

The Effects Multiple Intervention and Prevention Programs Have on the Graduation and Dropout Rates of Two Major Urban School Districts in Texas

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ABSTRACT

In the United States, seven thousand students drop out of school every day (Alliance for Excellence Education, 2010); that is more than one million per year (Balfanz & Bridgeland, 2014). Administrators, former educators and private entities have taken an interest in the dropout epidemic and have developed numerous dropout prevention and intervention programs to address the problem; however, little research exists on the effectiveness of dropout prevention programs. The purpose of this study was to determine the statistical difference between the schools with multiple intervention programs as well as their graduation and dropout rates and between race and the graduation and dropout rates from two urban school districts in Texas. Quantitative data was collected and analyzed from TEA's AEIS and TAPR reports for the classes of 2008, 2009, 2010, 2011 and 2012. A two-way multivariate analysis of variance (MANOVA) was conducted, and it was determined there was a statistical significant difference between the schools with multiple intervention programs on the dependent measures (graduation and dropout rates). A significant difference was also found between Hispanic, African American and white (race) on the dependent measures.

Keywords: Graduation Rates, Dropout Rates, Intervention and Prevention Programs, Major Urban School Districts, NCLB, TEA,

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INTRODUCTION

“Dropping out of high school is no longer an option. It’s not just quitting on yourself, it’s quitting on your country – and this country needs and values the talents of every American,” declared President Obama in February 2009 when addressing Congress (Colvin, 2010, p. A2).

In the United States, there are more than 6.2 million dropouts between the ages of sixteen to twenty-four (Lewis, 2010) with a national dropout rate between twenty-two and twenty-five percent (Tyler & Lofstrom, 2009). Forty percent of high school dropouts will be jobless for at least a year (Lewis, 2010), thus burdening society at an alarming cost well into billions of dollars (Buckley, Storino, & Saarni, 2003). Balfanz, Bridgeland, Fox, DePaoli, Ingram, and Maushard (2014) stated American taxpayers are paying ninety-three billion dollars a year because of dropouts’ lost revenues and their increased dependency of social services. The global economy’s increasingly competitive pressures affect the United States, making public high school dropouts a hot topic; therefore, an education is especially important to our individual and national welfare (Tyler & Lofstrom, 2009). Hence, studying dropout prevention and intervention programs is relevant and important to America’s economy.

By the late 1970s, the quality of an American education was in question, and the high school graduation rate throughout the United States was decreasing. The level of concern of an American education sparked the interest of then Secretary of Education Bell to create the National Commission on Excellence in 1981 to investigate why the American educational system was delivering substandard results (U.S. Department of Education [USDOE], 1983). In 1983, the National Commission on Excellence presented its report *A Nation at Risk* to President Reagan, Secretary of Education Bell and the American people. This report explained why our educational system was failing as it described the indicators, listed the tools needed to address the problem and requested the public’s support for educational reform (USDOE, 1983). Immediately after the report, state legislatures passed educational bills in their state.

Texas passed House Bill (HB) 72 which increased graduation requirements to include exit level testing, eliminated social promotions, limited the number of permissible absences, denied extracurricular activities to students who failed at least one subject and made mention of high school dropouts. HB 72 enacted Texas Education Agency (TEA) to collect data on student dropouts and develop a program to reduce the longitudinal dropout rate to less than five percent statewide (Texas Education Agency [TEA], 2013).

TEA reported its first data report on public school dropouts for the school year 1987-88. TEA collected its data from the Public Education Information Management System (PEIMS) (TEA, 2013). Since the inception of the first public school dropout report, many incentive and preventive programs have been implemented throughout the United States. The interest increased for truancy intervention programs because they are designed to break the routine of absenteeism and recurring tardiness, so that they do not escalate to school suspensions, expulsion (Dembo & Gullledge, 2009) or more importantly, dropouts.

Grants contribute millions of dollars to public school districts to employ the services and expertise of incentive and preventive programs in assisting the reduction of the national dropout rate. In 2010, twenty-nine states won up to \$3 million in grants specifically for schools whose dropout rates exceed their state’s average (Gewertz, 2010). In fiscal year 2010, the High School Graduation Initiative, formally Dropout Prevention Initiative, secured \$50 million in support for its dropout prevention programs to decrease the dropout rate and increase the graduation rate (Gewertz, 2010).

Community partnership is a vital instrument when tracking dropouts and returning them to school to graduate (Gewertz, 2010). The time is now to recapture our future through our youth. The nation cannot afford to produce dropouts at the rate of one quarter of each cohort. Even though money is scarce and resources are limited, the argument to invest public funds in programs, systems and research for our youth is robust (Bloom, 2010). According to Watt (2011), the AVID (Advancement Via Individual Determination) Program in high schools throughout the nation produced positive results in student attendance when it is implemented as it was designed.

