ABSTRACT

Title of Document: EVALUATION OF AN ALTERNATIVE SCHOOL'S

IMPACT ON THE GRADUATION RATE OVERALL

AND FOR STUDENTS RECEIVING FREE OR

REDUCED PRICE MEALS IN ONE LOCAL SCHOOL

SYSTEM

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Free and reduced meals (FARM) students in one Maryland school system are

dropping out of school at a rate almost five times greater than non-FARM students. In

order to address the overall and the FARM subgroup dropout rate an intervention

program was implemented. The program invited students with the greatest risk of

dropping out to attend. Small class sizes and faculty that focused on building

relationships and meeting each individual student's social and emotional needs are

hallmarks of the intervention. The effectiveness of the program was established through

three tests: 1. Finding the average overall dropout rate before the inception of the

program compared to dropout rate after the implementation; 2. A logistic regression to

determine the probability of a student graduating from high school based on data from a group of students who attended the intervention as compared to a demographically matched group of students who did not attend; 3. A logistic regression to determine the probability of a student graduating based on data from a group of students who attended the program as compared to a pooled group of students who where invited to attend, but did not. The results suggest the program is effective; however, the reader should be cautioned as the results are based on a small sample size. The county experienced a 5.35% decrease in the overall dropout rate and a 6.80% decrease in the FARM dropout rate after the implementation of the program. Matched students who attended the program were almost fifteen times more likely to graduate than their peers who did not attend the program, and matched FARM students were fourteen times more likely to graduate. Students who attended the program had an almost nine times greater chance of graduating, and FARM students had an eight times greater probability of graduating, than students who were invited to attend but did not. The results show a relationship between the implementation of the dropout intervention program and a decrease in the dropout rate for the county and for the FARM subgroup.

EVALUATION OF AN ALTERNATIVE SCHOOL'S IMPACT ON THE GRADUATION RATE OVERALL AND FOR STUDENTS RECEIVING FREE OR REDUCED PRICE MEALS IN ONE LOCAL SCHOOL SYSTEM

by

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Acknowledgement

In July 2014, the School Superintendent of the mid-Atlantic school system helped to frame the problem of practice that is used for this study and that of my colleague Jake Heibel[1]. We are both employees of the mid-Atlantic district and part of a cohort based doctoral program supported by the district. At that session, the Superintendent noted that the school district had in the past invested in ways to increase the retention rate of students enrolled in the district - particularly students living in poverty. He identified two interventions that he and the local school board were most interested in knowing their impact and promise. This study and that of my colleague are attempts to respond to the Superintendent's request for analysis and understanding. The studies conform to the expectations of the University of Maryland for the Education Doctorate. It should be noted that there was ongoing interaction between this researcher and Mr. Heibel during the ensuing thirty months as we explored earlier interventions in the district, looked at similar studies conducted in other school districts, and considered the literature on student poverty and student retention. The actual studies were done separately and convey separate and distinct research findings.

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[1] Heibel, J. (2017). The impact of an online learning credit recovery program on the graduation rate of students receiving free and reduced meals. (Unpublished doctoral dissertation). University of Maryland, College Park.

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Section 1: Introduction

Good Morning. My name is [student 1] and I am a student at Fairfield Academy [not the academies real name]. I really did not want to go to Fairfield because all of my friends were at Green Mountain high school [not the schools real name] and I felt as though Fairfield would be dumb and boring, but Fairfield actually kept me out of trouble and made me realize school is about work and not friends.

I have a lot of good and bad memories, but mostly good. We had field trips and went to college fairs. I had the opportunity to stay overnight at [a college] and experience what it was like to be a college student. That is when I realized I would like to go to college, not only then did I want to do it, it became a reality and I will be attending college in the fall and be on the basketball team.

Most of my teachers gave me the opportunity for extensions on my work or my projects. But they also let me know that it will not be a repetitive thing and in college when your work is due then it is due, no excuses. In English 12, [the teacher] made sure that our work was challenging and not just little kid work just to get by. We had an essay just about every unit to ensure we were paying attention and understanding our work. [The teacher] would tell us that the work will not be easy, and I will not hand you the answer because in college you will have to read and figure it out yourself. (Excerpt from a speech given by a graduate of Fairfield Academy, 2015)

Every year since 2012, at the Fairfield Academy culminating ceremony, a

celebration was held with several guest speakers, including graduates of the program.

Another graduate of Fairfield Academy spoke of her time in the program and the impact

it had on her:

Good evening fellow students, parents, teachers, staff, and honored guests. My name is [student 2]. My home high school is Green Mountain, but I am mostly a proud Fairfield Academy student. I have had the privilege of attending Fairfield Academy since my freshman year. Coming to Fairfield has helped me escape my shell and meet some great friends who have been there for me since day one. I still remember the day when [the school counselor] came to my middle school to talk to some students about coming to Fairfield Academy. She told us many great things about it, but what really influenced me to come was when she explained the small class sizes.

Last year I had three classes, including lunch, at my home high school and there were about thirty kids in each class. It was fun and I met some more great friends, but I didn't feel like I had as much individual help as I needed. At Fairfield, I love how all of our teachers can be fun and interesting, but serious when they have to be. Being at Fairfield makes you feel like you're part of a big family. Some people you see a lot and some you don't. Some people stay and

some people go, but everyone knows each other's names and where they are from. Although all of our home high schools are great, their size alone can make you feel small. With its supportive teachers and staff, Fairfield Academy helps instill greatness and confidence into its students.

I believe that my time at Fairfield has had an impact on my being accepted to all four of the colleges I applied to, and has definitely prepared me to get my degree. So thank you so much to all of my teachers, staff, and friends who have got me through these four crazy years. Thank you to [teacher 1] for making me work hard, [teacher 2] for helping me when I needed it, [teacher 3] for putting up with us, and [teacher 4] for keeping class interesting. (Excerpt from a speech given by a graduate of Fairfield Academy, 2014)

As part of every culminating ceremony, the former academic dean of Fairfield Academy would speak about every single graduate to praise them and acknowledge the obstacles they had overcome in order to reach the milestone of high school graduation. The statements were in the framework of how much each student had taught her, the leader of the program:

Student 3 - There is more to you than you even know yourself, from various interests to an interesting history that has provided you with numerous life experiences. Because you have so many talents, I know you will go far. You have taught me to appreciate how complicated a person can be and for this I thank you. Student 4 - Relationships were always key with you. You seek them out and thrive on knowing people care. I think you were most successful at Fairfield, because you knew we cared and would continue to bug you each day. You have taught me that positive relationships can lead to a path of success and for this I thank you. Student 5 - You are graduating because of how much you have matured in your time at Fairfield. Your potential is bountiful, and you are finally becoming aware of all you can do. When the pressure was on, you met every challenge that came your way. You have taught me to step-up to a challenge, & for this I thank you. Student 6 - You began high school without a goal and you endured some crazy situations in life. You have demonstrated maturity and discipline your senior year, moving out on your own, working full-time, attending school, and maintaining your grades. You have taught me courage, and for this I thank you. Student 7 - You made the choice last summer to attend summer school and return for another year, which you knew, would include taking three math classes. Your last obstacle is Government and I am positive you will finish strong. You have taught me "better late than never" and for this I thank you. Student 8 - You tried your hardest from day one of Fairfield Academy. You never gave up even when life and academics were a challenge. You have taught me to be determined, and for this I thank you. Student 9 - You came to Fairfield with a goal, to graduate with a 4.0 and go to school for criminal justice. During

your time in high school, you lived in numerous residences; you never let this stand in your way. You made a commitment and through many life changes, you are here, at graduation very close to that 4.0. You have taught me resilience, and for this I thank you. Student 10 - From ninth grade until now, you have grown into a man. You took on many challenges in your life and overcame in spite of these hurdles; always keeping the kindness and respect you were taught. Even when your peers may have been taking things to the extreme you were always compassionate in return. You have taught me kindness, and for this I thank you. Student 11 - You maintained your grades even when becoming a parent. You are an inspiration to others to overcome in spite of the events around you. When you are off course, you always find a way to right yourself. You have taught me to listen to my internal compass, and for this I thank you. (Excerpts from a speech given by the former academic dean of Fairfield Academy, 2013)

During this same speech given in 2013, the former academic dean quoted a graduate from the program stating:

I know that Fairfield helped me when I was struggling. I would not have graduated, if I had not come to Fairfield. I needed the extra support and I got it at Fairfield. The teachers helped me and here I am graduating.

The following year, 2014, another graduate quote was delivered from the former academic dean at the culminating ceremony:

Even though I hate this place, well… I don't hate it, but I don't like how much you nag me, but I know I wouldn't be a senior without it. I know that Fairfield helped me when I was struggling. I would not be graduating if I had not come here. I needed the extra support and I got it at Fairfield.

According to the former academic dean of the program, Fairfield Academy was created as a dropout prevention program in a mid-Atlantic school system in order to provide an enriching environment for the most struggling students in the county based on their elementary and middle school information and family situation, which often included living in poverty.

Statement of the Problem

Free and reduced meals (FARM[2]) students in one Maryland school system are dropping out of school at a rate almost five times greater than non-FARM students. While the U.S Department of Education (USDE) seeks to find alternative measures of student poverty other than eligibility for its federal lunch program (Sparks, 2014), identifying students who receive FARM benefits is the most accepted measure for poverty status in the Maryland county. Also, the Maryland State Department of Education (MSDE) uses FARM data to rank schools from greatest to least amount of poverty based on the percentage of those students within each school from low to high that are receiving FARM support (Maryland State Department of Education, 2015). FARM status among students is a fact schools cannot change; however, the Maryland school system should implement effective programs to support FARM students.

Scope of the Problem

Evidence suggests there is a correlation between student poverty and student attrition. The higher the rate of student poverty in a school, the higher the rate of student dropout. "While nationally, dropout rates declined for students in low and middle income family groups between 1990 and 2013, student attrition remains a pervasive problem everywhere" (DePaoli et al., 2015, p. 6). Regarding dropout rates, the National Center for Educational Statistics (2015) found that:

Dropout rates declined from 24 to 11 percent for those in families with the lowest incomes (the bottom 25 percent of all family incomes), from 15 to 9 percent for

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[2] This indicator represents the number of children eligible to receive free or reduced price lunch at school. Children may also be eligible to receive free or reduced price breakfast and/or milk. To receive a free or reduced price meal, households must meet income eligibility requirements.

those in "middle low" income families (families with incomes between the 25th percentile and the median), and from 9 to 5 percent for those in "middle high" income families (families with incomes between the median and the 75th percentile). For those in the highest income families (the top 25 percent of all family incomes), there was no measurable difference between the 1990 and 2013 dropout rates (3 percent in both years). During this period, the dropout rates for those in the highest income families were consistently lower than the rates for those in all other income groups. Conversely, the rates for those in the lowest income families were consistently higher than the rates for those in the "middle high" and "middle low" income families, with the exception of 2013 when the rates between those in the lowest income families and those in the "middle low" income families were not measurably different. While differences between those in the lowest income families and highest income families have remained, the gap in the dropout rate between these two groups narrowed from 21 percentage points in 1990 to eight percentage points in 2013. (para. 4)

Low-income students are five times more likely to drop out of high school than their high-income peers (Chapman, Laird, Ifill, & KewalRamani, 2011). While race, geography, economic conditions, access to high quality teachers, gender, and age are measures often used to determine if a student is likely to drop out of school, economic conditions are the single variable that most closely predicts dropout potential (Maryland State Department of Education, *Maryland State Plan to Ensure Equitable Access to Excellent Educators*, 2015). High school students from the wealthiest families are about seven times more likely to graduate than their classmates from the poorest backgrounds

(Amos, 2008; Maryland State Department of Education, *Maryland State Plan to Ensure Equitable Access to Excellent Educators*, 2015).

Similar to trends in national data, low-income students in Maryland are also more likely to drop out of school.   In 2013, FARM students comprised 36.3% of high school students in the state of Maryland (Maryland State Department of Education, 2015). During the same school year, Maryland reported a dropout rate of 13.5% among students receiving FARM benefits as compared to a dropout rate of 7.3% for non-FARM students. This represented a decrease from 2011 when Maryland had a dropout rate of 14.4% for students receiving FARM benefits and 9.9% for non-Farm students (Maryland State Department of Education, 2015). While Maryland experienced a reduction in the non-FARM dropout rate over the past three years, Maryland has not experienced a significant reduction in the FARM dropout rate.

