143999

Final Activities Report

PERCEIVED AND ACTUAL RISKS
OF
SCHOOL-RELATED VICTIMIZATION

Submitted to:

National Institute of Justice
Grant # 91-MU-CX-0001

Submitted by:

Frank S. Pearson and Jackson Toby

Institute for Criminological Research
Rutgers, the State University of New Jersey
New Brunswick, New Jersey 08903

August 19, 1992

143999

PERCEIVED AND ACTUAL RISKS
OF
SCHOOL-RELATED VICTIMIZATION

RESEARCH PROJECT GOALS

Teenagers have disproportionately high rates of being perpetrators of crimes such as theft and simple assault. However, teenagers are also very likely to be victims of thefts and simple assaults. Much of this victimization of teenagers occurs in school, on school grounds, or on routes to and from school. One goal of this research project is to move beyond a general description of the linkage between schools and criminal victimization to specifications of the linkages between specific characteristics of schools and the levels and types of student responses to actual and potential victimization. We analyze how specific cognitions of victimization risk among students in public and private schools are associated with their responses to victimization risk. Cognitions of victimization risk include (1) the student's memory of direct experience (or nonexperience) with victimization, (2) the student's perception of risk-relevant aspects of the school environment, and (3) the student's cognition of risk, which can be inferred to result from different sociodemographic roles (e.g., age, sex, social class). Responses to victimization risk in schools are mainly

of two types: (1) the emotional response of _fear_ and (2) the
behavior response or what students do in response to the level
of risk they perceive. The behavioral response may include
avoiding particular locations at school or arming themselves
for self-protection.

THE DATA BASE: DESIGN AND METHODOLOGY

We have used two related data sets that have been
made available in integrated form by BJS. The first is the
National Crime Survey (NCS) conducted yearly by the Census
Bureau for the Bureau of Justice Statistics. Recently, BJS
has begun referring to this project as the National Crime
Victimization Survey (NCVS). The NCVS uses a complex
probability sample design to represent the U.S. population age
12 and older, thus allowing the reports of interviewed
respondents to be used to make inferences about crime
victimization in the nation as a whole.

The second is the School Crime Supplement, one of
the special-topic Supplements to the National Crime
Victimization Survey. Researchers collected data from January
1, 1989, to June 30, 1989, asking persons 12 to 19 who were
part of the NCVS sample (and attending either public or
private secondary schools) about their experiences with school
crime.

The public-use tape of these data became available last fall from the National Archive of Criminal Justice Data of the Inter-university Consortium for Political and Social Research at the University of Michigan.

About 15,000 individuals 12 to 19 were interviewed in the School Crime Supplement. However, over 4,000 were excluded because they fell into one of the following categories: school dropouts (nonattenders), college students, or high school graduates not attending college. Of the approximately 10,000 who supplied school victimization data on the Supplement, about 900 were attending private schools.

The question on the Crime Incident Report of the regular NCVS, "Where did this incident happen?" (with structured answers that include "inside school building" and "on school property") can provide data on school crime.

Sensitivity to Fallacious Causal Inference

Correlation does not imply causation. We can discover patterns of association among important variables in this data set. We can also control for a few other relevant variables. Most of the time, however, we cannot establish the temporal ordering of the variables, and we do not have enough important control variables to support inferences of causal linkages. Thus, we shall not be making claims for causal connections between the variables.

OPERATIONAL INDICATORS OF THE CONCEPTS

In this section the following convention will be used: A designation of NCVS before an item signifies that it comes from the National Crime Victimization Survey. Otherwise the item comes from the School Crime Supplement. Note that these survey data do not include scales of items that have been tested for reliability and validity. This project only tries to determine the degrees of association that exist among the variables we have identified in the hypotheses.