The effectiveness of intervention and prevention programs in two major urban school districts in Texas is an important task in curbing the dropout rate and increasing the graduation rate for these major urban school districts. Therefore, knowing which strategies and programs are effective is vital. Jordan, Kostandini and Mykerezi (2012) conducted a study on the difference in dropout rates between rural and urban schools. Their findings suggested that the determinants of dropping out and the dropout rates between rural and urban schools were very similar in the early 2000's. Hence, mentoring is a strategy that most school officials seek in intervention and prevention programs (Somers, Owens, & Piliawsky, 2009; Azzam, 2007) no matter where the school is located.

PURPOSE OF THE STUDY

The purpose of this quantitative study was to identify the affects multiple intervention and prevention programs in two urban school districts in Texas have to the districts' overall graduation rate and dropout rate. The objective was to study two major urban school districts' graduation and dropout rates over a five year span and the impact the involvement of multiple interventions and preventions programs had on those districts: District X and District Y. According to Creswell (2009), a quantitative study compares samples or groups. The researcher compared a multiplicity of programs and collected the graduation and dropout rates archival data from TEA's public website.

The strategy of inquiry used in the study was grounded theory. "The primary characteristics of grounded theory are the constant comparison of data with emerging categories and theoretical sampling of different groups to maximize the similarities and the differences of information," (Creswell, 2009, p. 13). The researcher collected archived longitudinal data over a five-year span from the AEIS (Academic Excellence Indicator System) and TAPR (Texas Academic Performance Reports) reports provided by TEA to include the graduation and dropout rates from each of the sub-population groups Hispanic, African-American, and white from schools 1 and 2 from Districts X and Y.

Both school districts in this study elicited help from AVID, Communities in Schools (CIS), Diplomas Now and Gear Up to help reduce their dropout rate and increase their graduation rate. However, these programs were not involved at every high school within the district. This study determined the effects multiple intervention and prevention programs had in Schools X_1 and Y_1 and determines if the dropout strategies increased their graduation rates over the five-year longitudinal period as well as reduced their dropout rates.

RESEARCH DESIGN AND APPROACH

The quantitative research design of the study and the researcher's approach of inquiry were experimental research and a nonequivalent posttest only (quasi-experimental) design was used in this study. According to Creswell (2009), experimental research is to determine if a treatment influences an outcome. The research design revealed the statistical difference multiple programs had on the dropout rates and graduation rates of two major urban school districts in Texas. The strategies the researcher used to determine the statistical difference of the variables was from TEA's archived data found in the AEIS and TAPR reports. The archived data of the four-year longitudinal graduation rates and dropout rates from Districts X and Y measured the effectiveness of schools having multiple intervention and prevention programs. The researcher did not conduct interviews.

This study employed a quantitative research methodology. The researcher was able to determine the effectiveness multiple intervention and prevention programs had on the longitudinal graduation rate and dropout rate and compare the effect size between Hispanic, African-American and white students in schools X_1 , Y_1 , X_2 and Y_2 . Quantitative data was collected from TEA's AEIS and TAPR reports on District X's and District Y's 4-year graduation rates and annual dropout rates for the class of 2008, 2009, 2010, 2011 and 2012. The quantitative elements of the study analyzed both graduation and dropout rates of each of the two major urban districts in Texas through a five-year span and determined multiple intervention and prevention programs had an effect on the longitudinal graduation rate and dropout rate. The focus was on two traditional high schools from two urban school districts (X and Y) where one school had implemented the use of four or more intervention and prevention programs for a minimal of two consecutive school years (X_1 and Y_1) and the other school had less than four intervention and prevention programs (X_2 and Y_2).

A Two-Way MANOVA (multivariate analysis of variance) was the statistical analysis that was used to measure the affects multiple intervention and prevention programs had on the four-year longitudinal graduation rates and dropout rates within the five year span from Schools X_1 and Y_1 to X_2 and Y_2 and determined if multiple programs had a greater effect on Hispanic, African American or white students graduating in four years. The statistical model MANOVA was used to test the difference of the means of four or more groups (Aron, Coups, & Aron, 2011; Tyler, 2014). In this study, two factors and two dependent variables were measured (Figure 1).

SETTING AND SAMPLE

The superintendents or designees from Districts X and Y selected the population used in this study by selecting two schools from their district that fit the study's profile. Two letters were sent (Table 1): one mailed via U.S. Post Office and the other emailed to the superintendents of each district and/or the designee requesting permission to study their district and apprising them that their name, the name of the district and the schools' names will be protected in the strictest of confidence, and a pseudonym will be used. The researcher requested the superintendents select two high schools within their district that employs the assistance of intervention and prevention programs; however, one high school had multiple (four or more) intervention and prevention programs assisting that school during the period of the study and the other had less than four intervention and prevention programs. The superintendent was asked to provide the names of the programs and the years the programs existed at those campuses.