Since 2010, MSDE uses cohorts to determine dropout rates for schools and school systems. The number of students who enter a school in ninth grade, adjusting for students who transfer or perish, determines the cohort for each class of students. The final number of students after four years of high school is considered the cohort for that particular graduating class (Maryland State Department of Education, 2015). Maryland's State Department of Education calculates the dropout percentage using this cohort number. See Figure 1.

Figure 1: Four–Year Adjusted Cohort Dropout Rate Calculation

$$\text{Four–Year Adjusted Cohort Dropout Rate} = \frac{\text{Dropouts}}{\text{Adjusted Cohort}} = \frac{\text{Students who terminate formal education for any reason other than death}}{(\text{Number of First Time 9th Graders}) + (\text{Students who transfer in}) - (\text{Students who transfer out, emigrate, or die}) \text{ during the 4 year period}}$$

Figure 1. Calculation used to determine the adjusted cohort dropout rate for Maryland schools (Maryland State Department of Education, 2015).

The mid-Atlantic county data indicates a similar trend to the state of Maryland. Students who receive FARM benefits in the county are almost five times more likely to drop out than their non-FARM peers.   In 2013, the county reported a 14.1% FARM dropout rate and a 3.5% non-FARM dropout rate. These rates were lower than both 2012 and 2011, when the county FARM dropout rate was 22.7% and the non-FARM dropout rate was 4.8% and 24.8% versus 7.2% respectively (Maryland State Department of Education, 2015). In 2013, the county experienced a decrease in the FARM dropout rate, but a large gap still exists between FARM and non-FARM high school dropout rates. From 2011 through 2013, the three high schools in the county (Castleton, Lionsburg, and Green Mountain) [not the school's real names] experienced a decrease in their FARM dropout rates.

Table 1

The County Dropout Rates by High School (HS) and The County Total

	Castleton HS		Green Mountain HS		Lionsburg HS		The County	
	FARM dropout rate	Non-FARM dropout rate	FARM dropout rate	Non-FARM dropout rate	FARM dropout rate	Non-FARM dropout rate	FARM dropout rate	Non-FARM dropout rate
2010	16.1%	6.5%	19.2%	14.0%	17.1%	6.7%	18.8%	8.8%
2011	17.1%	6.5%	26.2%	12.6%	27.9%	4.3%	24.8%	7.2%
2012	21.5%	4.9%	23.9%	6.6%	21.2%	3.5%	22.7%	4.8%
2013	9.5%	5.6%	14.0%	3.5%	19.4%	<3%*	14.1%	3.5%
2014	13.2%	4.4%	12.1%	<3%*	9.2%	<3%*	11.6%	<3%*
2015	10.0%	3.8%	14.6%	<3%*	6.9%	<3%*	11.6%	<3%*

*Once a dropout rate is less than 3%, the actual percentage is no longer reported (Maryland State Department of Education, 2015).

Despite the decrease in overall dropout rates, a significant gap remains between FARM and non-FARM dropout rates. Students receiving FARM benefits at Castleton HS remain twice as likely to drop out than their non-FARM peers. Students receiving FARM benefits at Green Mountain HS are five times more likely to drop out than their non-FARM peers, and at Lionsburg HS, students receiving FARM benefits are six times more likely to drop out than their non-FARM peers. Each high school's data mirrors that of the county, the trend in Maryland, and the national trend.

Consequences of Not Addressing the Problem

According to the United States Census Bureau (2014), the definition of the poverty threshold, or poverty line, is the minimum level of resources that are adequate to meet a person's basic needs. Poverty thresholds are adjusted to reflect the needs of

families of different types and sizes (United States Census Bureau, 2014). People and families are classified as poor if their income is less than their poverty threshold. According to the U.S. Census Bureau, Current Population Survey (2014), 22.5% of citizens without a high school diploma are living below poverty, while 14.4% with a minimum of a high school diploma are living below poverty, a difference of 8.1 percent. Data shows high school dropouts face many challenges:

Individuals who fail to earn a high school diploma are at a great disadvantage, and not only when it comes to finding good-paying jobs. They are also generally less healthy and die earlier, are more likely to become parents when very young, are more at risk of tangling with the criminal justice system, and are more likely to need social welfare assistance. Even more tragic, their children are more likely to become high school dropouts themselves, as are their children's children, and so on, in a possibly endless cycle of poverty. (Amos, 2008, p. 1)

Billions of dollars are lost by society from individuals who drop out of high school. Individuals who drop out of high school are a concern as they represent students who are not equipped with the skills necessary for the work force. Students face severe economic and occupational disadvantages when they drop out of high school (Neild, Stoner-Eby, & Furstenberg, 2008). Nationally, high school dropouts make up 6.4% of the unemployed compared to 3.5% who have a high school diploma (Neild et al., 2008). Students who drop out of high school lack skills to maintain jobs that contribute to the tax base. If they do have employment, it is often in low paying jobs. Among adults age 25 and older, a lower percentage of dropouts are in the labor force than are adults who earned a high school diploma (Chapman et al., 2011). According to the United States

Department of Labor (2015), the civilian population 25 years and over with less than a high school diploma had an unemployment rate of 9.4% and high school graduates with no college experience had an unemployment rate of 5.7%.

Dropouts in the labor force earn far less than those who have completed high school. According to data reported by the U.S. Census bureau in 2012, high school graduates earned on average $750 per month more than those who attended but did not complete high school (Ewert, 2012). "Over a working lifetime from ages 18-64, high school dropouts are estimated to earn $400,000 less than those who graduated from high school" (Northeastern University Center for Labor Market Studies, 2009, p. 3). Addressing the drop in incomes for high school dropouts between 1967 and the present, Amos (2008) describes a downward trend in earning potential for high school dropouts:

> In 1967, almost half of families headed by high school dropouts and 70 percent headed by high school graduates had earnings between $28,000 and $81,000 in current dollars and were considered part of the middle class. By 2004, only one third of dropouts and half of high school graduates were still in the middle class; virtually all high school dropouts had fallen below the middle-class threshold of $28,000 and into the bottom 20 percent of family incomes. (p. 9)

A study conducted by the U.S. Department of Justice in 2003 found that nearly 75% of America's state prison inmates, almost 60% of federal inmates, and almost 70% of jail inmates had not completed high school (Wolf Harlow, 2003). In 1997, it was also found that of inmates with parents who received welfare or lived in public housing, 46.9% attained less than a high school diploma (Wolf Harlow, 2003). Theories abound

as to why people with more education commit less crime. Potential impacts of education on criminal behavior include:

- Someone with a high school diploma or better earns higher wages through legitimate work, thus reducing the individual's perceived need to commit a crime or raising the potential cost of crime —getting caught and being incarcerated—to unacceptable levels.

- The stigma of a criminal conviction may be greater for professional workers, who tend to have higher levels of education, than for those in lower-paying, lower-skilled jobs.

- More time spent in the classroom may play a role in instilling values that are opposed to criminal actions.

- Criminal behavior that begins during youth can continue into adulthood. By keeping adolescents in the classroom and off the streets, later criminal activity may be avoided.

Whatever the underlying causes, education is clearly related to crime prevention and the personal safety of the population. (Amos, 2008, p. 13)

The cost of crime to communities, states, and the nation is expensive. These related expenses include medical care for victims, loss of victim's income, reduced tax revenue as a result of lost wages, rising police payrolls, court operating budgets, and the cost of incarcerating convicted criminals (Amos, 2008). In general, the U.S. spends less money on one year of a student's education than the nation spends on one year of a prisoner's incarceration. On average, the U.S. spent $12,608 a year to educate a student

(Carver & Lewis, 2011) and, in comparison, on average the U.S. spent $31,286 per year per inmate (Henrichson & Delaney, 2012).

For comparison, in 2014, the mid-Atlantic county, including the general operating budget and excluding capital budget funds, spent a total of $99,018,732 for 17,887 students, which calculates to an average spending of $5,536 per child in K-12 education (Board of County Commissioners, 2014). The same mid-Atlantic county spent $10,610,931 in 2014 for the county adult correctional facility (Board of County Commissioners, 2014), which has at its maximum 230 inmates (mid-Atlantic county Sheriff, 2015). This is an average of $46,134 per inmate. A difference of $40,598 is spent on incarcerating an individual in this mid-Atlantic county versus further educating an individual.

There are many potentially life altering benefits from more years in school for students. "Higher educational attainment increases a student's future income, occupational status, and social prestige, all of which contribute to improved health" (Amos, 2008, p. 14). Fletcher and Frisvold (2009) support this same conclusion that higher educational attainment increases a person's health and income:

> There may be substantial health returns to education policies that promote college attendance because increasing levels of education may lead to different thinking and decision-making patterns in health-related choices. (p. 164)

They also suggest that the monetary value of the rate of return to education in terms of health may be as high as half the return to education on earnings (Fletcher & Frisvold, 2009). Regarding the relationship between the duration of a child's education and life expectancy, Picker (2015) concludes:

As a result, the health returns to education can outweigh even the financial returns. Using data from the National Longitudinal Mortality Study (NLMS), the authors find that one more year of education increases life expectancy by 0.18 years, using a 3 percent discount rate, or by 0.6 years without any discounting. Assuming that a year of health is worth $75,000 - a relatively conservative value - this translates into about $13,500 to $44,000 in present value. These rough calculations suggest that the health returns to education increase the total returns to education by at least 15 percent, and perhaps by as much as 55 percent. (para. 3)

Further education leads to a healthier life and a longer life expectancy, which translates to increased tax revenue and lower social welfare costs.

According to Bridgeland, Dilulio, and Morison (2006, p. 2), in 2001 40% of 16 to 24 year old dropouts received some form of government assistance. High school dropouts were "twice as likely as high school graduates to slip into poverty from one year to the next". Comparing rates of poverty between those with only a high school diploma and college-educated adults, the Pew Research Center (2014, para.12) suggests that of "those ages 25 to 32, fully 22% with only a high school diploma are living in poverty, compared with 6% of today's college-educated young adults."

The United States pays a financial price for each individual who does not graduate from high school. Amos concludes, "A single high school dropout costs the nation approximately $260,000 in lost earnings, taxes, and productivity" (2008, p. 2). The overall cost to the nation for each student that "drops out of school is from $1.7 to $2.3 million" (Bridgeland et al., 2006, p. 2). The Alliance for Excellent Education

proposes that "if the students who dropped out of the Class of 2011 had graduated, the nation's economy would likely benefit from nearly $154 billion in additional income over the course of their lifetimes" (2011, p. 1). The earning potential of high school dropouts is diminished, and, in addition, high school dropouts face an increased risk of unemployment when the economy weakens (Alliance for Excellent Education, 2011, p. 1).

The Alliance for Excellent Education warns that "dropouts represent a tremendous loss of human potential and productivity, and they significantly reduce the nation's ability to compete in an increasingly global economy" (2011, p. 3). Federal and State tax revenues are reduced because of the income levels of dropouts. Amos suggests that "high school dropouts influence a community's economic, social, and civic health" (2008, p.5). Dropping out of high school often causes individuals an inability to support themselves, consequently, they rely on government assistance programs and have a reduced contribution to the tax base, which in turn is how school systems in Maryland are funded.

A Mid-Atlantic County's Policy Impacts on Poverty

In 2009, the director of the mid-Atlantic county's Department of Economic and Community Development stated that poverty was a problem in [the county] (Babcock, 2010). In one mid-Atlantic county, programs have been designed and implemented in all sectors including health, social services, housing, and schooling to address the challenges that poverty creates. Regarding the rate of poverty in one mid-Atlantic county, Babcock writes, "In 2009, the number of those living below the

poverty line in [the county] was 9 percent" (2010, para. 3). The number of citizens without health insurance also increased by 6% from 2008 to 2009. In 2009, the number of cases the Department of Social Services reported increased (Babcock, 2010).   The assistant director for Family Investment and Child Support suggests that, between 2007 and 2009, the number of food stamp recipients rose 33% (Babcock, 2010, para.13). The cumulative effect of socio-economic problems has contributed to the number of people living in poverty in the mid-Atlantic county.

In 2009, the county Health Department developed a list of priority health concerns and ways to address those concerns (Health Improvement Process, 2016). A community health needs assessment was conducted and "key local health priorities were then chosen for the period of 2010-2015, according to the seriousness of the issue and the ability for the community to improve the health issues through coordinated community action" (Health Improvement Process, 2016, para. 5). Four priority areas, including "healthy eating, active living, and overweight/obesity; tobacco use and exposure to secondhand smoke; behavioral health (including mental health and substance use); and access to healthcare services," were determined and teams were assigned to each of these four areas in order to improve health services in the mid-Atlantic county (Health Improvement Process, 2016, para. 5).

