CHAPTER III

Methodology

This chapter describes the methodology employed to study the relationship
between a mandatory uniform dress policy and attendance, discipline, grade point
average, and self-esteem. A description of the setting, research design, population,
sample selection, data collection, and procedures is contained within.

Setting

Norfolk Public Schools is a mid-size, urban, school district in southeastern
Virginia. The school system serves approximately 36,000 students, who are 63.7%
African-American, 32.3% Caucasian, 2.1% Asian, and 1.7% Hispanic. Sixty-three and
six-tenths percent of the student population receive free or reduced-price lunch, and
39.1% receive Aid for Dependent Children (Norfolk Public School's School Profile,
1995-96).

Population

All students attending William H. Ruffner Middle School from 1994-95 through
1996-97 were eligible for the study. The student population over the three years was
62.6% African-American, 35.0 % Caucasian, 1.0% Asian, and 1.1% Hispanic.
Seventy-two and two-tenths percent of the students received free or reduced-price
lunch, which was the highest among all eight middle schools within the school district,

and 50.5% received Aid for Dependent Children (Norfolk Public School's School Profile, 1995-96).

<div align="center">Samples</div>

All students attending William H. Ruffner Middle School from 1994-95 through 1996-97 were eligible for the study. The researcher created a non-random sample using the criteria that only those students who remained in the building for three consecutive years would be eligible for participation. A summary of sample characteristics is in Table 1.

<u>Sample A</u>

Students in the 9th grade during 1997-98 who completed three consecutive years at William H. Ruffner Middle School from 1994-95 through 1996-97 were the participants in the study. There were 146 students identified who were 6th grade students in 1994-95, the baseline year or non-uniform year, and wore uniforms as 7th and 8th graders in 1995-96 and 1996-97 respectively. This cohort formed Sample A. A second sample of students described as being "behaviorally at-risk" were identified from this sample.

<u>Sample B</u>

A second sample was created by adding the criterion to sample A that the student had to be suspended as a 6th grader in 1994-95. "According to Gottfredson et al.

Table 1

Characteristics of the Samples Used in the Study

Sample	n	Gender				Ethnicity			
		Males		Females		Black		White	
		N	%	N	%	N	%	N	%
A	146	75	51.7	71	48.3	96	64.4	50	33.6
B	35	23	65.7	12	34.3	29	82.9	6	17.1
C	60	31	51.7	29	48.3	41	68.4	19	31.6

(1990), these students are representative of the small percentage of students

attributing to most of the discipline problems in school," and therefore warrant

examination. Sample B contained 35 students.

<u>Sample C</u>

Respondents to the Uniform and Self-esteem Scale comprised Sample C. Eligible

students were those previously identified in Sample A present on the day the USE

instrument was administered whose parents did not object to participation, and who

agreed to sign the student consent form participated (Appendix E).

<div align="center"><u>Research Design</u></div>

A quantitative, quasi-experimental research approach was used for this case study.

A time series design enabled the researcher to collect data on repeated measurements

of attendance, discipline, and grade point average of an intact group of students.

According to Bray and Maxwell (1985):

> in repeated measures designs or within-subject designs, multiple measures on
> each subject for different trials or times are collected using the same criterion
> variable at each trial or time. These criteria can be viewed as separate variables
> statistically and tested using MANOVA. A primary advantage of this design is
> that it controls for individual differences and produces a more powerful test of
> hypothesis than would a between-subject design. (p. 69)

The standard of "single-variable rule" was established by the researcher as

suggested by Wiersma (1991) by controlling for other competing variables which

could threaten the researcher's ability to attribute any differences to uniforms. In other

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words, this rule addresses the researcher's ability to minimize the threats to internal validity by controlling for them. The effects associated with history were controlled for as much as possible by the researcher. Observations for example, were limited to one administration to minimize the effect of a change in principal leadership and a new administrative team.

Data Collection

The data sources that were used to gather information about these students relative to attendance, discipline, and grade point average are listed in Table 2. There have been many instruments designed to measure self-esteem. Using previous studies as a guide, the researcher developed an instrument called the Uniforms and Self-esteem Scale to measure overall self-esteem of students as a result of wearing uniforms.

Survey Construction

Item formulation. There are studies using survey instruments to show that there is a relationship between clothing and perceptions of school climate, self-image, social participation, social competence, and academic self-efficacy as components of self-esteem (Behling, 1995; Callen, 1992; Francis, 1992; Hughes, 1996; Shook, 1996; Stanley, 1996). After a thorough review of the literature of assessing student attitudes toward clothing and self-esteem, four domains of self-esteem: social competence, social participation, academic self-efficacy, and self-image were selected as essential

dimensions of self-esteem related to this study. These domains

Table 2

Data Collection Sources for Information on Attendance, Discipline, Grade Point

Average, and Self-esteem

Dependent variable	Data source
Average attendance	Student Information Systems: Attendance database
Discipline incidences	Student Information Systems: SMART database
Grade point averages	Student Information Systems: Master Record database
Self-esteem	Uniforms and Self-esteem (USE) Scale

are defined in Table 3. Forty-one corresponding statements developed to address the domains were critiqued as part of content validation (Appendix C). Each item stem was reviewed to ensure that each of the four domains were fully reflected and broad enough in format to permit interpretation by administrators, as part of the content validation process as suggested by Gable (1993).