This sampling approach was nonrandom or convenience sampling, also referred to as quasi-experimental method (Creswell, 2009). This study was quasi-experimental; therefore, the

participants were not randomly assigned. However, they were matched to their school through data. Convenient sampling was used to determine the impact multiple programs had on the graduation and dropout rates during the five cohort years studied. Convenient sampling is applicable to this study because the researcher used naturally formed groups (Creswell, 2009) from four schools from two different urban school districts in Texas. The study involved stratification of the population when comparing the graduation and dropout rates to each cohort's ethnicity: Hispanic, white and African-American. Both urban districts had a higher percentage of Hispanic students than white and African American students; however, District Y had less than 12.5 % combined African-American and white students for each cohort year. Although the study separated the schools according to the number of multiple programs involved at their school, it did not provide a list of each program implemented at the schools. District X and Y's population percentages for Hispanic, white and African American students during the Cohort years 2008, 2009, 2010, 2011 and 2012 (Table 2).

The archived data was collected from TEA's AEIS and TAPR reports on schools X_1 and Y_1 which were the schools' from each district that had more than four interventions and prevention programs employed in their school and schools X_2 and Y_2 having less than four programs employed at their school. The two control groups were researched over a five-year span. The students of Cohorts 2008, 2009, 2010, 2011 and 2012 from districts X and Y, specifically schools' X_1 , X_2 , Y_1 and Y_2 , comprise the population used in this study. The researcher also focused on the effects multiple programs had on Hispanics, African Americans and white students' longitudinal graduation rate and dropout rates during the same time span.

RESULTS

A two-way multivariate analysis of variance (MANOVA) was conducted and it was determined there was a statistical significant difference between the schools with multiple intervention programs on the dependent measures (graduation and dropout rates). A significant difference was also found between Hispanic, African American and white students on the dependent measures.

The researcher collected archival data for this study from the AEIS and TAPR reports found on TEA's publically assessable website.

Results for Research Question One

Research Question One examined the statistical difference in the graduation rates (dependent variable) between high schools X_1 and Y_1 having more than four intervention and prevention programs and high schools X_2 and Y_2 having less than four intervention and prevention programs (independent variables).

The results of the two-way MANOVA test determined that there was a statistically significant difference in the overall effect multiple intervention and prevention programs had on two Texas urban schools' graduation rates. Research question one addressed the overall graduation rate between Schools X_1 and Y_1 and Schools X_2 and Y_2 . A significant difference was found between the intervention groups (X_1 and Y_1 to X_2 and Y_2) on the dependent measures (graduation and dropout rates); Wilks' $\lambda = .45$, $F(2, 57) = 34.57$, $p < .01$ (Table 3). The results indicated that null hypothesis (H_{01} and H_{02}) rejected that there were no significant differences in the overall graduation rate. The multivariate $\eta^2 = .55$ indicates 55% of multivariate variance of

the dependent variables was associated with the group factor; therefore, concluded that multivariate η^2 based on Wilks' λ was a strong effect.

At the 95% confidence interval of the schools graduation rate mean, Schools X_1 and Y_1 's lower bound mean was 82.559 with the upper bound mean 86.521 and had a total mean 84.54 whereas Schools X_2 and Y_2 's lower bound mean was 93.409 and upper bound mean 97.371 and had a total mean 95.39. The estimated marginal means between the two groups was 89.965. The estimated marginal means of the graduation rate for Schools X_1 and Y_1 having more than four intervention and prevention programs involved in their schools was significantly lower than X_2 and Y_2 with the means of 84.54 and 95.39 respectively, shown on Table 4 and on Descriptive Statistics Table 5.

On Table 5, Intervention represents all the intervention and prevention programs engaged at each of the four schools in the study. The N in the Intervention column on Table 5 denotes N_0 , which represents the schools that had less than four intervention and prevention programs (Schools X_2 and Y_2), and Y is *Yes*, which represents the schools that had four or more intervention and prevention programs (Schools X_1 and Y_1). N and Y mean the same in Figure 2.

Results for Research Question Two

Research Question 2 examined whether or not a statistically significant difference existed between the overall dropout rates between Schools X_1 and Y_1 that have multiple intervention and prevention programs and Schools X_2 and Y_2 that have less than four programs during the 2007-08 through 2011-12 school years.

Research Question Two was identical to Research Question One in that both used the Design = School in the SPSS model and tested against both dependent variables. The results of the two-way MANOVA test determined that there was statistically a significant difference found between the intervention groups (X_1 and Y_1 to X_2 and Y_2) on the dependent measures (dropout rates), Wilks' $\lambda = .45$, $F(2, 57) = 34.57$, $p < .01$. The results indicated that null hypothesis (H_{03} and H_{04}) rejected that there was not a significant difference in the overall dropout rate. The multivariate $\eta^2 = .55$ indicates 55% of multivariate variance of the dependent variables was associated with the group factor therefore concluding that multivariate η^2 based on Wilks' λ was a strong effect.