Direct experiences with criminal victimization. There were two potential sets of indicators of the students' direct experiences with criminal victimization at school. One is the main schedule of the National Crime Victimization Survey. The other is the School Crime Supplement. The school victimizations from the main schedule are obtained by disaggregating the large file of victimizations by responses to Question 7: "Where did this incident take place?" Two of the answers are "Inside school building" and "On school property (school parking area, play area, school bus, etc.)" The other data source is the victimization reports from the School Crime Supplement administered to household members 12 to 19 years of age.

The following instruction was read to respondents: "The following questions are about crimes that may have

happened to you at school. By 'at school' we mean in the
school building, on the school grounds, or on a school bus.
Be sure to include crimes you have told me about earlier in
this interview." The idea was that some victimizations may
have been reported on the School Crime Supplement that had not
been mentioned previously on the Crime Incident Report of the
National Crime Victimization Survey.

Unfortunately, things did not turn out as the
designers of the Supplement intended. Bruce Taylor at BJS
informed us that the quality control checks that BJS had
performed on the data set indicated that the crime
victimization items from the SCS (Section G of the SCS) were
not as accurate a measure of crime victimization at school as
the corresponding items from the NCVS. One possibility is
that a screening item leading to the school crime measures is
not entirely effective. Another speculation is that
respondents may have been tired of going over the same
questions about victimization a second time. (It is also
possible, although we have no evidence on this, that the
respondents may have tired of the interview as a whole. If
so, the answers to Section H of the SCS, the "Avoidance"
section, may be less accurate than answers provided to earlier
sections.) The findings presented in the following section
rely not only on the NCVS items, but also on the BJS
operational definition (and programming code) of victimization
of crimes of violence. In this study the following

victimization incidents (and only the following) constitute
violent victimization:

Value   Label

1   Completed rape
2   Attempted rape
3   Completed robbery with injury from serious assault
4   Completed robbery with injury from minor assault
5   Completed robbery with injury
6   Attempted robbery with injury from serious assault
7   Attempted robbery with injury from minor assault
8   Attempted robbery without injury
9   Aggravated assault completed with injury
10   Attempted assault with weapon
11   Simple assault completed with injury
12   Attempted assault without weapon

The computer variable name we assigned to a variable is
designated in this report by uppercase letters. We adopted
the variable name that BJS used, VIOLVICT.

Perceived risk in the school environment. We assume that the
following two items will be indicative of perceived risk in
the school environment. (We are not interpreting this as a
measure of individual, personal risk.)

24. How often do street gang members fight with each
other at school? [GANGRISK]

1. Never or almost never.
2. Once or twice a year.
3. Once or twice a month.
4. Once or twice a week.
5. Almost every day.

25. In the last six months, did a student attack or
threaten to attack a teacher in your school? [RV221]

1. Yes.
2. No.

Sociodemographic roles (such as age, sex, race/ethnicity). The items for sex and age are obvious, as is the SCS item on what grade the respondent is in. Our analyses relating to race/ethnicity will use the variables white vs. black and Hispanic vs. NonHispanic from the following two items:

NCVS 27. Race

      1. White
      2. Black
      3. Amer. Indian, Aleut, Eskimo
      4. Asian, Pacific Islander
      5. Other

NCVS 28. Hispanic origin

      1. Yes
      2. No

Fear of victimization. This concept will be operationalized by the following two items.

31. How often are you afraid that someone will attack or harm you at school?

32. How often are you afraid that someone will attack or harm you on the way to and from school?

The response alternatives are:

Never
Almost never
Sometimes
Most of the time

One **behavioral response** to fear is <u>avoidance of particular locations at school</u>.

> 30. Did you STAY AWAY from any of the following places because you thought someone might attack or harm you at school? [AVDANY]
>
> > a. The shortest route to school?
> > b. The entrances into the school?
> > c. Any hallways or stairs in school?
> > d. Parts of the school cafeteria?
> > e. Any school restrooms?
> > f. Other places inside the school building?
> > g. School parking lot?
> > h. Other places on school grounds?
> > i. Extra-curricular school activities?