Content validation. Opinions of 18 school administrators were solicited to rate items tied to three areas: construct, association, and clarity. The first rating indicated which factor of self-esteem the respondent thought was being addressed by the statement; the second rating indicated how strongly respondents felt the statement was associated with the domain selected; and the third rating reflected how clearly the statement was written. Measures of Central Tendency and Dispersion were calculated for each of the 41 items. The mean, standard deviation, frequency, and percent response per domain are reported in Appendix C. Based on these results, a 34 item pilot instrument called the "Uniforms and Self- esteem" (USE) Scale was developed for piloting.

Pilot testing results. The pilot USE scale was given to 156 students in the eighth grade attending William H. Ruffner Middle School in 1997-98. The 34 items were entered into a principal component factor analysis from the Statistical Package for the Social Sciences (SPSS, 1995). A varimax rotation was employed to discover the underlying structure of the scale and the interdependency of items without prior

Table 3

<u>Domains of Self-esteem Used for USE Scale Development</u>

	Factors	Definitions
I.	Social competence	Ability to interact and behave appropriately in day to day social interactions (Shook, 1996).
II.	Social participation	Feeling or being accepted by peers, a sense of belonginess (Shook, 1996).
III.	Self-image	Feelings about one's attire and appearance (Shook, 1996).
IV.	Academic self-efficacy	The belief that one has the ability to complete academic tasks successfully (Bandura, 1986).

specification of factors and their loadings based on observed variables (Kim &

Mueller, 1981). This process allowed the researcher to reduce a large number of items

into a few meaningful factors by grouping items orthogonally (Dunteman, 1989).

Each item is compared to each of the factors which emerged from the analysis. Survey

items were then sorted into distinct groups by taking the highest value or loading for

each item (Appendix D).

"One of the most popular criteria for addressing the number of factors question is

to retain factors with Eigenvalues greater than 1.0 when the correlation (not adjusted)

matrix is decomposed" (Kim & Mueller, 1981, p. 43). The analysis yielded five

significant factors with Eigenvalues greater than 1.0 accounting for 65.0% of the total

variance. The loadings of these factors are presented in Appendix D. Three of the

five factors corresponded to three of the four domains established by the researcher

which were self-image, social competence, and social participation. In fact, many

items loading significantly upon each of these three factors had also been identified by

the administrators in the content validation study as being related to that

corresponding domain.

The fourth factor, thought to measure academic self-efficacy, was renamed as

"self-reported better performance." The researcher believes that these items never

truly measured a student's belief that they could do what was expected or academic

self-efficacy as described by Bandura's Social Learning Theory and applied to

education by Schunk (Bandura, 1986). None of the statements really asked if students

felt as if they could meet expected performance goals in mathematics, science, social

studies, or communication skills instead. These items alluded to performing or behaving better than one had done before, which is a distinctly different construct.

A new domain emerged that was not previously identified by the researcher. This 5th factor comprised of two items was called "belonginess" by the researcher. This factor had an Eigenvalue greater than 1.0 and was therefore retained even though it only had two items associated addressing it.

Alpha internal consistency measures for each factor and the overall instrument were calculated. With the exception of the category renamed as belonginess with an alpha of 0.61, all other factors exceeded 0.75, with an overall rating of items calculated as 0.96 (Table 4) This reliability analysis revealed that the USE scale instrument was essentially unidimensional.

The final USE scale. Results from the exploratory factor analysis and internal consistency estimates produced the final version of the scale, a copy of which can be found in Appendix E. The final version consists of 34 items in a five-point Likert response format. Each of the responses ranged from strongly agree to strongly disagree, and were scored from 5 to 1 respectively, so that an overall score greater than 3.0 indicates a more positive self-esteem as a result of wearing a uniform.

Table 4

<u>Cronbach's Alpha Estimates for Factors on the Uniforms and Self-esteem Scale</u>

<u>Factor</u>	<u>Factor name</u>	<u>Estimate</u>
1	Social competence	.92
2	Social participation	.82
3	Self-image	.76
4	Self-reported better performance	.94
5	Sense of belonging	.61
Overall	Self-esteem	.96

<div align="center">Procedures</div>

Attendance, discipline incidents, grade point average, and self-esteem data were organized into tables and depicted graphically when appropriate. A description of how each of these dependent variables were operationalized is provided below.

Average Attendance

The average attendance rate for each student was calculated by dividing the total number of days present by the number of days a student could have been present based on when a student enrolled or started school. Attendance rates were then adjusted by removing absences if they were related to uniforms. For example, if a student was suspended from school for three days for a uniform violation, then three days would have been added back to days present and the rate of attendance would be then be recalculated. The rationale for adjustments was based on the premise that if uniforms were not present this absence may not have been earned.