At the 95% confidence interval of the schools' dropout rate mean, Schools X_1 and Y_1 's lower bound mean was 1.201 with the upper bound mean 3.953, having a total mean 2.577, whereas Schools X_2 and Y_2 's lower bound mean was .007 and upper bound mean 1.093, having a total mean of .55. The estimated marginal means between the two groups was 1.5635. Schools X_1 and Y_1 had more than four intervention and prevention programs involved in their schools was significantly lower than X_2 and Y_2 with the means of 2.577 and .55 respectively. The estimated marginal means of the dropout rate for Schools X_1 and Y_1 which had more than four intervention and prevention programs involved in their schools was significantly lower than X_2 and Y_2 with the means of 2.577 and .55 respectively, shown on Table 4.

Figure 3 shows the estimated marginal means of the dropout rate for schools X_1 and Y_1 which was significantly higher than X_2 and Y_2 with the means of 2.577 and .550 respectively. A detailed look at the means can be found on Table 5 Descriptive Statistics.

Results for Research Question Three

Research Question Three examined whether or not a statistically significant difference existed in Hispanic students' overall graduation and dropout rates in Schools X_1 and Y_1 that have multiple intervention and prevention programs to white and African American students' graduation and dropout rates from the same schools during the 2007-08 through 2011-12 school years.

A significant difference was found between the race (Hispanic students, African American students and white students) on the dependent measures (graduation and dropout rates), Wilks' $\lambda = .662$, $F(4, 52) = 2.98$, $p < .03$. Hispanic and white students had the largest mean gap of 80.08 and 89.22 respectively. African American students' had a mean of 84.32, slightly lower than the combined total mean 84.54. Figure 4 discloses the noticeable difference between Hispanic and white students' graduation rates, whereas Figure 5 illustrates the large gap between Hispanic and white students' dropout rate with a mean difference of 1.22 compared to Hispanic and African American students' .14.

The Tests of Between-Subjects Effects (Table 6) indicated the test was significant when testing the overall graduation rate, $F(2, 27) = 6.178$, $p = .006$; therefore, the null hypotheses H_{07} and H_{08} was rejected that there were no differences among the groups. The η^2 of .31 indicated a strong relationship between race and graduation rate. Follow-up tests were conducted to evaluate pairwise differences among the means. Posthoc test using the Scheffe model assumed equal variances were used. Scheffe is a more conservative test to Games-Howell; therefore, the findings reflected Scheffe unless otherwise stated. The standard deviations ranged from 5.452 to 6.070, and the variances (the standard deviations squared) range from 29.72 and 36.84. This indicated the variances were not drastically different from each other. The test of homogeneity of variance was non-significant: $p = .89$. However, when testing the dropout rate, $F(2, 27) = 2.304$, $p = .119$, the null hypotheses H_{05} and H_{06} were accepted because there were differences among the groups. The η^2 of .15 indicated a strong relationship between race and dropout rate.

Results for Research Question Four

The final research question addressed by this study examined the statistical significant difference in District X and Y's longitudinal graduation and dropout rates during the school years 2007-08, 2008-09, 2009-10, 2010-11 and 2011-12.

The MANOVA results revealed a significant multivariate main effect for district, Wilks' $\lambda = .885$, $F(2, 57) = 3.701$, $p < .031$, $\eta^2 = .115$ (Table 7). Power to detect the effect was .657. Follow-up tests were conducted; however, post hoc tests were not performed for District because there were fewer than three groups to evaluate pairwise differences among the means. The test of homogeneity of variance was significant: graduation rate $p < .042$ and the dropout rate $p < .001$.

The graduation rate mean for District X (89.08) and District Y (90.85) had an average mean of 89.97. This indicated the variances were not drastically different from each other. The dropout rate mean for District X was 1.98 and District Y was 1.15 with an average mean of 1.56. This too indicated the variances were not drastically different from each other. However, when testing the Between-Subjects Effects on District, the results indicated the graduation rate was not significant but the dropout rate was significant (Table 8). The overall graduation rate $F(1, 58) = .790$, $p < .378$. The overall dropout rate results using the same between-subjects effects test was $F(1, 58) = .5075$, $p = .028$; therefore, the null hypotheses H_{011} and H_{012} were rejected.

CONCLUSIONS AND RECOMMENDATIONS

In the United States, there are more than 6.2 million dropouts between the ages of 16 and 24 (Lewis, 2010) with a national dropout rate between 22 and 25 percent (Tyler & Lofstrom, 2009). The high dropout rate is a global concern for the nation because dropouts cost the American taxpayers ninety-three billion dollars a year in lost revenues and increased dependency of social services (Balfanz, Bridgeland, Fox, DePaoli, Ingram, & Maushard, 2014) and affects the nation's efforts to compete economically. Administrators, former educators, and private entities have taken an interest in the dropout epidemic and have developed numerous dropout prevention and intervention programs to address the problem; however, little research exists on the effectiveness of dropout prevention programs.