Another **behavioral response** to fear is becoming a <u>dropout</u> from school (complete nonattendance). This behavior removes respondents from the School Crime Supplement, but some data are available on them from the National Crime Victimization Survey. The School Crime Supplement to the NCVS includes screen questions that will serve as operational definitions of <u>poor attendance</u> and <u>dropout</u> (nonattendance). The Supplement excludes students enrolled in college and other graduates of high school from the sample of youth aged 12 to 19. The screening questions "1. Were you attending school at any time during the last six months?" and "4. How many months were you in school during the last six months?" will be used to define some youngsters as <u>poor attenders</u> or <u>dropouts</u> (youngsters who said they were not attending school and had not completed the 12th grade).

The following items refine the poor attendance variable, specifying a linkage between poor attendance and fear of crime:

> 29a. Did you stay at home any time during the last six months because you thought someone might attack or harm you at school?
>
> 29b. How many times did you stay at home because you thought someone might attack or harm you at school?

Another **behavioral response** to fear is arming for self-protection.

> 33. During the last six months how often did you bring something to school to protect yourself from being attacked or harmed?
>
> > 1. Never
> > 2. Almost never
> > 3. Sometimes
> > 4. Most of the time
>
> 34. What did you bring to school to protect yourself from being attacked or harmed?
>
> > 1. Gun
> > 2. Knife
> > 3. Razor blade
> > 5. Spiked jewelry
> > 6. Mace
> > 7. Nunchucks
> > 8. Something else -- Specify:

Two variables that help to measure the social context in which school victimization occurs are (1) how urban/metropolitan the locale is and (2) whether the school is public or private.

For urban/metropolitan locale we rely on a variable in the NCVS data set categorizing the Metropolitan Statistical

Area (MSA) status of the county in which the student resides, using 1980 census data. The three categories are: (1) in central city of MSA, (2) in MSA but not in central city, (3) not in MSA.

Attending public vs. private schools is simply measured by the following item:

7.   Is your school public or private?

DATA ANALYSIS

The bulk of the data analysis consisted of testing the more than thirty-five hypotheses and subhypotheses listed above. We also explored other research questions that came to light during the analysis.

The main methods of analysis we used were crosstabulation and log-linear analysis. We were interested not only in the main effects of the variables but in the interactive effects as well.

Conducting log-linear analysis on cases weighted to reflect the stratified sampling poses problems. Commonly, researchers resort either (1) to analyzing the unweighted cases or (2) to analyzing the weighted frequencies as though weights had not been involved at all. Option one can lead to bias both in parameter estimates and in standard errors. Option two can lead to bias in standard errors and thus to

bias in hypothesis tests. To avoid both of these problems we used the re-weighting method described by Clogg and Eliason (1988: pp. 238-244). Since we were using the log-linear procedure in the SPSS-X statistical analysis software package which uses the Newton-Raphson algorithm, we systematically calculated appropriate weights that we then used in our log-linear analyses to test the hypotheses.

For each hypothesis, our programming method was as follows: First, we conducted the pertinent log-linear analysis on the unweighted cases in the data. Second, we conducted the same analysis using the School Crime Supplement weights that were provided by BJS with the data set. Third, we divided the unweighted cases in each cell by the SCS-weighted number of cases in each cell to produce an ordered set of cell-weights. These were then listed in the CWEIGHT subcommand of SPSS's LOGLINEAR procedure, as part of the final log-linear analysis appropriate for the complex sampling method used in the NCVS. Clogg and Eliason (pp. 240-241). Fourth, if the results confirmed the hypothesis (beyond the .05 level of statistical significance), we conducted a crosstabulation using the same categories as the log-linear analysis. In addition to the log-linear analysis parameter coefficients (and their associated Z-values) the crosstabulations include other measures (such as percentages, expected frequencies, and conditional odds-ratios) that may help elucidate the relationship we found.