Social Services also focused on poverty in the mid-Atlantic county. In 2009, the SMTCCAC (Southern Maryland Tri-County Community Action Committee, Inc., 2010) was created in order to implement programs to assist people living in poverty; they also reported annually on each program. Some of the guiding principles of the SMTCCAC (2010) were as follows:

- Currently all people are not equal in their access to opportunities to create success.

- Every family should have the opportunity to financially support themselves.

- Children and families must be afforded quality services and opportunities that foster growth and development.

- Basic human needs must be addressed prior to implementing change.

- Housing opportunities must be made available at affordable levels for all persons.

- Affordable education, skill training and retraining must be available to all citizens.

- Affordable support systems: transportation, child and adult care, and services to the disabled are needed to encourage economic independence. (p. 1)

The programs SMTCCAC (2010) implemented in 2009 to address poverty included:

- Career Training School for Class B Commercial Driver's License

- Child and Family Services

- Energy Assistance

- Adult Day Care

- Housing Preservation and Weatherization

- Mutual Self-Help Housing

- Rural Transportation

- Volunteer Services

- Emergency Food Assistance. (p. 4)

All of these programs fell under one umbrella organization, SMTCCAC.

Policies on housing and development in a mid-Atlantic county placed a majority of low income housing in one area of the county. According to the mid-Atlantic county Land Use & Growth Management (2010, p. 8-1), "Low income housing is defined as affordable to families earning below 45% of the county's median household income." Policies adopted were based on an assessment recommending locating such housing in the [city] development district (mid-Atlantic county Land Use & Growth Management, 2010). The [City] Development District is an area of the mid-Atlantic county that encompasses the 8th election district. It is served by three postal zip codes (mid-Atlantic county Land Use & Growth Management, 2010). The [city] contains one high school, one middle school, and seven elementary schools (mid-Atlantic County Public Schools Directory, 2015).

The housing policy impacts schools that are districted in [the city]. Green Mountain High School has a 37% FARM population while the other two county high schools have significantly lower populations of FARM students, 20% for Castleton High School and 14% for Lionsburg High School (Maryland State Department of Education, 2015). In order to address the disparity in populations experiencing poverty, the county utilizes the Department of Education Title 1 funding and a per pupil expenditure and staffing allotment that the Board of Education can manipulate in order to distribute monies to schools that have higher numbers of low income students (Assurance of Comparable Services: Title, 2006). According to the U.S. Department of Education (2015), Title I is defined as:

Title I, Part A (Title I) of the Elementary and Secondary Education Act, as amended (ESEA) provides financial assistance to local educational agencies (LEAs) and schools with high numbers or high percentages of children from low-income families to help ensure that all children meet challenging state academic standards. Federal funds are currently allocated through four statutory formulas that are based primarily on census poverty estimates and the cost of education in each state. (para. 1)

In order to ensure equitability among schools, the counties Board of Education has a regulation that states, "Services provided with state and local funds in Title 1 schools are comparable to those provided in non-Title I schools" (Assurance of Comparable Services: Title 1, 2006, para. 1). Schools labeled as Title 1 receive additional funding so they have the same level of services and technologies as non-Title 1 schools. Nationally, Title 1 funding is used to offset some of the disparities among the resources, such as technology and professional development, provided to schools with high concentrations of low-income students.

Also in the education sector, the county uses the Programs for At Risk/Disadvantaged Students (2011) policy, to employ a number of interventions to address the dropout rate. Defining its purpose, the Programs For At Risk/Disadvantaged Students (2011, para. 2) states, "The primary goal of the [mid-Atlantic school system] in the use of federal and state funds is to develop supplemental instructional programs for educationally disadvantaged students as designated by federal and state law and regulations." This policy allows for consideration to be given to supporting services that have a "direct bearing on the supplemental instructional programs developed for the

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designated educationally at-risk students" (Programs for At Risk/Disadvantaged Students, 2011, para. 2).

Analysis of Prior Attempts to Address the Problem in the County School System

Since at least the appointment of the school system superintendent in 1996, the county has developed programs to address high poverty and high student attrition. In an interview with the former superintendent, she outlined seven interventions intended to keep students from dropping out of school (former superintendent, personal communication, July 2, 2015). According to the former superintendent, in 1996, the county established the Jumpstart program. This was an "early intervention program focused on elementary students receiving FARM benefits" (former superintendent, personal communication, July 2, 2015). The former superintendent indicated that her dropout prevention efforts were premised on a belief that they must begin in the early grades in order to keep students engaged and attending school. The former superintendent (2015) points out, "Children can quickly fall behind and will eventually give up on school." Jumpstart was implemented at three Title I designated elementary schools as a summer program that lasted six weeks. Students attended classes daily with a focus on reading and mathematics. Students were chosen to attend the program through a recommendation by their classroom teachers. Transportation was provided as well as breakfast and lunch. Elementary certificated teachers were hired to teach in the program. In order to entice teachers to continue teaching during the summertime, the county offered eleven-month contracts versus ten-month contracts. Regarding the impact of the offered contract change on teachers, the former superintendent (2015) said, "This

increased their salary and counted in their retirement income calculations." Data was collected on the success of the program; however, it was not published. Anecdotal evidence based on student and teacher interviews indicated that "Jumpstart kept students from regressing over the summer and advanced them in their skills in reading and mathematics as well as giving students confidence" (former superintendent, personal communication, July 2, 2015). Jumpstart was implemented over several years. Funding initially came from Title I monies and state grants. When the grant funding ended, the program was financed with continuing Title I funds as well as operating funds (former superintendent, personal communication, July 2, 2015). When the former superintendent left the county in 2004, the program ended. No further information was noted or recorded as to why the program ended in the county in the form of a formal evaluation.

In the late 1990's, the county partnered with the navy base through a school liaison officer. This partnership took the form of mentors and tutors from the naval base working with elementary aged students. About the partnership, the former superintendent (2015) said, "The program was and continues to be successful because many of the students targeted were students receiving FARM services." Historically, students receiving FARM services have fewer role models in their lives and are living in volatile environments. Having adult role models encouraged students to attend school and be more engaged in the learning process (former superintendent, personal communication, July 2, 2015). This partnership continues between the navy base and the school system. In 2015, the school system expanded tutoring services into middle and high schools (current superintendent, personal communication, July 2, 2015). A further

evaluation of the program has not been conducted nor noted in the form of a formal evaluation.

The former superintendent discussed another intervention for elementary students receiving FARM benefits. This was the creation of a transportation hub system. In elementary school, students were being forced to move their living locations due to financial hardship, thus creating emergency departures from schools. Mobility was disruptive to student learning, especially in very early grades. A transportation hub was created to allow for continuity of instruction and consistency for the student. In the 764 square mile school district, such transportation is feasible. Students were enrolled in one elementary school as their home school, and if they moved during the school year, they would be transported from the new area elementary school to their original school. This was one attempt to stabilize the impact of high mobility among students receiving FARM services (former superintendent, personal communication, July 2, 2015). Concerning the continuation of the program, the current superintendent of the county said, "The hub system is still in existence in [the county] in order to maintain continuity for students living in poverty with housing issues" (personal communication, July 2, 2015). Further evaluation and reporting on the hub intervention has not been conducted in the county nor noted in the form of a formal evaluation.

During the former superintendent's tenure in the county, evening high school was also created to intervene before students dropped out of high school. Students who were in danger of dropping out were identified based on the number of credits earned. The program was in facilities behind Lionsburg High School, but was open to high school students from all high schools in the county. Certificated teachers were hired to instruct

classes and students were taught in small groups. Students could earn original credit for coursework in order to catch-up to their same aged peers or recover course credit for classes previously failed (former superintendent, personal communication, July 2, 2015). Regarding how the program was evaluated, the former superintendent said, "Teachers and students who participated in the Evening High School Program were interviewed to determine the effectiveness of the program" (personal communication, July 2, 2015). From the interviews, it was determined that students enjoyed the program and that they felt more confident because they had more attention from their teachers. They were not embarrassed if they did not understand the material and formed support groups among their peers. Data showed that students were earning their credits and graduating from high school (former superintendent, personal communication, July 2, 2015). Evening High School continued as in intervention program in the county until 2012. Addressing why the program ended, the current superintendent said, "The program ended because it was unsustainable as the county budget was cut. It was also not accredited by MSDE" (personal communication, July 2, 2015). No further evaluation was conducted on the effectiveness of the Evening High School program nor noted in the form of a formal evaluation.

The former superintendent described the Alternative Learning Center (ALC), which was another intervention program in the county. In 1996, the county created the ALC as an alternative setting for struggling students. It was the first effort of implementing education in the county outside of the traditional school environment. The ALC targeted regular education students who needed an alternative placement in lieu of an expulsion. The ALC was a one year placement that allowed students to receive

educational services in a small learning environment and was not intended for students with special needs. Assessing the sustainability of the ALC, the former superintendent said, "The ALC was unsustainable because the students attending had more emotional and behavioral challenges than the school could address within their purview. Another factor for ending the ALC occurred when a negative portrayal was given in the local newspaper" (personal communication, July 2, 2015). Formal evaluations were not conducted on the original ALC model nor noted in the form of a formal evaluation.

In an effort to address the needs of the students in the program, the former principal of the ALC, summarized changes made in the program. In 2001, new leadership introduced changes to the ALC that would redefine its mission. Addressing the repurposing of the ALC, the former principal describes, "The program changed its name and focused on students with special needs who required a nonpublic school placement" (former principal, personal communication, May 6, 2015). In order to qualify for the program, a student needed to have 20 or more days of absences and/or 10 or more days of suspension. Placement in the program could range from one marking period to an entire school year. About interventions that the center offered students, the former principal said, "The [center] used research based programs such as Skillstreaming training (a prosocial skills training program) and counseling (both individual and group) as intervention strategies to support students in graduating" (personal communication, May 6, 2015). The center was closed when it was determined that the cost was greater than the benefit it was providing to the county (former principal, personal communication, May 6, 2015); however, a formal evaluation on the program was not conducted nor noted in the form of a formal evaluation.

Another intervention used in the county was a small schools initiative. During an interview with the current superintendent, he indicated that in 2002, the county received a $500,000 Small Learning Community grant from the Gates Foundation to promote the development of small schools. The objective of the learning communities was to aid in the ninth grade transition year by grouping ninth grade students in an isolated area of the school so as to limit their exposure to the larger school environment as a whole, thus creating a smaller learning community. Describing how small learning communities were staffed, the current superintendent said, "Teachers were selectively chosen by school administration based on certification area and interpersonal skills. They were given room assignments near one another to facilitate collaborative planning" (personal communication, July 2, 2015). The grant was in place for four years to allow sufficient implementation of small learning communities (SLCs) within the three county high schools for ninth grade students. The grant money was first used to implement SLC's at Green Mountain High School (GMHS). After two years of implementation at GMHS, Lionsburg High School began implementation. Castleton High School did not participate in the SLC movement. Grant funding had been depleted from implementation at Green Mountain High School and Lionsburg High School, and the county did not receive another grant for Castleton High School to begin implementation (current superintendent, personal communication, July 2, 2015). Addressing the SLC's sustainability, the current superintendent concluded, "Scheduling conflicts and lack of funding made the ninth grade learning communities unsustainable" (personal communication, July 2, 2015). As soon as the grant funding ended, SLCs were abandoned in the county. The current superintendent indicated, "The financial burden was unsustainable to fund the extra

faculty required" (personal communication, July 2, 2015). Commenting on the structural weaknesses of SLCs, the current superintendent concluded, "Starting a school within a school was a daunting task and the heavy demands on the development and operation were unsustainable" (personal communication, July 2, 2015). A formal evaluation on the SLC program in the county was not conducted nor noted in the form of a formal evaluation.

Current Dropout Interventions in the County

As noted previously, the dropout rate for FARM students in the county did fall between 2010 and 2015. This was possibly due in large measure to two programs established at the high school level to target and improve dropout rates. These interventions were blended learning, introduced to the county in 2012, and Fairfield Academy, initiated in the county in 2008.

In the county, the use of a blended learning model known as APEX was first adopted by the school system for use as an online learning intervention. According to the APEX website, APEX online learning is:

> The leading provider of blended and virtual learning solutions to the nation's schools. The company's standards-based digital curriculum — in math, science, English, social studies, world languages, and Advanced Placement® — is widely used for original credit, credit recovery, remediation, intervention, acceleration, and exam preparation. (APEX Learning, 2016)

The use of the APEX online learning program provided alternative ways for students to earn credits toward graduation. Through the use of APEX online learning, students in the county have earned credits for classes they failed, taken classes for original credit, and

recovered failing grades within a class by completing unit recovery. Students are

identified to participate in blended-learning opportunities based on their grades in current

classes or credits previously failed. Certificated faculty members are assigned to support

the students enrolled in the program, providing students with options throughout the

school day as well as after school to participate in the program. No other factors,

including FARM status, are considered for enrollment.