Discipline Incidences

Discipline incidents which resulted in a recorded referral on the School Management and Resource Team (SMART) database were eligible for review. The total number of recorded referrals and referrals in two discipline categories: total rule violations and total number of out-of-school suspensions were analyzed. These data were also adjusted by removing those incidences related to uniforms. The rationale for adjustments was based on the premise that if wearing of uniforms was not required,

then the number of disciplinary referrals may not have been as large.

Grade Point Average

Grade Point Average (GPA) was computed by summing the final grades for each school year earned in communication skills (English), mathematics, science, and social studies and dividing it by four. An "A" carried a numerical value of 4.0, a "B" had a value of 3.0, a "C" had a value of 2.0, a "D" had a value of 1.0, and an "E or F" had a value of 0.0.

Using SPSS Inc, (1995) a 2 x 2 x 3 or Type III Repeated Measures Analysis of Variance, (Type III RM ANOVA) was used to determine statistical significance with respect to gender and race over time for average attendance, discipline incidents, and grade point average. A 2x2 factorial design was employed, and a descriptive analysis, (i.e., mean, range, and standard deviation) of survey respondents was conducted to assess overall self-esteem with respect to race and gender.

Self-esteem

An overall rating for self-esteem was computed for each student using the Uniforms and Self-esteem (USE) Scale. Using a five-point Likert scale, a mean self-esteem rating was computed by summing the ratings per question and dividing the total by 34 for each of the 60 respondents. An overall self-esteem rating of 3.0 or greater was considered positive.

Using a predetermined alpha level of .05, the researcher sought to investigate the

question what is the relationship between a mandatory uniform dress policy and attendance, discipline, grade point average, and self-esteem. The researcher's hypotheses and corresponding null hypotheses tested are presented below.

<u>Tested Hypotheses</u>

<u>Average Attendance</u>

The researcher's hypothesis was that there is a trend in average attendance by race (black, white) and gender (male, female) To test this over-riding hypothesis, the following seven null hypotheses were statistically tested:

H_{O1} :   There is no significant difference in average attendance between blacks and whites collapsing cross gender and time.

H_{O2} :   There is no significant difference in average attendance between males and females collapsing across race and time.

H_{O3} :   There is no significant interaction in average attendance between race and gender collapsing across time.

H_{O4} :   There is no significant trend in average attendance collapsing across race and gender.

H_{O5} :   There is no significant trend in average attendance for race collapsing across gender.

H_{O6} :   There is no significant trend in average attendance for gender collapsing across race.

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H_{O7} :   There is no significant trending interaction between race and gender with

respect to average attendance.

Discipline Incidents

The researcher's overall hypothesis was that there is a trend in discipline
indicators: referrals, rule violations, and out-of-school suspensions by race (black,
white) and gender (male, female). To test this overriding hypothesis, the following
seven null hypotheses were statistically tested:

H_{O1} :   There is no significant difference in discipline incidents (referrals, rule

violations, and suspensions) between blacks and whites collapsing across

gender and time.

H_{O2} :   There is no significant difference in discipline incidents (referrals, rule

violations, and suspensions) between males and females collapsing across

race and time.

H_{O3} :   There is no significant interaction in discipline incidents (referrals, rule

violations, and suspensions) between race and gender collapsing across

time.

H_{O4} :   There is no significant trend in discipline incidents (referrals, rule

violations, and suspensions) collapsing across race and gender.

H_{O5} :   There is no significant trend in discipline incidents (referrals, rule

violations, and suspensions) for race collapsing across gender.

H_{O6} : There is no significant trend in discipline incidents (referrals, rule violations, and suspensions) for gender collapsing across race.

H_{O7} : There is no significant trending interaction between race and gender with respect to discipline incidents (referrals, rule violations, and suspensions).

Grade Point Average

The researcher's overall hypothesis was that there is a trend by race (black, white) and gender (male, female) in grade point average in Communication Skills (English), Mathematics, Science, Social Studies. To test this overriding researcher's hypothesis, the following seven null hypotheses were statistically tested:

H_{O1} : There is no significant difference in grade point average between blacks and whites collapsing across gender and time.

H_{O2} : There is no significant difference in grade point average between males and females collapsing across race and time.

H_{O3} : There is no significant interaction in grade point average between race and gender collapsing across time.

H_{O4} : There is no significant trend in grade point average collapsing across race and gender.

H_{O5} : There is no significant trend in grade point average for race collapsing across gender.

H_{O6} : There is no significant trend in grade point average for gender collapsing

across race.

H_{O7} :   There is no significant trending interaction between race and gender with

respect to grade point average.

Self-esteem

The researcher's overall hypothesis was that there is an interaction by race (black, white) and gender (male, female) for self-esteem. To test this overriding researcher's hypothesis, the following three null hypotheses were statistically noted:

H_{O1} :   There is no significant difference between blacks and whites with respect

to self-esteem.

H_{O2} :   There is no significant difference between males and females with

respect to self-esteem.

H_{O3} :   There is no significant interaction between race and gender with respect

to self-esteem.