The purpose of the current study was to determine the effects multiple intervention programs had on the overall graduation rate and dropout rate; however, the study did not determine the underlining reasons why students dropout and if the intervention programs actually affected their decision to graduate. With a national dropout epidemic looming over public education, it is prudent that research continues, especially in determining why students dropout of school. Two out of ten major urban school districts in Texas took part in this study to determine the effectiveness intervention and prevention programs had on the graduation rate and dropout rate. Studying the effectiveness of multiple intervention programs is tremendously relevant and important to America's economy; therefore, a recommendation for future study would be to conduct a mixed methods study on a Cohort of students from the beginning of their ninth grade year until their class is scheduled to graduate four years later to determine the effectiveness of the intervention programs and the correlation of the graduation and dropout rates in urban schools.

There are many contributing factors in determining whether an urban high school with four or more intervention and prevention programs employed in its school which is designed to increase the graduation rate and decrease the dropout rate is more likely to obtain higher graduation rates and lower dropout rates than schools with less than four intervention and prevention programs. Some contributing factors may include the socioeconomic status of the students' family, the parents' marital status, the student's school discipline and legal record and whether the student is a teenage parent and the student has been retained.

Therefore, a recommendation for a future study would be to study the effects intervention programs have on at risk students with the following contributing factors: low socioeconomic status, single-parent household, school discipline and legal record, teenage parent, and student retained at least once. The recommended study would clarify which students dropped out of school and clarify why they chose to, so that these issues can be addressed and resolved.

An additional recommendation for future study would be to expand on research question three of this study to compare the statistical significant difference in Hispanic students' overall graduation and dropout rates in Schools X_2 and Y_2 that have multiple intervention and prevention programs to white and African-American students' graduation and dropout rates from the same schools to the results of Schools X_1 and Y_1 . The recommended study would determine a statistical difference in the graduation and dropout rates between the students' race from the schools that have more than four interventions and prevention programs employed in them to the schools that have less than four intervention and prevention programs employed in them.

Studying the effectiveness of multiple intervention programs is tremendously relevant and important to America's economy; therefore, a recommendation for future study would be to conduct a mixed methods study on a Cohort of students from the beginning of their ninth grade year until their class is scheduled to graduate four years later to determine the effectiveness of the intervention programs and the correlation of the graduation and dropout rates in urban schools.

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APPENDIX

Table 1

May 15, 2015

Superintendent of Urban ISD
1234 Free Pkwy
Anywhere, TX 78901

Dear Superintendent,

We are asking for your help because you are one of ten Texas superintendents of a major urban school district. Please take a minute to read this letter and the Data Usage Agreement attached. I will be conducting a study on *The effects multiple intervention and prevention programs have on the graduation and dropout rates on two major urban school districts in Texas*. I am a Doctoral student at Texas A&M University-Kingsville satisfying my dissertation requirements with the assistance of Dr. Jones, my mentor.

We will assure you that anonymity would be used to protect you, your district, the principals, and the names of the high schools. Pseudonyms will be used in place of the district and schools and the names of the principals and superintendent will not be mentioned at all. Archival data will be collected from TEAs AEIS report on the schools you select therefore total anonymity of students is assured.

We hope you will take a few minutes to select two high schools in your district that have the following requirements: one school having at least four intervention and prevention programs designed to improve the graduation rate and reduce the dropout rate and one school having less than four intervention and prevention programs. Intervention/prevention programs include but not limited to the following programs: AVID, City Year, Diplomas Now, Gear Up, and Aim Truancy Solutions. If your school district offers a different intervention and prevention program than those mentioned I would greatly appreciate your cooperation in providing the name of the program and a brief description or a contact name where I can acquire that information. The person contacted will not be mentioned and neither will the program if it is exclusive to the district.

Cordially,

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**THIS PROJECT HAS BEEN REVIEWED BY THE TEXAS A&M UNIVERSITY-KINGSVILLE
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS. Phone: (361)
593-3344**

Table 2
District X & Y Population Sample

| Cohort | % Hispanic district | | % White district | | % African- Am. district | |
|--------|---------------------|------|------------------|------|-------------------------|-----|
| | X | Y | X | Y | X | Y |
| 2008 | 47.4 | 63.1 | 39.2 | 25.4 | 9.3 | 7.8 |
| 2009 | 48.6 | 63.6 | 37.9 | 34.6 | 9.3 | 7.9 |
| 2010 | 49.4 | 64.4 | 36.8 | 23.4 | 9.4 | 8.1 |
| 2011 | 54.1 | 67.8 | 32.0 | 20.1 | 7.3 | 6.2 |
| 2012 | 55.2 | 68.3 | 31.0 | 19.5 | 7.1 | 6.1 |

The percentages were compiled from TEA's AEIS Report (TEA, 2014).