A second intervention program in place in the county is the Fairfield Academy.

Fairfield Academy is a program focused on preventing students from dropping out of

high school ("Fairfield Academy," n.d.; "Fairfield Academy" [Brochure], n.d.; "Fairfield

Academy II," n.d.). It opened in 2008 drawing students from the three high schools in a

mid-Atlantic county. Originally, the program only enrolled ninth grade students

("Fairfield Academy," n.d.). Each year, the program expanded to include more grade

levels. By 2012, the program contained students in grades nine through twelve

("Fairfield Academy," n.d.).

Students are invited to attend Fairfield Academy. Participating in the program is

optional, and students, with guardian permission, can withdraw from the program at any

time. In order to determine if a student should be invited to attend the program, each

student must meet certain criteria based on a Student At-Risk Calculator found in Figure

2. ("Fairfield Academy," n.d.; "Fairfield Academy" [Brochure], n.d.; "Fairfield

Academy II," n.d.). Items that are used to determine a student's potential to dropout of

high school include: special needs status, state testing scores for English and

mathematics, course grades for English and mathematics, attendance rates, number of

discipline infractions, number of suspensions from school, number of retentions, gender,

race, involvement in school activities, number of different schools attended, and FARM status (Klare, 2013). Students who fall into the medium or high potential dropout category are invited to attend the intervention program, with one caveat, they cannot have major disciplinary infractions ("Fairfield Academy," n.d.; "Fairfield Academy II," n.d.).

Figure 2: Student At-Risk Calculator

Description	Enter values this column only!		Risk Level: Low/Medium/High	
Student's ID number			**An _X_ indicates that the student may need intervention in the following area(s)**	
First name				
Last name				
Does student have an IEP?			**Mathematics**	
Exceptionality category			**Reading / English language arts**	
Score on 8th grade MSA Math test (407 = proficient; 444 = advanced)			**Attendance**	
Score on 8th grade MSA Reading test (391 = proficient; 425 = advanced)			**School engagement**	
Grade in 8th grade Math (on 0 to 100 scale)			**Behavior**	
Grade in 8th grade English (on 0 to 100 scale)				
Attendance rate (% of instructional time present)				
Number of office referrals in 8th grade (includes suspensions)				
Number of suspensions in 8th grade (ISS and OSS)				
Number of retentions in grades K-8				
Gender				
Race/ethnicity				
Did the student qualify for lunch assistance?				

Number of schools the student attended from K-present	
Was student involved in a school club, sports team/intramurals, band, or chorus?	

Figure 2. Numbers or groupings are added in the left hand column and a risk level for dropping out of school of high/medium/low is calculated and recorded in the right hand column. The right hand column also includes an "X" listed in the areas where the student is predicted to struggle. From Klare, M. (2008). *Looking for clues… Identifying youth who are at risk for dropping out* [PowerPoint slides]. Retrieved from http://www.ndpc-sd.org/documents/2008_Taos/Identifying-At-Risk-Youth-Klare.pdf.

In additional to being the researcher, the author was also the academic dean of the Fairfield Academy and was involved in the development of the program, and was responsible for the hiring of faculty, accepting students into the program, and managing all aspects of the intervention program. It should be noted that other factors were also involved in the selection of students who were invited to attend the program. Students' history and life outside of school was a major consideration for invitation. Most students invited have traumatic life events. Many have been abused (physically, emotionally, sexually), were homeless at some point in their childhood, were not being raised by a parent, had parents who were deceased or incarcerated, and/or had children of their own. There is no documentation; however, as a the former academic dean of the program it is known that students attending the program experienced no running water at their homes, electricity being shut-off, not having enough food to eat, and extreme poverty living conditions. Students involved in the program demonstrated all of the data driven criteria based on the Student At-Risk Calculator to be considered as potentially dropping out of high school; however, they also presented great challenges based on factors the school system could not control.

As the former leader of the program, it can be noted the faculty at Fairfield Academy focus on building relationships and meeting each individual student's social and emotional needs in order for them to meet graduation requirements. Teachers and staff work with each student to determine their academic challenges, from reading and math skills to problem solving. They develop relationships in a way that students learn to open up about their struggles, allowing faculty to address root causes of each students' academic challenges. Then, teachers develop lessons that will assist each student in improving their academic skills as well as improve their responses to issues occurring in their lives. The school staff develops individual student plans collaboratively.

During the hiring process of teachers and staff, the interview questions were tailored to determine if the faculty had empathy for struggling students. The interview questions were also designed to understand the candidates views on graduation, how a student should be treated if they miss school often, how the interviewee would interpret different situations, if they hold high expectations for students while not reducing grades for late work or not brining supplies to school, and if they evaluate students based on knowledge versus rule following. The staff at Fairfield Academy was expected to go above and beyond the regular teaching responsibilities to support students graduating from high school and this expectation was established during the interview process, before applicants were even hired.

The expectation that faculty maintain high expectations, yet teach with empathy was continued through all professional development at Fairfield Academy. The school system had content standards that had to be taught, but the method of teaching and strategies utilized was left up to the teacher and the program. In order to implement

empathetic teaching practices, all professional development was focused on this area. The professional development for faculty included book studies on teaching students from poverty and teaching struggling students. It also included driving the faculty members around the areas the students lived and engaging in discussion about how education could provide the support the students needed instead of being an impediment. Professional development was focused and continued with one theme through an entire school year.

Class sizes are kept small in order to allow teachers to develop strong relationships and tailor their lessons to individual student needs ("Fairfield Academy," n.d.; "Fairfield Academy" [Brochure], n.d.; "Fairfield Academy II," n.d.). Field trips are also incorporated into the program to "extend classroom instruction and expose students to the alternate employment opportunities and experiences beyond the traditional classroom" ("Fairfield Academy" [Brochure], n.d., p. 3). Each teacher at Fairfield Academy plans instruction to include:

> Cooperative learning and peer tutoring, integrated curriculum that provides a framework to allow students to succeed in a variety of ways, a wide variety of curriculum materials other than traditional textbooks and commercial educational materials, accelerated learning to gain grade level skills equivalent to their peers', active interdisciplinary projects that link school work to life experiences, and differentiated instruction based on individual students' needs. ("Fairfield Academy" [Brochure], n.d.)

> The teachers must be considered highly qualified by the Maryland state standards to teach in a content area.

The Fairfield Academy program is split into two separate locations with one building located in the [city] district supporting ninth and tenth grade students (Fairfield I) and a second location housed in relocatable trailers on the Lionsburg High School campus (Fairfield II). The program has two separate locations due to a lack of space to house the entire program in one facility (current superintendent, personal communication, July 2, 2015). Each location is staffed with core content area certificated teachers (English, math, science, and social studies) and certificated special education teachers. Each location also has a school counselor, administrator, and secretary. Both locations have technology in the form of SMART boards in every classroom, laptops for every student, and one class set of electronic tablets, as well as other technologies. Staffing and technology are in place to support the individual needs of each student in the program ("Fairfield Academy," n.d.).

The Fairfield Academy began with sixty students enrolled. As the program expanded each year, more students were enrolled. In 2009, the program enrolled sixty students. In 2010, the program enrolled 135 students. With the expansion of Fairfield Academy II, the program enrolled a total of 190 students in 2012. In 2013, 2014, and 2015, 230 students were enrolled for each year. Each graduating class has grown from 60 students in 2012 to 105 students in 2015, based on information from the culminating ceremony programs held each year.

Literature Review: Small Alternative Schools

In 2008, the county introduced the idea of a different type of small alternative school, called Fairfield Academy, with a focus on dropout prevention for academically at-risk youth ("Fairfield Academy," n.d.; "Fairfield Academy" [Brochure], n.d.). The

county was interested in reducing the dropout rate it had been experiencing among its FARM population ("Fairfield Academy" [Brochure], n.d.) and found that small alternative schools as intervention programs were being implemented in school systems throughout the United States. The focus of this literature review is an examination of intervention programs that were evaluated from 1991-2014 and how Fairfield Academy has similar characteristics to these interventions. From the finite amount of literature on small school interventions, it would seem that intervention programs are often not evaluated, like in the mid-Atlantic school system, so this literature review will focus only on the small school interventions with full evaluation results.

One such intervention program adopted in 1991 "aimed at easing the transition process for incoming high school freshmen" (Reyes & Jason, 1991, p. 222). In the freshman transition program, "students were identified as at-risk for dropping out of school on the basis of three criteria: being from low-income families, residing in a minority and low-income neighborhood, and transitioning to high school" (Reyes & Jason, 1991, p. 222). This design shows some similarities to the Fairfield Academy. The school system created Fairfield Academy as an alternative pathway to passing ninth grade, instead of attending the county's traditional high schools ("Fairfield Academy" [Brochure], n.d.).

The freshman transition intervention included a homeroom teacher who served as a primary source of information about school activities and acted as the link between parents and students. The homeroom teacher also provided parents with feedback on student progress. The school environment was reorganized to reduce fluctuations as much as possible. Students participating in the freshman transition program took

English, math, and social studies classes with other participants in the program. In the freshman transition program, academic and behavioral adjustment data were obtained. Academic records included grades from the 8th grade year as compared to the 9th grade year and scores on the Iowa Test of Basic Skills. Dropout and counseling referral data were also gathered (Reyes & Jason, 1991). Fairfield Academy has a similar structure with gathering data on students before they are accepted, focusing on the core academic areas, and students developing positive relationships with faculty ("Fairfield Academy," n.d.; "Fairfield Academy" [Brochure], n.d.; "Fairfield Academy II," n.d.).

The freshman transition program revealed no effect on academics and behavior in students who participated in the intervention. Certain areas of the program, such as reducing the complexity of the school, providing added school support, and increased availability of peer support, were not evaluated (Reyes & Jason, 1991).

A second small school intervention for which there is evaluation data was called High School Redirection: "High School Redirection is an alternative school model offering opportunity to dropouts to return to complete a regular diploma" (Mac Iver, 2011, p. 169). Three studies, all completed in 1997, were used to gather data on this dropout prevention program. Describing the High School Redirection intervention program, What Works Clearinghouse Intervention Report (2007) said, "The program emphasizes basic skills development (with a particular focus on reading skills) and offers limited extra-curricular activities" ("Program description," para. 1). In some cases, independent study and accelerated credit accumulation were also offered. Otherwise, schools followed the general curriculum requirements. The report continues, "Schools operate in economically disadvantaged areas and serve students who have dropped out in

the past, who are teen parents, who have poor test scores, or who are overage for their grade" (What Works Clearinghouse Intervention Report, 2007, "Program description," para. 1). The schools are small, with no more than 500 students, and "teachers are encouraged to act as mentors as well as instructors and classes are kept small to allow for more individualized attention" (What Works Clearinghouse Intervention Report, 2007, "Additional program information", para. 3). The three studies included more than 1,600 students. High School Redirection was found to have "mixed effects on staying in school, potentially positive effects on progressing in school, and no discernible effects on completing school" (What Works Clearinghouse Intervention Report, 2007, "Effectiveness", para. 1).

High School Redirection and the Fairfield Academy have few similarities in implementation. Fairfield Academy is a dropout prevention program like the High School Redirection model, but its aim is to keep students in school, not necessarily to bring them back to school after they drop out ("Fairfield Academy," n.d.). One similarity is size of the programs. High School Redirection schools are no more than 500 students, where Fairfield Academy has no more than 300 students ("Fairfield Academy," n.d.). In both programs, teachers are encouraged to act as mentors and role models and classes are kept small to allow for more individualized attention ("Fairfield Academy," n.d.; "Fairfield Academy" [Brochure], n.d.; "Fairfield Academy II," n.d.; What Works Clearinghouse Intervention Report, 2007).

Career Academies are another small school intervention aimed at keeping students in school. These academies offer a "combination of academic and vocational courses, often including work-based learning opportunities" (Mac Iver, 2011, p. 169).

The Career Academies increased both student participation in vocational and work-based learning activities, and the level of social support students receive during high school. The study included approximately 1,400 students who applied to an academy before their ninth or tenth grade years. Academies were located in eight urban areas in six states. Career Academies considered evidence of success in terms of students completing high school, staying in high school, and progressing in high school. Career Academies were found to have positive effects on completing school (Kemple & Snipes, 2000). Addressing the efficacy of Career Academies, Kemple and Snipes (2000) conclude, "Among students who are most at risk of dropping out of high school, Career Academies are an effective means of preventing dropout, increasing school engagement, and helping students acquire the credentials they need to graduate and prepare for post-secondary education" (p. ES-3).

