

Chapter 3

Methodology

A quantitative experimental design approach was used to determine if college and career readiness initiatives implemented from August 2009-June 2013 increased student achievement and attendance participation for both cohort groups.

Setting/Organizational Profile

- ▶ A quantitative comparison of the academic achievement and attendance participation of two cohort groups of students (C1 and C2) was analyzed to answer two research questions. The term Cohort was used to describe the approach used by College and Career Readiness participants. A whole grade-level approach was used in program treatments.
- ▶ **Cohort 1(C1)**, the experimental group, was comprised of students who participated in the college bound track and program treatments for three years. This cohort of students began their freshman year in 2009 and graduated from high school in 2013 on the Distinguished Achievement Plan(DAP).
- ▶ **Cohort 2(C2)**, the comparison group, was comprised of students who participated in the career tech cohort track. This cohort of students began their freshman year in 2009 and graduated from high school in 2013 on the Recommended High School Plan(RHSP).

Demographics of Cohort Groups

50% HA & 50% AA

**90% *at-risk* of not graduating
from high school and
advancing on to college**

90% qualified as low SES

College and Career Initiatives (Pre-college Interventions)

- ▶ College Board/GEAR UP Partnerships
- ▶ Chamber of Commerce/Tenneco Oil Partnership
- ▶ Community partnerships consisting of stakeholders(i.e. parents, students, staff faculty)
- ▶ ***Block scheduling in ELA and Math for C1 cohort**
- ▶ ***Rigorous, AP course offerings for College Bound cohort group(C1)-DAP**
- ▶ Intense SAT/ACT prep as well as college and career awareness thru college fairs

Participant Selection Method

- ▶ Sample size (**N**) included a convenience sampling of approximately **350 freshman students**.
- ▶ In an effort to maintain fidelity to the program model and key participants, informed consent was obtained from district personnel to gain access to the high schools' archived data-internal database from 12th grade Admin.

Research Instruments

- ▶ **Historical district data from the 2009-2013 school years (TAKS ELA & MAT posttests were analyzed)**
- ▶ **The high schools' internal database included data for cohorts sorted by grade level, graduation rates, Exit level achievement scores, economic disadvantaged status and attendance participation.**

Data Collection

- ▶ **An independent samples t-test was used to explore the impact of the academic achievement on TAKS ELA & MAT posttests for both the experimental and comparison cohort groups.**
- ▶ **A second parametric test, an ANOVA was also used in contrast to the t-test to strengthen and/or validate findings.**

Results

- ▶ Results of this study were only generalized to the high school participating in the study. In a true experiment design, some confounding variables may threaten internal validity.
- ▶ These threats include history, statistical regression, selection, high mobility rate of participants, testing, instrumentation, and design contamination.
- ▶ Quant. experimental designs fare quite well when evaluated on their ability to control threats to internal validity. With the exception of history, the other threats can be controlled by the presence of the series of pre-measures.

Procedures for Data Analysis

- ▶ The researcher was the only person with knowledge of data stored on a scanned disc.
- ▶ The researcher obtained permission from the Research and Evaluation Department of the participating district. The researcher will submit an external research application to the Research and Evaluation Department.
- ▶ Before approval was granted by the school district, the Research and Evaluation Department requested the approval from the Institutional Review Board (IRB) (Appendix A).
- ▶ Once permission was obtained by the IRB, the Research and Evaluation Committee released the data.

Statistical Analysis

- ▶ Statistical analysis was utilized by running statistics in Statistical Package for the Social Sciences (**SPSS**) Analysis Software Program.
- ▶ Inferential statistics and an independent sample t-test was utilized in assessing two research questions.

Chapter 4: Findings & Analysis

ANOVA

- ▶ An analysis of variance (**ANOVA**) is a procedure used to compare means to determine if there is enough evidence to infer greater variability of means between large groups or population distributions.
- ▶ One-way analysis of variance offers a better explanation when contrasted with t-tests.