For the crosstabulations, one option would have been to use the unweighted cases in the data set. However, this would not accurately reflect the sampling method used in the School Crime Supplement. Another option would have been to use the SCS-weighted cases. However, these are designed to reflect the numbers of cases that one would expect to find in the United States as a whole if one were to extrapolate from the sample of youths who were interviewed. Thus, presenting crosstabulations based on the SCS-weighted cases might mislead the reader into thinking that the results were based on millions of cases instead of on the thousands of youths actually interviewed. The option we chose for the crosstabulations was to use the accurate sample-based weights, but to divide the SCS-weights by a constant chosen so that the total number of cases in each table was equal to the total number of cases found in the crosstabulation based on the unweighted numbers of cases. Thus, the total for each cell accurately reflects the total number of interviews upon which that finding is based, while the relative proportions in the cell accurately reflect the complex sampling method used in the study.

The main variables comprising the analyses include actual criminal victimization, fear of victimization, perceived risk in the school environment, avoidance of particular locations at school, poor attendance at school, bringing things to school for self-protection, public vs.

private schools, grade structure of the school, level of
urbanization, and such sociodemographic roles as age, sex,
race/ethnicity, and family income. Because crime and fear of
crime are still relatively uncommon in schools, there are
problems of losing cases from key cells in multivariate
analyses. For the most part, simultaneous analysis of four
variables was not possible. Most of our analyses were either
bivariate analyses or trivariate analyses.

Two of the main strengths of the analyses presented
in this report are that (1) they were all based on hypotheses
formulated before seeing these data and (2) the statistical
tests accurately reflect the complex sampling design that was
used in collecting the data.

School Attendance Considerations

From the National Crime Victimization Survey (NCVS) we
exclude from our analyses persons 19 years of age and older
and persons in college. This leaves persons in the 12 to 18
age range (who were not in college) to comprise the target
sample. Those who did not attend school at any time during
the last six months (and had not completed high school) were
be coded as dropouts. These individuals were included only in
analyses with variables from the main NCVS because they were
not asked questions in the School Crime Supplement. (Other
analyses were done based on a poor attendance variable. This

lists the number of months the student attended school out of the last six months.)

Crime Victimization

Bruce Taylor at BJS informed us that the quality control checks that BJS had performed on the data set indicated that the crime victimization items from the SCS (Section G of the SCS) were not as accurate a measure of crime victimization at school as the corresponding items from the NCVS. A reasonable speculation is that respondents may have been tired of going over the same questions about victimization a second time. (It is also possible, although we have no evidence on this, that the respondents may have tired of the interview as a whole. If so, the answers to Section H of the SCS, the "Avoidance" section, may be less accurate than answers provided to earlier sections.)

Our analyses relied not only on the NCVS crime victimization items, but also on the BJS operational definition (and programming code) of victimization of crimes of violence. In this study the following victimization incidents (and only the following) constitute violent victimization:

```
1    Completed rape
2    Attempted rape
3    Completed robbery with injury from serious assault
4    Completed robbery with injury from minor assault
5    Completed robbery with injury
6    Attempted robbery with injury from serious assault
7    Attempted robbery with injury from minor assault
```

          8   Attempted robbery without injury
          9   Aggravated assault completed with injury
         10   Attempted assault with weapon
         11   Simple assault completed with injury
         12   Attempted assault without weapon

A student was considered as having reported a violent victimization if any one of the up to seven incidents was a crime of violence. Thus, an individual might report a larceny as the first incident within the six-month period and an attempted assault without a weapon as the second incident. This individual would be counted as a case of reported violent victimization.

FINDINGS

Approximately 2 percent of the students in the NCVS reported experiencing at least one crime of violence at school during the six-month reporting period. Although, as one would expect, most were attempted simple assaults without the use of a weapon, another 20 percent were simple assaults completed with injury. Still another 8 percent were assaults with a weapon, and about another 7 percent were aggravated assaults completed with injury. Thus, these victimizations span a range from "disorderly conduct" types of assaults to violent acts of substantial seriousness.