Fairfield Academy, as compared to Career Academies, developed a partnership with the technology center in the county to build a connection to careers beyond high school; however, not every student enrolled in Fairfield Academy attends the technology center ("Fairfield Academy" [Brochure], n.d.):

> The [technology center] is part of the [mid-Atlantic] school system. It affords high school students the opportunity to learn the information and skills used in one of twenty-four specific career areas. The instructors are certified teachers who have worked in industry or have degrees in the field. Students who attend the [technology center] gain real world experience in a career field of their choice. ("Technology Center," n.d.)

Also, Career Academies considered evidence of success in terms of students completing high school, staying in high school, and progressing in high school, much the same as the data that was gathered to evaluate the Fairfield Academy for this study.

In 2002, New York City founded small high schools in disadvantaged communities that served approximately 100 students per grade. The program was called Transforming the High School Experience project. Students entered small high schools through a lottery system by winning a slot. The study included more than 21,000 students in New York City. The project emphasized strong relationships, community partnerships, and academic rigor. The measures of students' progress toward graduation included an on-track indicator after the first year of high school with no more than one failing grade in a semester in a core subject (English, math, science, social studies). Graduation rates were measured four years after students' scheduled entry into ninth grade. Students in the small schools were compared to students who did not enter the small school but had entered the lottery for admission. The study found that students who won an admissions lottery for a small school showed statistically significant improvements in graduation predictions, relative to students who lost the same admissions lottery. Four years after their scheduled entry into ninth grade, 68.1% of lottery winners graduated compared with 63.8% of the control group members (Bloom, Thompson, & Unterman, 2010).

Transforming the High School Experience program and Fairfield Academy share several commonalities. Both programs emphasize strong relationships between students and teachers. Both programs focus on core content areas, English, math, science, and social studies. In both programs, graduation rates are measured four years after each

student's scheduled entry into ninth grade (Bloom, Thompson, & Unterman, 2010; "Fairfield Academy," n.d.). For this study, the impact on dropout rate for students receiving FARM benefits and attending the Fairfield Academy is analyzed similar to the Transforming the High School Experience study in which graduation rates were calculated and compared between students who were enrolled in the program to students who were in the lottery, but did not attend the program (Bloom, Thompson, & Unterman, 2010).

Another small school dropout intervention involved the Talent Development High Schools initiative. Talent Development High Schools are "a reform model that includes organizational/management components, curricular/instructional innovations, professional development, and parent/community involvement" (Mac Iver, 2011, p. 169). The model includes both structural and curriculum reforms including reorganizing the schools into small learning communities. The intervention was a reform model for restructuring large high schools facing serious problems with attendance, discipline, student achievement, and dropping out. Small schools were created through academies. Program facilitators implemented after-hours programs and curriculum reforms to address low student expectations and poor academic preparation. The research design compared ninth grade students who entered Talent Development Schools versus ninth grade students from these same schools that did not attend the Talent Development Schools (Kemple, Herlihy, & Smith, 2005). Regarding the intervention's outcome, Kemple et al. (2005) conclude:

> Talent Development produced substantial gains in attendance, academic course
>
> credits earned, and promotion rates during students' first year of high school.

These impacts emerged in the first year of implementation and were reproduced

as the model was extended to other schools in the district and as subsequent

cohorts of students entered the ninth grade. The improvements in credits earned

and promotion rates for ninth-graders were sustained as students moved through

high school. (p. iii)

Fairfield Academy is similar in structure to the Talent Development Schools.

Both programs were designed to intervene with students facing serious problems with

attendance, student achievement, and high risks of dropping out. The programs also

attempt to better prepare students with previous poor academic skills ("Fairfield

Academy," n.d.; Kemple et al., 2005). One major difference between the programs is the

focus on students with serious discipline problems. Students with discipline challenges

were identified to attend the Talent Development Schools, while these challenges will

exclude a student from attending the Fairfield Academy. A component of the acceptance

criteria for Fairfield Academy eliminates students with an extensive disciplinary history

("Fairfield Academy," n.d.; Kemple et al., 2005).

The Truancy Intervention Program is a small high school initiative focused on

reducing truancy for an at-risk population in order to reduce the dropout rate (Marvul,

2012). In the Truancy Intervention Program, intervention strategies included: making

daily telephone calls, studying moral issues of respect, responsibility, trustworthiness,

care, citizenship, and fairness. The program also offered club sports. The school for at-

risk students enrolled about 100 students for seven hours a day, five days per week. 80%

of the students were living on or below the poverty line (Marvul, 2012). Referring to

data collected when students began the intervention, Marvul (2012) describes:

Study participants were administered the Student Engagement Survey. The survey

instrument focuses on three domains of student behavior all of which have direct

correlations to school engagement. Behavioral engagement is related to obeying

rules, participating in school activities, and the absence of disruptive behavior.

Cognitive engagement refers to motivation, effort, and psychological investment

in learning. Emotional is related to attitudes toward school and teachers,

identification with school, and feelings of belonging. (p. 154-155)

Findings from the study indicated an inverse relationship between post intervention

absenteeism and post-test scores on attitudes toward education, educational expectations,

as well as emotional, cognitive, and behavioral engagement. Addressing what the results

revealed was important in changing students' lives, Marvul states, "Results indicate that

students need caring adults and a supportive curriculum in their lives" (2012, p.163).

Marvul (2012) continues, "When students believe that what is being taught has relevance

in their lives and perceive that their families and cultures are respected because of the

consistency of contact, they will be less likely to dropout of school" (p. 163).

Drawing a connection to the Fairfield Academy, like the Truancy Intervention

Program, significant emphasis is given to students with attendance issues to provide

support and academic redemption. Behavior, cognitive, and emotional support are offered

at Fairfield Academy. The Fairfield Academy staff is "teaching the whole child,

recognizing that many struggling students have personal or interpersonal distractors that

must be addressed before academic pursuits can become their main focus" ("Fairfield

Academy II," n.d., p. 4). Fairfield Academy is in place to address the needs of struggling

students. Faculty at Fairfield Academy provides support for students "emotional, psychological, physiological, and academic needs" ("Fairfield Academy II," n.d., p. 2).

Based on a review of successful dropout intervention programs, Hammond, Linton, Smink, and Drew (2007) made the following recommendations for implementing a program:

1. Multiple risk factors across several domains should be addressed to increase the likelihood that the program will produce positive results. 2. Multiple strategies should be used to help assure program impact. 3. When adopting an existing exemplary program, it must be fully implemented and be implemented as designed. 4. Program planners who develop their own strategies need to use evidence-based strategies proven to impact the risk factors they are addressing and develop strategies based on best practice. 5. Practitioners need to use evidence-based strategies to evaluate programs to assure effectiveness. (p. 64)

Fairfield Academy has a design and structure that meets all five of the recommendations from Hammond, Linton, Smink, and Drew ("Fairfield Academy," n.d.).

The successful small alternative schools reviewed all included a component of building adult relationships or mentor programs. This is one common characteristic of successful intervention programs. Another common characteristic of the small intervention programs was using some type of system for identifying students who have the greatest potential for dropping out. Using early warning systems is one of the best ways to determine which students are potentially going to drop out of high school and would be the best fit for an intervention program (Hammond et al., 2007; Klare, 2008; Klare, 2013).   Fairfield Academy is a dropout prevention program that combines many

of the characteristics of the evaluated intervention programs reviewed, including forming strong adult relationships and using an early warning system to identify participants ("Fairfield Academy," n.d.).

Proposed Investigation

The study design examined the extent to which a student enrolling in Fairfield Academy decreases the dropout rate in the county as a whole with a particular focus on the dropout rate of students receiving FARM benefits. The reader should be cautioned that the study used a small sample size and extrapolation of the data should be avoided. The study also determined the probability of a student graduating from high school if they choose to attend the program. Once again, a particular focus involved students receiving FARM benefits. A quantitative method is utilized to gather data on the dropout rate in the county from 2010 to 2015. Using quantitative data, an analysis of graduation rates for a matched group of students who did not attend the program as compared to students who did attend the program is utilized and another pooled group of student data included students who were invited to attend the program, but chose not to as compared to the graduation status of students who did attend. A separate highlight was placed on the number of students receiving FARM benefits that dropped out from the matched and pooled groups. The investigation is an evaluation of the Fairfield Academy to determine if the intervention reduced the dropout rate overall and/or for the FARM subgroup in the county. The evaluation could help the county determine if the program should continue to be implemented.

Section 2: Methodology

Purpose of the Study

The purpose of this study was to determine the impact of participating in Fairfield Academy on graduating from high school by showing a decrease in drop-out rate overall for the county and to determine if Fairfield Academy made an impact on the FARM subgroup dropout rate for the county. Through this study, the researcher examined the effectiveness of Fairfield Academy as a dropout prevention program for the most challenging students in the county and whether Fairfield Academy was serving its purpose as a dropout prevention program.

Research Questions/Hypotheses

1. To what extent has Fairfield Academy impacted the dropout rate in the mid-Atlantic school system? The hypothesis is that dropout rates have decreased in the county since the implementation of Fairfield Academy.

2. To what extent has Fairfield Academy affected the dropout rate of FARM students in the mid-Atlantic school system? The hypothesis is that dropout rates for the FARM subgroup have decreased in the county since the implementation of Fairfield Academy.

Study Design

This study used a quantitative approach to examine the extent to which Fairfield Academy decreased dropout rates in the county overall and specifically for the FARM subgroup. It employed a relationship research design showing the impact that participation in Fairfield Academy had on dropout rates in the county overall and within

the FARM subgroup. The study design examined the extent to which the enrollment of students receiving FARM benefits in Fairfield Academy increases their probability of graduation, which in turn decreases the dropout rate. Dropouts rates overall and for the FARM subgroup are examined before the implementation of Fairfield Academy using averages of dropout data from before the implementation of the program and after the implementation of the program, a matched group from one cohort year of participants in the program to non-participants, and a pooled group of students invited to attend the program but declined.

Participants

The participants in the study are individual students in the mid-Atlantic school system between the school years of 2010 and 2015. The unit of analysis for the study is the individual student. First, the dropout rates for the two graduating classes before the inception of Fairfield Academy and after the implementation of the program in the county are compared. The sample for the dropout data will include approximately 6,000 students, about 1,000 students each cohort year. The reader should be cautioned throughout the study that the participants in the study represent a small sample size as compared to the total number of students.

The matched group involved individual students who participated in Fairfield Academy with a four-year cohort graduation year of 2015 as compared to a matched group of individual students who did not participate in the program. The matched group had similar characteristics to the students who participated in the program. The sample included 77 students in the four-year graduation cohort of 2015 who participated in

Fairfield Academy and 78 matched students in the county who did not participate in the program.

The pooled group included individual students enrolled in Fairfield Academy with a four-year graduation cohort of 2014 and 2015 compared to students who were identified to attend the program but declined the invitation in both cohort groups. The sample included 151 students who participated in Fairfield Academy and 36 students who were invited to participate but declined during the same time frame. As the data is examined, the small sample size should be noted and the reader should be cautioned when analyzing the results.

Data Sources

The primary source for the data analysis was information for individual students from the county administrative records. The matched group was determined through reviewing a data warehouse of students' demographic information to determine FARM status, participation in Fairfield Academy, attendance, conduct referrals, race, middle school grade point averages, and graduation status. The data warehouse allowed the researcher access to other information about the individual students including, but not limited to: parental data, age, gender, courses completed in middle and high school, grade point average each year of high school and cumulative grade point average at graduation, sibling information, state testing scores, and how many times a student moved in and out of the county. Data from the 2015 four-year graduation cohort was utilized for the matched group model. Data from the four-year graduation cohorts of 2014 and 2015 school years was utilized for the pooled group model. All information from the data

warehouse was void of student names and identification numbers. The researcher did not have access to individual identifying information.

A second data source used in the study is the Maryland State Department of Education, Maryland Report Card for the mid-Atlantic school system. This data source was used to determine the dropout rates for the county overall and the FARM subgroup dropout rates in order to calculate the averages and compare dropout rates before the implementation of Fairfield Academy and after its enactment.

Methods/Procedures

A quantitative method was utilized to gather data on individual students in the county who enrolled in Fairfield Academy and individual students who did not participate in the program. Also, the FARM subgroup was analyzed in the same way as the overall dropout rate for the county.

First, averages were calculated for the overall dropout rate in the county before the implementation of Fairfield Academy and after the program had a four-year adjusted cohort graduating class. The dropout rates were averaged across the two separate time frames, and the rate of change was determined and examined. The same process was followed for the FARM subgroup data in the county.