*George & Mallery (2011)

Table 2-Descriptive Stats TAKS Posttests ELA/MATH

Posttest	Cohorts	N	Mean(*ss)	SD	SEM
TAKS ELA	CB(C1)	105	2183.838	208.0664	13.6607
	CT(C2)	238	2169.025	211.1887	20.3052
TAKS MATH	CB(C1)	105	2215.569	233.9691	15.1342
	CT(C2)	238	2160.848	216.3870	21.1172

Table 3-Inferential Stat TAKS Posttests ELA/MATH (t-test)

Variable	<u>Levene's Test for Equality of Variances</u>		<u>T-test for Equality of Means</u>					
	F	Sig.	t	df (2-tailed)	MD	SED	95% CID L U	
TAKS ELA EVA	.147	.702	-.602	342	(.548)	-14.8	24.61	-63.23 33.60
EVNA			-.602	201.42	(.546)	-14.8	24.47	-63.07 33.44
TAKS MATH EVA	.094	.759	2.043	342	(.042)	54.72	26.78	2.04 107.4
EVNA			2.106	213.64	(.036)	54.72	25.98	3.51 105.9

TABLE 4-DESCRIPTIVE STATS(Attendance Participation)

Variable	Cohorts	N	Mean	SD	SEM
Attendance Participation	College Bound(C1)	105	87.5	.498	.052
	Career Tech(C2)	238	82.3	.429	.029

Table 5-Inferential Stats for Attendance Participation (t-test)

Variable	<u>Levene's Test for Equality of Variances</u>		<u>T-test for Equality of Means</u>					
	F	Sig.	t	df	(2-tailed)	MD CID	SED L U	95% CID
Attendance EVA	13.235	.000	-2.348	343	.019	-.134 .022	.057	-.247 -
EVNA			-2.260	150.69	(.025)	-.134 .017	.059	-.252 -

Table 6-Descriptive Stats (One-Way Anova)

Cohort	N	Mean (*Scale scores)	SD	SEM	LB	UB	Min.	Max.
1	105(C1)	2211.45	174.130	16.242	2162.36	2226.35	1120	2852
2	238(C2)	2194.35	250.575	16.993	2177.75	2245.15	1864	2710
Total	343	2199.59	229.769	12.406	2175.18	2223.99	1120	2852

Table 7-Test of Homogeneity of Variances

Levene's Statistic	df1	df2	Sig.
1.697	1	341	.194

Table 8-ANOVA-Scale Scores

Variable s	Sum of squares	df	Mean Square	F	Sig.
Between Groups	21290.898	1	21290.898	.403	.526
Within Groups	1.803	341	52886.060	N/A	N/A
Total	1.806	342			

Summary of Findings

- ▶ The t-value resulting from the independent t-test between the average scale scores of the college bound group participants (C1) and the career tech cohort group participants (C2) yielded higher scores for the college bound cohort on the TAKS MAT posttest, but not on the TAKS ELA posttest compared to their counterparts in the career tech group.
- ▶ *The ANOVA confirmed the difference in math scores was not statistically significant.
- ▶ Slightly more students in the college bound cohort (C1) met the average daily attendance rate (ADA) as opposed to their counterparts in the career tech cohort (C2). The college bound cohort slightly outperformed their peers in the college bound cohort in attendance-participation.
- ▶ It appears that the interventions were slightly more successful with college bound students than with their counterparts in the career tech track. While the data did not reveal what types of interventions might have been more successful, the results of the study did indicate that more or different interventions need to be provided if all students are to succeed academically.



Chapter 5: Recommendations

Recommendations

- ▶ Recommendation 1-Additional studies are needed involving larger and more comparable sample sizes, targeted for a college a career tracks post HB5.
- ▶ Recommendation 2-Additional studies are needed to explore how to help at-risk youth bridge social and cultural gaps (Bourdieu's theory).
- ▶ Recommendation 3-Additional studies are needed whereby(CTE) curriculum writers in the U.S. closely examine the model used in Europe (i.e. Finland-#1, Netherlands-#4, Germany-#7 and France-#10) where the high school curriculum is designed in part to meet local workforce needs (PISA, 2013)(See local high school in urban districts like Spring ISD-Carl Wunsche Sr. High School)

***Freeman, Hersch, & Mishel (2005)**

Future Research

- ▶ This study expanded on the research of James and Cabrera
- ▶ The aforementioned study (J & C, 2007) also explored the impact of increased student achievement and attendance in a college and career preparatory program.
- ▶ However, part of the problem is the limited number of multi-year studies in which researchers compare the effectiveness of pre-college interventions and activities with at-risk youth in high schools in urban districts.

Future Research cont'd.

- ▶ Results of this study and other multi-year studies will help increase awareness regarding **the need for curriculum change which strengthens and supports HB5 (which ultimately will** impact, transform, and inform the decision making process as it relates to changing curriculum better suited for our at-risk high school youth attending urban districts).
- ▶ Better meet high school students' skill-set, students should increase their academic achievement, which will in turn positively impact graduation rates (AYP).
- ▶ Catalyst for change in other urban districts.

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