Table 3
Multivariate Tests^a – Intervention

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power ^c |
|--------------|--------------------|---------|------------------------|---------------|----------|------|---------------------|--------------------|-----------------------------|
| Intercept | Pillai's trace | .998 | 14360.125 ^b | 2.000 | 57.000 | .000 | .998 | 28720.250 | 1.000 |
| | Wilks' lambda | .002 | 14360.125 ^b | 2.000 | 57.000 | .000 | .998 | 28720.250 | 1.000 |
| | Hotelling's trace | 503.864 | 14360.125 ^b | 2.000 | 57.000 | .000 | .998 | 28720.250 | 1.000 |
| | Roy's largest root | 503.864 | 14360.125 ^b | 2.000 | 57.000 | .000 | .998 | 28720.250 | 1.000 |
| Intervention | Pillai's trace | .548 | 34.570 ^b | 2.000 | 57.000 | .000 | .548 | 69.140 | 1.000 |
| | Wilks' lambda | .452 | 34.570 ^b | 2.000 | 57.000 | .000 | .548 | 69.140 | 1.000 |
| | Hotelling's trace | 1.213 | 34.570 ^b | 2.000 | 57.000 | .000 | .548 | 69.140 | 1.000 |
| | Roy's largest root | 1.213 | 34.570 ^b | 2.000 | 57.000 | .000 | .548 | 69.140 | 1.000 |

Note. a. Design: Intercept + Intervention b. Exact statistic c. Computed using alpha = .05.

Table 4
Estimated Marginal Means – Intervention

| Intervention | Mean | Std. Error | 95% Confidence Interval | |
|--------------|--------|------------|-------------------------|-------------|
| | | | Lower Bound | Upper Bound |
| N | 95.390 | .990 | 93.409 | 97.371 |
| Y | 84.540 | .990 | 82.559 | 86.521 |
| N | .550 | .197 | .155 | .945 |
| Y | 2.577 | .197 | 2.181 | 2.972 |

Table 5
Descriptive Statistics – Intervention

| | Intervention | Mean | Std. Deviation | N |
|-----------------|--------------|---------|----------------|----|
| Graduation Rate | N | 95.3900 | 3.57794 | 30 |
| | Y | 84.5400 | 6.77905 | 30 |
| | Total | 89.9650 | 7.66878 | 60 |
| Dropout Rate | N | .5500 | .48048 | 30 |

| | | | |
|-------|--------|---------|----|
| Y | 2.5767 | 1.45215 | 30 |
| Total | 1.5633 | 1.48129 | 60 |

Table 6
Tests of Between-Subjects Effects

| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power ^c |
|-----------------|--------------------|-------------------------|----|-------------|----------|------|---------------------|--------------------|-----------------------------|
| Corrected Model | Graduation rate | 418.424 ^a | 2 | 209.212 | 6.178 | .006 | .314 | 12.357 | .854 |
| | Dropout rate | 8.915 ^b | 2 | 4.457 | 2.304 | .119 | .146 | 4.608 | .427 |
| Intercept | Graduation rate | 214410.348 | 1 | 214410.348 | 6331.790 | .000 | .996 | 6331.790 | 1.000 |
| | Dropout rate | 199.176 | 1 | 199.176 | 102.945 | .000 | .792 | 102.945 | 1.000 |
| Race | Graduation rate | 418.424 | 2 | 209.212 | 6.178 | .006 | .314 | 12.357 | .854 |
| | Dropout rate | 8.915 | 2 | 4.457 | 2.304 | .119 | .146 | 4.608 | .427 |
| Error | Graduation rate | 914.288 | 27 | 33.863 | | | | | |
| | Dropout rate | 52.239 | 27 | 1.935 | | | | | |
| Total | Graduation rate | 215743.060 | 30 | | | | | | |
| | Dropout rate | 260.330 | 30 | | | | | | |
| Corrected Total | Graduation rate | 1332.712 | 29 | | | | | | |
| | Dropout rate | 61.154 | 29 | | | | | | |

Note. a. R Squared = .314 (Adjusted R Squared = .263) b. R Squared = .146 (Adjusted R Squared = .082) c. Computed using alpha = .05

Table 7
Multivariate Tests^a - District

| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power ^c |
|-----------|--------------------|---------|------------------------|---------------|----------|------|---------------------|--------------------|-----------------------------|
| Intercept | Pillai's trace | .998 | 13388.198 ^b | 2.000 | 57.000 | .000 | .998 | 26776.396 | 1.000 |
| | Wilks' lambda | .002 | 13388.198 ^b | 2.000 | 57.000 | .000 | .998 | 26776.396 | 1.000 |
| | Hotelling's trace | 469.761 | 13388.198 ^b | 2.000 | 57.000 | .000 | .998 | 26776.396 | 1.000 |
| | Roy's largest root | 469.761 | 13388.198 ^b | 2.000 | 57.000 | .000 | .998 | 26776.396 | 1.000 |
| District | Pillai's trace | .115 | 3.701 ^b | 2.000 | 57.000 | .031 | .115 | 7.402 | .657 |
| | Wilks' lambda | .885 | 3.701 ^b | 2.000 | 57.000 | .031 | .115 | 7.402 | .657 |
| | Hotelling's trace | .130 | 3.701 ^b | 2.000 | 57.000 | .031 | .115 | 7.402 | .657 |
| | Roy's largest root | .130 | 3.701 ^b | 2.000 | 57.000 | .031 | .115 | 7.402 | .657 |

Note. a. Design: Intercept + District; b. Exact statistic; c. Computed using alpha = .05.