Second, a matched group was created using the data on students who did not participate in Fairfield Academy and how they would score on the At-Risk Student Calculator. The matched group was developed from the four-year graduation cohort of 2015. A logistic regression model was utilized to determine the probability of a student graduating if they attended the program as compared to the group who did not attend the program. The dependent variable for both groups was dropping out of high school. The

logistic regression was used to determine if there was a difference in the probability that the individual student graduated in 2015, given their demographic information in 2012, when they started high school. The logistic regression was run on all students participating in Fairfield Academy for the four-year graduation cohort of 2015 and for the FARM subgroup of 2015 with a matched FARM subgroup. The logistic regression helped the researcher explore the possible program effects for students overall and for the FARM subgroup. In this model, the independent variable was students receiving FARM-benefits. The dependent variable was the students who enrolled in Fairfield Academy.

Lastly, the pooled group of students who declined to attend Fairfield Academy was analyzed using a logistic regression model. The students who declined were from the four-year graduation cohort of 2014 and 2015. The group who declined to participate is considered the pooled group, and the students who participated in the program are the intervention group. The logistic regression determined the probability of graduation when attending the program versus not participating. Based on the outcome, the study determined if a participant in Fairfield Academy was more likely to graduate from high school than a student who was invited to partake but did not participate in the program. The pooled group was analyzed for the overall dropout rate for non-participants as well as for the FARM subgroup. The intervention group was also analyzed for the overall dropout rate as well as for the FARM subgroup.

Plan for Analysis

The analytic approach focused on the effect of a student enrolling in Fairfield Academy on dropout rate, with an additional focus on students receiving FARM benefits.

The study determined if the intervention program decreased the dropout rate overall and/or for the FARM subgroup, did not decrease the dropout rate overall and/or for FARM students, or had no effect on the dropout rate overall and/or for FARM students. The logistic regression determined the expected probability of the outcome variable occurring based on the final model. For example, if a student was similar in demographic characteristics and he or she attended Fairfield Academy, he or she was predicted to graduate from high school. It is estimated there was a relationship between overall enrollment in Fairfield Academy and for students receiving FARM benefits enrolling in Fairfield Academy and a decrease in the dropout rate overall and for the FARM subgroup. It is also likely that the logistic regression models predicted a greater probability of graduating from high school if a student participated in the intervention program from both the matched group and pooled group.

Section 3: Results

This section presents the results of the study and details the answers to the research questions. It begins with a discussion of the results of analyzing the changes in the dropout rate in a mid-Atlantic school system from before the inception of Fairfield Academy as compared to after the implementation of the program, followed by an analysis of a logistic regression of a matched group of students who did not attend Fairfield Academy to a group who did attend the program, and ending with an analysis of a logistic regression based on data from a pooled group of students who were invited to attend the program, but did not, as compared to the students who did attend the program. After the overall data was reported, the researcher performed a focused analysis of students receiving free or reduced priced meals. This section concludes with a discussion of the results, implications of the study, and recommendations for the school system. The reader should note the intervention program involved a small number of students as compared to the overall number of students in each graduating class. The results should be considered in the context of the small sample size.

Discussion of Results

The average dropout rates were determined for the county overall and then specifically for students receiving FARM benefits. The numbers used when calculating the average were from all graduates in the school system; the number of students who attended the intervention was included in the total number of students; however, they represent a small group. The dropout rates were found before the first graduating class of the intervention program, 2010 and 2011, and following the creation of Fairfield

Academy; see Table 2. The calculation of the graduation rate and dropout rate changed to the four-year adjusted cohort method for the graduating class of 2010. 2012 saw the first class of students to graduate from Fairfield Academy. Therefore; only two years of data could be gathered prior to the implementation of Fairfield Academy.

Table 2

Overall and FARM Dropout Rates for the Mid-Atlantic School System From 2010 to 2015

Year	Overall Dropout Rate	FARM Dropout Rate
2010	10.98% (144/1,311)	18.80% (54/286)
2011	11.37% (144/1,267)	24.80% (75/303)
2012	8.84% (120/1,358)	22.70% (70/309)
2013	5.91% (73/1,236)	14.10% (40/284)
2014	4.44% (57/1,284)	11.63% (35/301)
2015	4.13% (54/1,306)	11.58% (33/285)

(Maryland State Department of Education, 2016)

The average for the overall dropout rate in the county for the graduating class of 2010 and 2011 was calculated; next, the average overall dropout rate was calculated for the following graduating classes: 2012, 2013, 2014, and 2015. The same calculations were completed for the FARM dropout rate. Refer to Table 3.

Table 3

*Average Overall Dropout Rate and FARM Dropout Rate Before and After the
Implementation of Fairfield Academy*

	Average Overall Dropout Rate	Average FARM Dropout Rate
Before the implementation of FA	11.18% (288/2,578)	21.80% (129/589)
After the implementation of FA	5.83% (304/5,184)	15.00% (178/1,179)

During this six-year period of time, the overall dropout rate was decreasing due to

an array of programs, including the Fairfield Academy. The county experienced a 5.35%

decrease in the dropout rate after the implementation of Fairfield Academy. It also

experienced a 6.80% decrease in the FARM dropout rate after the implementation of the

program. The first test of the rate of change in the overall dropout rate and FARM

dropout rate for the mid-Atlantic school system demonstrated a decrease in the dropout

rate for both groups of students after the implementation of the intervention program.

Based on the data, the Fairfield Academy may or may not have had an impact on the

overall and FARM subgroup dropout rate. There seems to be a relationship between the

implementation of the Fairfield Academy and a decrease in the dropout rate; however, the

small sample size should be considered for both the overall dropout rate and the FARM

subgroup dropout rate.

A second test was administered to evaluate the effectiveness of Fairfield

Academy. This test was based on a matched group of students who did not participate in

the program to a group within the same four-year adjusted cohort who did participate in

the intervention. Dropout rates for Fairfield Academy for the graduating class of 2015

were compared to a matched group of students who did not attend Fairfield Academy. The matched group was chosen based on students in the four-year graduation cohort of 2015, with a +2/-2 percentage of FARM students, students with special needs, disciplinary history, attendance history, and GPA in middle school demographics in comparison to the students who attended Fairfield Academy in the four-year graduation cohort of 2015. Once the matched group was established, the data was broken down into attended, not attended, as well as FARM and non-FARM; see Table 4.

Table 4

Matched Group Data for Attendance in the Program and FARM Status

Matched Group	FARM	Non-FARM	Total
Attended	52	25	77
Didn't Attend	50	28	78
Total	102	53	155

Next, the students who graduated or dropped out from both the intervention group and matched group were determined based on FARM and non-FARM status; see Table 5.

Table 5

Matched Group (Didn't Attend) and Intervention Group (Attended) Graduation and Dropout Total Number of Students

Graduated	FARM	Non-FARM	Total	Didn't Graduate	FARM	Non-FARM	Total
Attended	50	25	75	Attended	2	0	2
Didn't Attend	32	24	56	Didn't Attend	18	4	22
Total	82	49	131	Total	20	4	24

From the total number of students in each category, the graduation rates and dropout rates were determined; see Table 6.

Table 6

Matched Group (Didn't Attend) and Intervention Group (Attended) Graduation and Dropout Rates

Graduation Rate	Non-			Drop-Out Rate	Non-	
	FARM	FARM			FARM	FARM
Attended	96% (48/50)	100% (25/25)		Attended	4% (2/50)	0% (0/25)
Didn't Attend	64% (32/50)	86% (24/28)		Didn't Attend	36% (18/50)	14% (4/28)

The graduation rates were placed into a graph for easier comparison; see Figure 3.
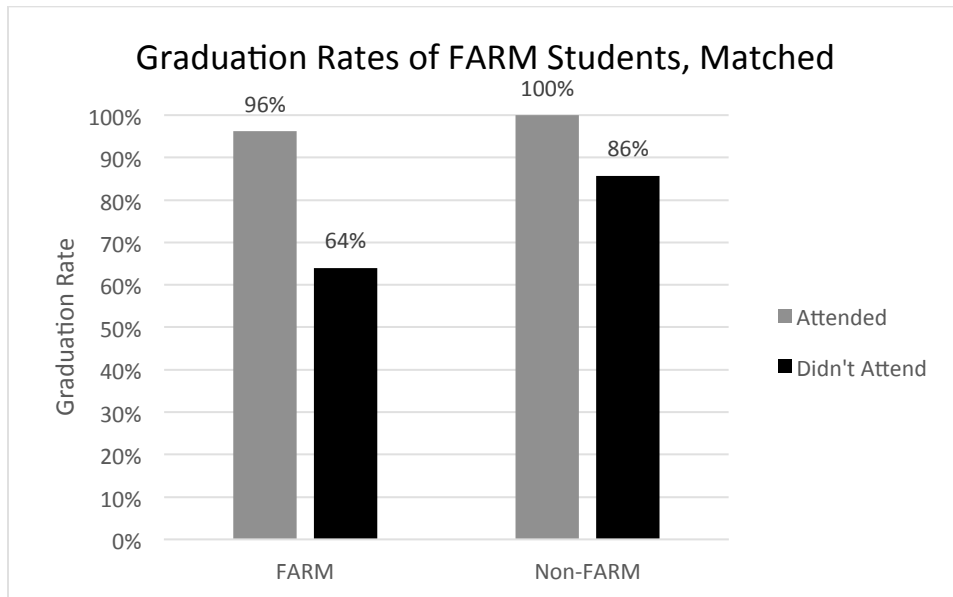

Figure 3. Matched Group (Didn't Attend) and Intervention Group (Attended) Graduation Rates for FARM and Non-FARM Students

FARM students who attended the Fairfield Academy had a 32% greater graduation rate than a matched group of FARM students who did not attend the program. Non-FARM students who attended the program had a 14% greater graduation rate than the matched

group of non-FARM students who did not attend the program. There is a greater graduation rate for students attending the program; however, the result is based on a small sample size.

Using the graduation data for the intervention group and matched group, a logistic regression model was run; refer to Table 7 for the results.

Table 7

Logistic Regression Results for the Intervention Group (Attended) Compared to the Matched Group (Not Attended)

Graduated	Odds Ratio	Standard Error	P value	[95% Confidence Interval]	
Attended	14.73	11.19	0.00	3.33	65.26
Not Attended	2.55	0.64	0.00	1.55	4.17

Note: Number of observations = 155
  Chi2= 0.00
  Alpha is defined at 0.05

Chi-squared is 0.00, which is less than alpha (0.05). The amount of variance in the model is not due to chance, and there is a statistical significance related to the graduation status of the students who attended Fairfield Academy. The p-value for students who attended the program is 0.00, which further demonstrates attending the program has an effect on the probability of graduating from high school. The odds ratio indicates that students attending the program are almost fifteen times more likely to graduate than students in the matched group who did not attend the program; however, the confidence interval is large so this model only suggests the positive effect the program has on graduation status.

Using the graduation data for the FARM students in the intervention group and FARM students in the matched group, a logistic regression model was run; refer to Table 8 for the results.

Table 8

Logistic Regression Results for the FARM Students in the Intervention Group (Attended) Compared to the FARM Students in the Matched Group (Not Attended)

Graduated	Odds Ratio	Standard Error	P value	[95% Confidence Interval]	
Attended	14.06	10.95	0.00	3.05	64.73
Not Attended	1.78	0.52	0.05	1.00	3.17

Note: Number of observations = 102
Chi2 = 0.00
Alpha is defined at 0.05

Chi-squared is 0.00, which is less than alpha (0.05). The amount of variance in the model is not due to chance. There is a statistically significant effect on FARM students attending the program and an increased chance of graduating from high school. The p-value for FARM students who attended the program is 0.00, which further demonstrates that attending the program has an effect on the probability of graduating from high school. The odds ratio indicates that FARM students attending the program are fourteen times more likely to graduate from high school than FARM students in the matched group who did not attend the program. It should be noted the confidence interval is large, so there is low confidence in the odds ratio.

A final set of data was used to evaluate the effectiveness of Fairfield Academy. This set of data involved using a pooled group of students compared to the group of students who attended the program. The pooled group of students is defined as students

who were invited to attend the Fairfield Academy; however, they declined to participate

in the intervention program. The participants in this set of data include the Fairfield

Academy graduating class of 2014 and 2015, and the pooled group of students who were

invited to attend the program during these same cohort years but chose to not participate.

Table 9

Pooled Group Data for Attendance in the Program and FARM Status

Pooled Sample	FARM	Non-FARM	Total
Attended	108	43	151
Did Not Attend	24	12	36
Total	132	55	187

Note. The pooled sample is much smaller than the intervention sample.

