in Adobe Photoshop.

Essential Questions:
How can you create a surrealism landscape in Photoshop?

Vocabulary and Concepts:

Color Theory	Photo-Realism	History palette
Surrealism	Selection	
Realism	Quick Mask Options	

Motivation:
Discuss different surrealism artists and show examples of their work. Discuss the differences between realism and surrealism. How does surrealism fit in to advertising?

Students will look at different advertisements for vacation resorts. Students will identify the key components of what makes the advertisement effective and not effective. Students will identify the target audience for the advertisements.

Activities and Procedures:
Students will research different vacation resort advertisements. Students will analyze what the advertiser is selling and who they are selling it to. Students will then discuss what makes an effective vacation resort advertisement.

Students will research different landscape images and cite the images using APA format for citing images. Students will the import photos in to Photoshop and start manipulating the photos in Photoshop. Students will create their own surrealism landscapes.

Students will turn their landscapes in to an advertisement to sell their surrealism landscape in to a vacation resort. Students will incorporate text to sell their landscapes.

Supplies:
Computers with Adobe Photoshop and internet connection. Paper and pencils for planning and worksheets.

Adaptive Strategies:
Students may use larger font up to 20 pt font (longer paper).
Students may create the poster on paper.
Offering choice to students.

Assessment:
A rubric will be used to assess the students poster (100 points), Paper (50 points) and presentation (100 points)

REFERENCES

Appoquinimink School District. (n.d.).*Appoquinimink School District*. Retrieved January 9, 2014, from http://apposchooldistrict.com/apps/pages/index.jsp?uREC_ID=56063&type=d&p REC_ID=78999

Barkley PhD, Russell A. (2000) *Taking charge of ADHD.* New York: The Guilford Press.

Barkley, R. (2006). *Attention-Deficit Hyperactivity Disorder a Handbook for Diagnosis and Treatment.* (Third ed.). New York: Guilford Publications.

Barkley, R., & Murphy, K. (2006).*Attention-deficit hyperactivity disorder: A clinical workbook* (3rd ed.). New York: Guilford Press.

Connelly, E. R. (1999). *Conduct unbecoming: hyperactivity, attention deficit, and disruptive behavior disorders*. Philadelphia, PA: Chelsea House Publishers.

Creswell, J., & Creswell, J. (2007).*Qualitative inquiry & research design: Choosing among five approaches* (2nd ed.). Thousand Oaks: Sage Publications.

Diagnosis and Treatment of Attention Deficit Hyperactivity Disorder. (1998). *NIH Consensus Statement,* 1-37. Retrieved November 12, 2014.

Donahue, W. (2013). A Dark Side of the ADHD Gender Gap. *Daily Press*. Retrieved November 12, 2014.

Dupal, George J., & Stoner, Gary. (2004). *ADHD in the Schools.* New York London: The Guilford Press (pp 33-35)

Fast Facts. (n.d.). *Fast Facts*. Retrieved January 16, 2014, from http://nces.ed.gov/fastfacts/display.asp?id=46

Freeman, J., & Sugai, G. (2013). Identifying Evidence-Based Special Education Interventions From Single-Subject Research. *Teaching Exceptional Children*, *45*(5), 6-12.

Harpin, V. A. (2005). The Effect Of ADHD On The Life Of An Individual, Their Family, And Community From Preschool To Adult Life. *Archives of Disease in Childhood*, *90*(suppl_1), i2-i7.

Kagan, S., & Kagan, M. (2009). *Kagan cooperative learning*. San Clemente, Calif.: Kagan.

Kutscher, M. L., Attwood, T., & Wolff, R. R. (2005). *Kids in the syndrome mix of ADHD, LD, Asperger's, Tourette's, bipolar, and more!: the one stop guide for parents, teachers, and other professionals*. London: Jessica Kingsley.

Leko, M. M., & Griffin, C. C. (2009). Articulating learning disabilities in the digital age. *Learning Disability Quarterly,Vol. 32*(No. 2), 70-84. Retrieved December 20, 2013, from http://www.jstor.org/discover/10.2307/27740358?uid=3739592&uid=2129&uid=2&uid=70&uid

Leo, J. (2000). Attention Deficit Disorder: Good Science or Good Marketing. *Skeptic,*63-69. Retrieved November 13, 2014.

Lerner, Janet W., & Johns, Beverly H. (2009) *Learning Disabilities and Related Mild Disabilities.* Belmont, CA: Wadsworth Cengage Learning

Maxwell, J. (1996). *Qualitative research design: An interactive approach*. Thousand Oaks, Calif.: Sage Publications.

Mcclanahan, B., Williams, K., Kennedy, E., & Tate, S. (2012). A Breakthrough for Josh: How Use of an iPad Facilitated Reading Improvement. *TechTrends*, *56*(3), 20-28.

Mills, G. (2000). *Action research: A guide for the teacher researcher*. Upper Saddle River, N.J.: Merrill.

Otten, K. L., & Tuttle, J. L. (2011). *How to reach and teach children with challenging behavior: practical, ready-to-use interventions that work*. San Francisco: Jossey-Bass.

Riccio, C. A., Gonzalez, J. J., & Hynd, G. W. (1994). Attention-Deficit Hyperactivity Disorder (ADHD) and Learning Disabilities. *Learning Disability Quarterly*, *17*, 311-322. Retrieved January 9, 2014, from http://www.jstor.org/discover/10.2307/1511127?searchUri=%2Faction%2FdoBasicSearch%3FQuery%3Dattention-deficit%2Bhyperactivity%2Bdisorder%2B%2528adhd%2529%2Band%2Blearning%2Bdisabilities%26amp%3Bacc%3Doff%26amp%3Bwc%3Don%26amp%3Bfc%3Doff&resultItemClick=tr

Rief, S. F. (1998). *The ADD/ADHD checklist*. Paramus, N.J.: Prentice Hall.

Saul, R. (2014). *ADHD Does Not Exist: The Truth About Attention Deficit and Hyperactivity Disorder* (First ed.). New York: HarperCollins.

Shapiro, L. (2010). *The ADHD workbook for kids: Helping children gain self-confidence, social skills & self-control*. Oakland, CA: Instant Help Books.

Stolzer, J. M. (2007). The ADHD Epidemic In America. *Ethical Human Psychology and Psychiatry*, *9*(2), 109-116.

Questions & Answers: NIMH multimodal treatment study of children with ADHD. (1999). *Questions & Answers: NIMH Multimodal Treatment Study of Children with ADHD*. Retrieved November 13, 2014, from http://sks.sirs.com