Table 8
Tests of Between-Subjects Effects

| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power ^c |
|-----------------|--------------------|-------------------------|----|-------------|----------|------|---------------------|--------------------|-----------------------------|
| Corrected model | Graduation_Rate | 46.640 ^a | 1 | 46.640 | .790 | .378 | .013 | .790 | .141 |
| | Dropout_Rate | 10.417 ^b | 1 | 10.417 | 5.075 | .028 | .080 | 5.075 | .601 |
| Intercept | Graduation_Rate | 485622.074 | 1 | 485622.074 | 8228.102 | .000 | .993 | 8228.102 | 1.000 |

| | | | | | | | | | |
|-----------------|-----------------|------------|----|---------|--------|------|------|--------|-------|
| District | Dropout_Rate | 146.641 | 1 | 146.641 | 71.446 | .000 | .552 | 71.446 | 1.000 |
| | Graduation_Rate | 46.640 | 1 | 46.640 | .790 | .378 | .013 | .790 | .141 |
| Error | Dropout_Rate | 10.417 | 1 | 10.417 | 5.075 | .028 | .080 | 5.075 | .601 |
| | Graduation_Rate | 3423.156 | 58 | 59.020 | | | | | |
| Total | Dropout_Rate | 119.043 | 58 | 2.052 | | | | | |
| | Graduation_Rate | 489091.870 | 60 | | | | | | |
| Corrected total | Dropout_Rate | 276.100 | 60 | | | | | | |
| | Graduation_Rate | 3469.796 | 59 | | | | | | |
| | Dropout_Rate | 129.459 | 59 | | | | | | |

Note. a. R Squared = .013 (Adjusted R Squared = -.004); b. R Squared = .080 (Adjusted R Squared = .065); c. Computed using alpha = .05.

Figure 1.
Two-Way MANOVA

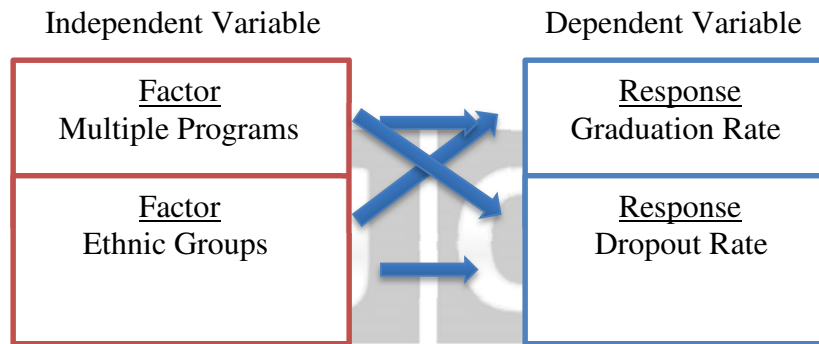


Figure 1. The two-way MANOVA compares two continuous response variables (graduation rate and dropout rate) by both factors (multiple programs and ethnic groups) (Taylor, 2014).

Figure 2.
Estimated Marginal Means of Graduation Rate - Intervention

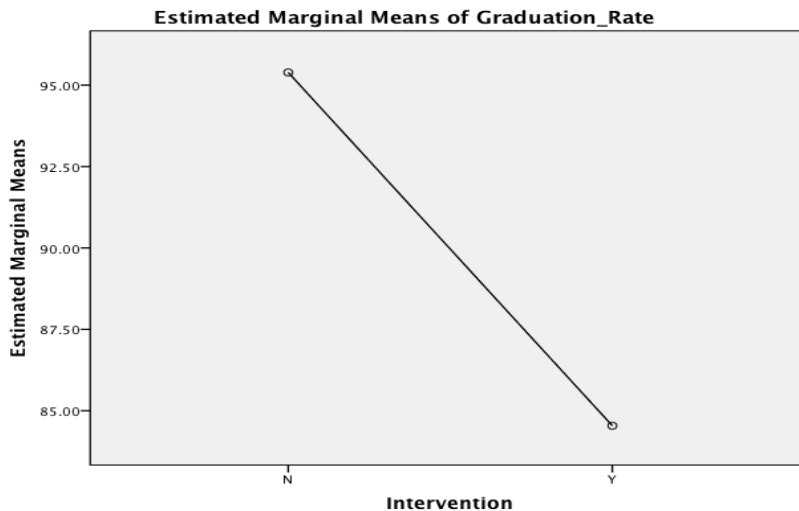


Figure 2. N-schools X_2 and Y_2 -indicates *No* more than four interventions and prevention programs incorporated in their schools and Y- schools X_1 and Y_1 -indicates *Yes* having more than four intervention and prevention programs

incorporated in their schools. Schools X_1 and Y_1 have a lower estimated marginal means graduation rate than schools X_2 and Y_2 for the span of the five-year study.