Next, students who graduated or dropped out from both the intervention group and

pooled group were determined based on FARM and non-FARM status; see Table 10.

Table 10

*Pooled Group (Didn't Attend) and Intervention Group (Attended) Graduation and
Dropout Total Number of Students*

Graduated	FARM	Non-FARM	Total	Didn't Graduate	FARM	Non-FARM	Total
Attended	104	43	147	Attended	4	0	4
Didn't Attend	18	11	29	Didn't Attend	6	1	7
Total	122	54	176	Total	10	1	11

From the total number of students in each category, the graduation rates and dropout rates

were determined; see Table 11.

Table 11

Pooled Group (Didn't Attend) and Intervention Group (Attended) Graduation and Dropout Rates

Graduation Rate	Non-			Drop-Out Rate	Non-	
	FARM	FARM			FARM	FARM
Attended	96% (104/108)	100% (43/43)		Attended	4% (4/108)	0% (0/43)
Didn't Attend	75% (18/24)	92% (11/12)		Didn't Attend	25% (6/24)	8% (1/12)

The graduation rates were placed into a graph for easier comparison; see Figure 4.
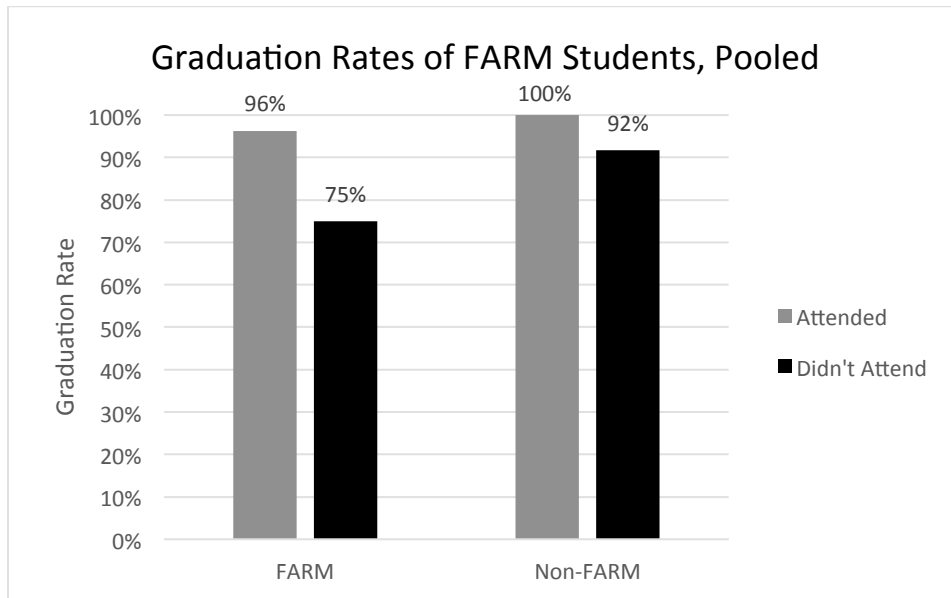

Figure 4. Pooled Group (Didn't Attend) and Intervention Group (Attended) Graduation Rates for FARM and Non-FARM Students

FARM students who attended Fairfield Academy had a 21% greater graduation rate than the pooled group of FARM students who did not attend the program. Non-FARM students who attended the program had an 8% greater graduation rate than the pooled group of non-FARM students who did not attend the program. It must be noted that the

results are based on a small number of individual students in both the overall group and the FARM subgroup.

Using the graduation data for the intervention group and the pooled group, a logistic regression model was run; refer to Table 12 for the results.

Table 12

Logistic Regression Results for the Intervention Group (Attended) Compared to the Pooled Group (Not Attended)

Graduated	Odds Ratio	Standard Error	P value	[95% Confidence Interval]	
Attended	8.87	5.84	0.00	2.44	32.27
Not Attended	4.14	1.74	0.00	1.81	9.46

Note: Number of observations = 187
        Chi2 = 0.00
        Alpha is defined at 0.05

Chi-squared is 0.00, which is less than alpha (0.05). The amount of variance in the model is not due to chance and there is a statistical significance of attending Fairfield Academy and graduating from high school. The p-value for students who attended the program is 0.00, which further demonstrates that attending the program has a statistically significant effect on the probability of graduating from high school. The odds ratio indicates that students attending the program are almost nine times more likely to graduate from high school than students in the pooled group who did not attend the program. The confidence interval is large indicating the the confidence is low for the odds ratio. The large confidence ratio could be due to the small sample size.

Using the graduation data for the FARM students in the intervention group and FARM students in the pooled group, a logistic regression model was run; refer to Table 13 for the results.

Table 13

Logistic Regression Results for the FARM Students in the Intervention Group (Attended) Compared to the FARM Students in the Pooled Group (Not Attended)

Graduated	Odds Ratio	Standard Error	P value	[95% Confidence Interval]	
Attended	8.67	6.02	0.00	2.22	33.78
Not Attended	3.00	1.41	0.02	1.19	7.56

Note: Number of observations = 132
Chi2 = 0.00
Alpha is defined at 0.05

Chi-squared is 0.00, which is less than alpha (0.05). The amount of variance in the model is not due to chance and there is a statistically significant effect of receiving FARM benefits and attending the program to an increased probability of graduating from high school. The p-value further demonstrates that attending the program has a statistically significant effect on the probability of a FARM student graduating from high school. The odds ratio indicates FARM students attending the program are 8.67 times more likely to graduate than FARM students in the pooled group who did not attend the program. The confidence interval is large; therefore, indicating the confidence in the odds ratio is low.

A multicoliniarity test was run with each logistic regression model. All tests for the matched group and pooled group showed a multicoliniarity not satisfied or the independent variables were truly independent of one another. Therefore, the data

continues to show a statistically significant effect of attending Fairfield Academy on the probability of graduating from high school.

Research Question 1

To what extent has Fairfield Academy impacted the dropout rate in the mid-Atlantic school system? The hypothesis is that dropout rates have decreased in the county since the implementation of Fairfield Academy. The hypothesis was not proven false.

Since the implementation of Fairfield Academy in a mid-Atlantic school system, the dropout rate has decreased an average of 5.35%. Based on the logistic regression of a matched group of students who attend the program, students who attended the program were almost fifteen times more likely to graduate than their peers who demonstrated similar demographic characteristics to those who did attend the program. Lastly, from a pooled group of students who were invited to attend the program, but chose not to, the students who attended the program had an almost nine times greater chance of graduating from high school. All three of these data points suggest students attending the program are more likely to graduate from high school, decreasing the overall dropout rate of the school system. The small sample size of the participants in the program should be noted as these results are discussed beyond this study.

Research Question 2

To what extent has Fairfield Academy affected the dropout rate of FARM students in the mid-Atlantic school system? The hypothesis is that dropout rates for the

FARM subgroup have decreased in the county since the implementation of Fairfield Academy. The hypothesis was not proven false.

Since the implementation of the Fairfield Academy in a mid-Atlantic school system, the FARM dropout rate has decreased an average of 6.80%. Based on the logistic regression of a matched group of students who attended the program, FARM students who attended the program were fourteen times more likely to graduate than their peers who demonstrated similar demographic characteristics to those who did attend the program, including FARM status. Lastly, from a pooled group of FARM students who were invited to attend the program, but chose not to, the students who attended the program had an eight times greater chance of graduating from high school than their FARM peers who did not attend the program. All three of these data points suggest FARM students attending the program are more likely to graduate from high school, decreasing the overall dropout rate for the school system. The small sample size of the participants in the program should be noted as these results are discussed beyond this study.

Limitations of the Study

The most prominent limitation of the study is the small sample size of students participating in the intervention as compared to students attending their home high schools in the county. The results seem to demonstrate the program is having an effect on the overall dropout rate for the county and for the FARM subgroup; however, the small number of students who participated in the program cannot account for the entire decrease in the dropout rates for the county. The logistic regressions for both the

matched group and pooled group represent an even smaller n-value. The results must be considered based on the small number of participants in the intervention. Based on the small number of participants only a relationship can be extrapolated and not a causal effect of the program on the dropout rate. The confidence intervals in the logistic regressions are large, also indicating that results of the odds ratios must be examined with caution.

The small number of FARM students could have been shaped in this mid-Atlantic school system because students apply for FARM benefits every year of school. Throughout high school, students may not complete the application form and many seniors who once received FARM benefits are no longer receiving the benefit upon graduation. Students no longer receiving FARM benefits as a senior no longer count as FARM students in the graduation rate. Even though the student was accepted into Fairfield Academy when receiving the FARM benefit, when they graduate they are no longer receiving services; therefore, they do not count in the FARM graduation rate. This limits the number of students in the study who are considered FARM, thereby creating an even smaller sample size.

Another limitation to the study involves the first graduating class of Fairfield Academy, the 2012 cohort. The 2012 cohort of students attending the program could only attend for three years. The program expanded during their high school career. This cohort of students was not given the opportunity to attend in their eleventh grade year. The first cohort was also reduced in number of acceptances in their senior year of high school due to staffing of the program as it expanded to include all four years of high school. This factor could have impacted the dropout rate for this graduating class.

One other caveat to the implementation of Fairfield Academy was the expansion in size of the student population each year. The first cohort only contained 60 students. After the first year, each graduating class size grew to its current maximum of 105. The data does not always indicate this maximum number of students in the cohort due to high mobility. High mobility is a factor used to determine acceptance into the Fairfield Academy. It is one indicator of potentially dropping out of high school; however, this is also a limiting factor in evaluating the program. Each cohort would have anywhere from ten to twelve students move out of the school system before reaching graduation.

Another limitation occurred with the gathering of dropout rates before the implementation of Fairfield Academy. Two years before the implementation of the program, the state of Maryland changed the calculation method for graduation rates and dropout rates. Before 2010, dropout rates were calculated differently and therefore were not usable in this study as comparison data. This limited the data to only two years of cohort dropout rates to compare the effect of Fairfield Academy using the overall dropout rates and FARM dropout rates for the school system.

An added limitation to the study is noted with the matched group. Students who attend Fairfield Academy have a long history of factors that would lead them to dropping out of high school. Finding a comparison group was difficult to match the intangible family history or intangible stories of many of the students. The matched group was determined based on finding a similar percentage of students (+2/-2) with disabilities, FARM status, attendance concerns, and discipline referrals to the percentage of students who did attend Fairfield Academy. It was difficult to find a matched group that would

equate with a one-to-one match and the researcher is unable to tell how closely the students match on other intangible characteristics.

One final limitation occurred with the pooled group of students. The pooled group spanned over two cohort years in order to have enough students to produce a regression model. The limitation occurred when 51 students were identified who had declined to attend Fairfield Academy over two cohort years; however, fifteen of these students had moved away from the county, limiting the pooled group to 36 students. This is a low sample number to run the regression model and could have caused the results to be less statistically significant.

Implications and Recommendations for the Mid-Atlantic School System

The literature by Hammond, Linton, Smink, and Drew (2007) recommends that successful dropout intervention programs include the following:

1. Multiple risk factors across several domains should be addressed to increase the likelihood that the program will produce positive results. 2. Multiple strategies should be used to help assure program impact. 3. When adopting an existing exemplary program, it must be fully implemented and be implemented as designed. 4. Program planners who develop their own strategies need to use evidence-based strategies proven to impact the risk factors they are addressing and develop strategies based on best practice. 5. Practitioners need to use evidence-based strategies to evaluate programs to assure effectiveness. (p. 64)

Fairfield Academy has a design and structure the encompasses the recommendations by Hammond, Linton, Smink, and Drew by operationalizing the above recommendations.

First, multiple risk factors are addressed during the intervention by hiring staff that interacts with all students by having high expectations, yet teaching with empathy for the students background and life outside of school. Building relationships with students is a key factor in the success of the program. Second, multiple strategies are used to help assure program impact through professional development, identifying students who are invited to attend the program and then developing plans to meet the individual needs of each student. Third and fourth, Fairfield Academy is implemented fully with changes being made based on research and data. Lastly, the effectiveness of the program was evaluated through this study finding a relationship between the implementation of the program and a decreased dropout rate; however, further evaluative measures need to continue.

Additional factors that may have affected the success of Fairfield Academy include the hiring process for faculty, the focused professional development to meet the individual needs of the students, and the students creating their own school culture at the Fairfield Academy site. The students took ownership of the program and of their individual success of graduating from high school. The small school environment, with a separate location from the large high schools, affords the Fairfield Academy the opportunity to put all of the recommendations in place for a successful dropout intervention program.

In the future, the county should run the Student At-Risk Calculator on all eighth grade students and keep this information in order to evaluate Fairfield Academy more routinely. This would assist in having a broader band of students to track over time and would allow for a matched group that includes most demographic factors. Fairfield

Academy should keep records of students who declined participation in the program in order to track the graduation data over time for the pooled group. This would create a larger pooled group of students for the logistic regression to make predictions in the form of an odds ratio. Having a stronger matched group and a larger pooled group would allow for a more thorough and robust evaluation of the effectiveness at reducing the counties dropout rate due to Fairfield Academy. The study should be replicated with larger numbers of students to determine the full effectiveness of the program.

Implications based on the results of this study of the mid-Atlantic school system would be to improve the marketing of the program to have more students choose to attend who are invited. If all of the students who were invited to attend accepted entrance to the program, the dropout rate for the county may decrease even more based on the pooled group regression model showing students had an almost nine times greater chance of graduating if they attended the program.

The results suggest Fairfield Academy was effective in decreasing the dropout rate in the school system for all students who attend the program and also specifically for the FARM subgroup. The county may consider expanding the program so more students who demonstrate the risk factors for dropping out of high school could have the opportunity to attend.

As also noted in the data, many students continue to graduate even if they do not attend the intervention program. Fairfield Academy may not be right for every student; therefore, the school system needs to offer an array of programs to meet each student's needs. Many students in the matched group and the pooled group who did not attend the intervention still graduated from high school indicating that other factors play a role in

high school graduation. These students may have participated in a different program or intervention at their home high school that encouraged them to graduate.

Summary and Conclusions

The results of the study indicate there may be a relationship in the decrease in the dropout rate overall and for students receiving FARM benefits in the mid-Atlantic school system after the implementation of the Fairfield Academy. The dropout rate decreased 5.35% overall and 6.80% for students receiving FARM benefits from before the implementation of the program to after the implementation. Students in the matched group who attended the program had an almost fifteen times greater probability of graduating from high school than students who did not attend the program. Students in the pooled group who attended the program had a nine times greater chance of graduating than students who were invited to attend but choose not to. The results are based on a small number of students who participated in the intervention and this should be considered if the results are cited beyond this study.

Based on the data from the comparison group, students receiving FARM benefits and who attended the program had a fourteen times greater chance of graduating from high school. The FARM students in the pooled group who attended the intervention had an almost nine times greater chance of graduating from high school as compared to FARM students who were invited to attend the program but choose not to. The pooled group results are based on an even smaller number of participants and this must be considered if the results are cited beyond this study.

The data suggests Fairfield Academy is making a difference in reducing the dropout rate in one mid-Atlantic school system for all students and particularly for students receiving free or reduced price meals. The confidence intervals of each logistic regression model are large so the researcher cannot say with complete confidence that the intervention program was the only reason the dropout rate decreased in the county; however, the data does validate the program is having a positive effect. Fairfield Academy is a dropout intervention program that is effective in decreasing the dropout rate for all students who attend. It was also effective in reducing the dropout rate of FARM students who attend; therefore, saving the community in resources that would most likely be needed if those same students had dropped out of high school.

Reference List

Alliance for Excellent Education. (2011). *The high cost of high school dropouts: What the nation pays for inadequate high schools.* Issue Brief. Retrieved from http://all4ed.org/wp-content/uploads/2013/06/HighCost.pdf

Amos, J. (2008). Dropouts, diplomas, and dollars: US high schools and the nation's economy. *Alliance for Excellent Education*. Retrieved from http://all4ed.org/wp-content/uploads/2008/08/Econ2008.pdf

Apex Learning. (2016). *Apex learning helps educators prepare all students for college and career success.* Retrieved from http://www.apexlearning.com/Company/About.htm

Assurance of Comparable Services: Title 1. (2006, November 29). Retrieved June 19, 2014, from St. Mary's County Public Schools Board Docs: http://www.boarddocs.com/mabe/smcps/Board.nsf/goto?open&id=89B3E08EAE 0707868725753C006AC13E

Babcock, J. (2010, October 14). *More St. Mary's residents living below poverty line, census data show*. Retrieved March 4, 2016, from The Washington Post: http://www.washingtonpost.com/wpdyn/content/article/2010/10/12/AR20101012 05753.html

Bloom, H. S., Thompson, S. L., & Unterman, R. (2010). *Transforming the high school experience: How New York City's new small schools are boosting student achievement and graduation rates.* New York, NY: MDRC. Retrieved from http://ssrn.com/abstract=1786966

Board of County Commissioners, St. Mary's County. (2014). *Approved budget fiscal*

 year 2014. Retrieved from

 http://www.stmarysmd.com/docs/FY2014ApprovedBudgetBook.pdf

Bridgeland, J.M., Dilulio, J. J., & Morison, K. B. (2006). *The silent epidemic:*

 perspectives of high school dropouts. Retrieved from Civic Enterprises

 https://docs.gatesfoundation.org/Documents/thesilentepidemic3-06final.pdf

Carver, P. R., & Lewis, L. (2011). *Dropout prevention services and programs in public*

 school districts: 2010-11. NCES 2011-037. National Center for Education Statistics.

Chapman, C., Laird, J., Ifill, N., & KewalRamani, A. (2011). *Trends in high school*

 dropout and completion rates in the United States: 1972-2009 (NCES 2012-006).

 U.S. Department of Education. Washington, DC: National Center for Education

 Statistics. Retrieved from http://nces.ed.gov/pubs2012/2012006.pdf

DePaoli, J. L., Fox, J. H., Ingram, E. S., Maushard, M., Bridgeland, J. M., Balfanz, R., et

 al. (2015). *Building a grad nation: Progress and challenge in ending the high school*

 dropout epidemic. annual update 2015 Civic Enterprises.

Ewert, S. (2012). *What it's worth: Field of training and economic status in 2009*. U.S.

 Department of Commerce, Economics and Statistics Administration. Washington

 D.C.: U.S. Census Bureau.

Fairlead Academy. (n.d.). Retrieved March 4, 2016, from St. Mary's County Public

 Schools: http://schools.smcps.org/fairlead/

Fairlead Academy. (n.d.). [Brochure]. Retrieved March 4, 2016, from St. Mary's County

 Public Schools:

 http://schools.smcps.org/fairlead/images/pdfs/Fairlead_Brochure.pdf

Fairlead Academy II. (n.d.). [Brochure]. St. Mary's County Public Schools.

Fletcher, J. M., & Frisvold, D. E. (2009). Higher education and health investments: Does more schooling affect preventive health care use? *Journal of Human Capital*, *3*(2), 144–176. Retrieved from http://doi.org/10.1086/645090

Forrest Technology Center. (n.d.). Retrieved March 4, 2016, from St. Mary's County Public Schools: http://schools.smcps.org/tech/about

Hammond, C., Linton, D., Smink, J., & Drew, S. (2007). Dropout risk factors and exemplary programs: a technical report. *National Dropout Prevention Center/Network, Communications In Schools, Inc.*

Health Improvement Process. (2016). Retrieved March 5, 2016, from St. Mary's County Health Department: http://www.smchd.org/health-improvement-process/

Henrichson, C., & Delaney, R. (2012). The price of prisons: What incarceration costs taxpayers. *Vera Institute of Justice*. Retrieved from http://www.vera.org/sites/default/files/resources/downloads/price-of-prisons-updated-version-021914.pdf

Kemple, J. J., Herlihy, C. M., & Smith, T. J. (2005). Making progress toward graduation: Evidence from the talent development high school model. New York: MDRC. Retrieved from http://www.mdrc.org/sites/default/files/full_432.pdf

Kemple, J. J., & Snipes, J. C. (2000). Career academies: impacts on students' engagement and performance in high school. New York, NY: MDRC. Retrieved from http://www.mdrc.org/sites/default/files/Career_Academies_Impacts_on _Students.pdf

Klare, M. (2008). *Looking for clues… Identifying youth who are at risk for dropping out* [PowerPoint slides]. Retrieved from http://www.ndpc-sd.org/documents/2008_Taos/Identifying-At-Risk-Youth-Klare.pdf

Klare, M. (2013). *Building-level tools to support identification of needs related to graduation and dropout* [PowerPoint slides]. Retrieved from http://www.ndpc-sd.org/documents/NDPC-SD_Data_Tools.pdf

Mac Iver, M. A. (2011). The challenge of improving urban high school graduation outcomes: Findings from a randomized study of dropout prevention efforts. *Journal of Education for Students Placed at Risk*, 16 (3), 167-184.

Marvul, J. N. (2012). If you build it, they will come: A successful truancy intervention program in a small high school. *Urban Education* (1), 144-169.

Maryland State Department of Education. (last updated 2015, 1 27). *St. Mary's County Schools*. Retrieved March 14, 2015, from 2014 Maryland Report Card: http://www.mdreportcard.org/

Maryland State Department of Education. (last updated 2016, 6 11). *St. Mary's County Schools*. Retrieved February 11, 2017, from 2014 Maryland Report Card: http://www.mdreportcard.org/

Maryland State Department of Education. (2015). *Maryland state plan to ensure equitable access to excellent educators.* Retrieved from http://marylandpublicschools.org/MSDE/divisions/leadership/docs/MarylandEquityPlan2015-10-2-15.pdf

National Center for Educational Statistics. (2015). *Status of dropout rates.* Retrieved from http://nces.ed.gov/programs/coe/indicator_coj.asp

Neild, R., Stoner-Eby, S., & Furstenberg, F. (2008). Connecting entrance and departure: The transition to ninth grade & high school dropout. *Education and Urban Society, 40* (5), 543-569.

Northeastern University–Center for Labor Market Studies. (2009). *Left behind in America: The nation's dropout crisis*. Center for Labor Market Studies Publications. Retrieved from http://iris.lib.neu.edu/cgi/viewcontent.cgi?article=1020& context=clms_pub

Pew Research Center. (2014). *The rising cost of not going to college*. Social and Demographic Trends. Retrieved from http://www.pewsocialtrends.org/2014/02/11/the-rising-cost-of-not-going-to-college/

Picker, L. (2015). *The effects of education on health*. The National Bureau of Economic Research. Retrieved from http://www.nber.org/digest/mar07/w12352.html

Programs for At Risk/Disadvantaged Students. (2011, February 9). Retrieved June 19, 2014, from St. Mary's County Public Schools Board Docs: http://www.boarddocs.com/mabe/smcps/Board.nsf/goto?open&id=89B3E08EAE 0707868725753C006AC13E

Reyes, O., & Jason, L. A. (1991). An evaluation of a high school dropout prevention program. *Journal of Community Psychology, 19 (3),* 221-230.

Southern Maryland Tri-County Community Action Committee, Inc. (2010). *2010 Annual Report.* Retrieved from http://www.stmarysmd.com/docs/2010.pdf

St. Mary's County Land Use & Growth Management. (2010). *St. Mary's county,*

    Maryland, comprehensive plan. Retrieved from

    http://www.stmarysmd.com/docs/compplan.pdf

St. Mary's County Public Schools Directory. (2015). Retrieved March 4, 2016, from

    School Directory: www.smcps.org

St. Mary's County Sheriff. (2015). Detention center expansion project. Retrieved June

    2015, from http://www.firstsheriff.com/DCexpansion.asp

Sparks, S. (2014). Popular child-poverty measure gets another look. *Education Week*, *34*

    (01). Retrieved from

    http://www.edweek.org/ew/articles/2014/08/20/01povertymeasures.h34.html

U.S. Census Bureau. (2014). *Current population survey, 2014 annual social and*

    economic supplement. Retrieved April 8, 2015 from

    http://www.census.gov/hhes/www/poverty/index.html

U.S. Department of Education. (2015). *Improving basic programs operated by local*

    educational agencies (Title I, Part A). Retrieved from

    http://www2.ed.gov/programs/titleiparta/index.html

United States Department of Labor Bureau of Labor Statistics. (2015). Table A-4.

    Employment status of the civilian population 25 years and over by educational

    attainment [Data file]. Retrieved from

    http://www.bls.gov/news.release/empsit.t04.htm

What Works Clearinghouse Intervention Report. (2007, April 16). U.S. Department of

Education. Institute of Education Sciences. *Dropout prevention, high school*

redirection. Retrieved from

http://ies.ed.gov/ncee/wwc/pdf/intervention_reports/WWC_HS_Redirection_0416

07.pdf

Wolf Harlow, C. (2003). Education and Correctional Populations, Bureau of Justice

Statistics special report. *U.S. Department of Justice office of justice programs*.

Retrieved from http://www.bjs.gov/content/pub/pdf/ecp.pdf