Figure 3.
Estimated Marginal Means of Dropout Rate - Intervention

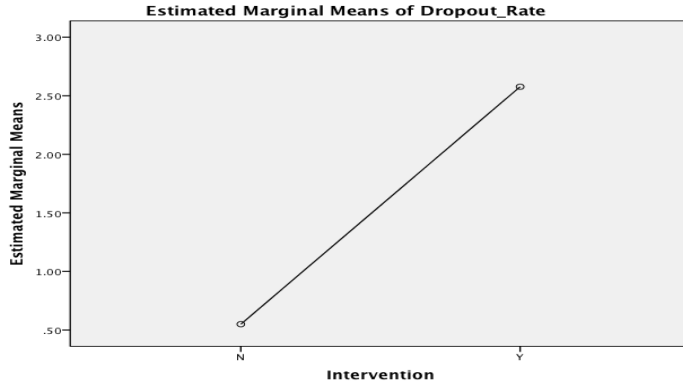


Figure 3. N-schools X_2 and Y_2 -indicates **No** more than four interventions and prevention programs incorporated in their schools and Y- schools X_1 and Y_1 -indicates **Yes** having more than four intervention and prevention programs incorporated in their schools. Schools X_1 and Y_1 have a higher estimated marginal means dropout rate than schools X_2 and Y_2 for the span of the five-year study.

Figure 4.
Estimated Marginal Means of Graduation Rate - Race

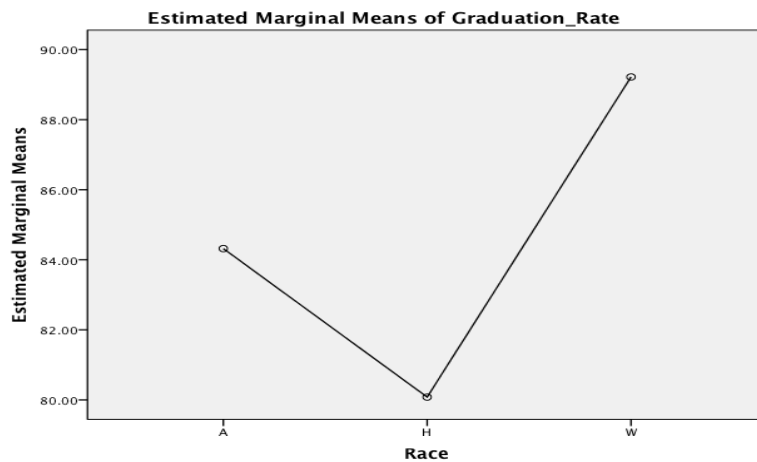


Figure 4. The estimated marginal means for the graduation rate during the span of the five-year study is illustrated in this Figure. A represents African American Students' mean 84.32, H represents Hispanic students' mean 80.08, and W represents white students' mean 89.22.

Figure 5.
Estimated Marginal Means of Dropout Rate - Race

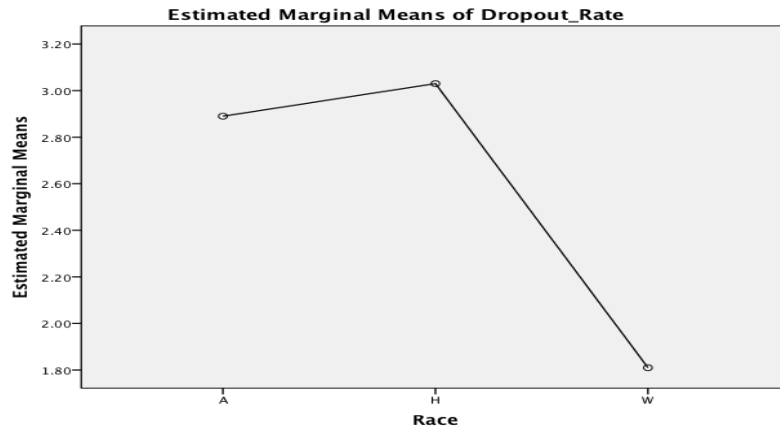


Figure 5. The estimated marginal means for the graduation rate during the span of the five-year study is illustrated in this Figure. A represents African American Students' mean 2.89, H represents Hispanic students' mean 3.03, and W represents White students' mean 1.81.