We now turn to our ten general hypotheses and related subhypotheses.

Hypothesis 1. Direct experiences with criminal victimization
    have a low level of association with perceived risk in
    the school environment.

Table 1.A illustrates the format we use in presenting nearly all of our findings. Consequently, we shall explain Table 1.A (next page) thoroughly. The top box of the table lists a short title of the variables included in the analysis. (The earlier section on operational indicators for the theoretical concepts contains a full description of the items used.) The box just below the title in the center of the table lists a short name of one of the variables, and below that, labels for the values of that variable. The left center of the table lists a short name of the other variable, and just to the right of that, labels for the values of that variable.

In Table 1.A, as well as the analyses in other tables, we have not in general assumed that one of the variables is the independent variable and the other the dependent variable. Each variable has the same predictive standing, and our main focus is the level of association between the variables.

Table 1.A: Violent Victimization with GANGRISK (How Often Gangs Fight at School).				
	CELL #s: Obs Freq Exp Freq Row % Col %	GANGRISK		
		Never	Some- times	
Violent Victimization	No	8922. 8900.8 89.9 98.3	998. 1019.7 10.1 96.0	Condit'l Odds: 0.11
	Yes	157. 178.1 78.9 1.8	42. 20.4 21.1 4.0	Condit'l Odds: 0.27
		Condit'l Odds: 0.02	Condit'l Odds: 0.04	

Measures Summarizing the Relationship:				
Log-Linear Analysis Coeff	Coeff Z Value	Signif. Assoc'n	Kendall's Tau B	Somers' D
.2183	5.138	.000	.0505	.0382

The box with a dark border in the center of the table contains the numerical cell entries of the crosstabulation. Just to the upper left of that dark-bordered box is a legend identifying the various entries in each cell. The top entry in each cell is the observed frequency. Recall that a complex weighted random sample was used in the

NCVS/SCS. The observed frequency listed here reflects the appropriate relative weighting of cases. However, instead of listing the total numbers that would be found in the United States population as a whole, we use the total unweighted numbers of people interviewed. This preserves the appropriate relative weighting of cases, but the smaller observed frequencies give the reader a sense of the actual numbers of people who were interviewed. Thus, in the cell in the lower-right corner of the dark-bordered box, 42 is the sample-weighted observed frequency of cases who attend schools where one or more gang fights occur each year and who also were victims of a violent crime in the six-month period under study.

Just below the observed frequency is the expected frequency. This is the number of cases in the cell that one would expect to find if the two variables were completely independent of one another, i.e., if there were no association between the variables at all. Thus, if there were no association at all between GANGRISK and violent victimization, one would expect to find (on the average) 20.4 cases who attend schools where one or more gang fights occur each year and who also were victims of a violent crime. If there were no association at all, we would expect to find about 20 cases, but in fact there were 42 cases in that cell. This suggests, as hypothesized, that gang fights at a school and violent

victimization of the sampled student at the school <u>are</u>
empirically associated.

The cell entry below the expected frequency is the
row percent: of the total of observed cases found in that row,
the percent of cases found in that particular cell. To
continue examining the cell in the lower-right corner of the
dark-bordered box, of those students who were victims of a
violent crime, 21.1 percent attended schools where there had
been at least one gang fight per year. Finally, the bottom
entry in each cell is the column percent: of the total of
observed cases found in that column, the percent of cases
found in that particular cell. Of those students who attended
schools where there had been at least one gang fight per year,
4.0 percent were victims of a violent crime.

To the right and below the dark-bordered box appear
entries abbreviated "condit'l odds." This designates the
<u>conditional odds ratio</u>. This refers to the odds of being in
one category rather than another of one variable, given that
the case falls within a particular category on the other
variable. Thus, among students who attended schools where
there was at least one gang fight per year, 42 cases fall in
the category of having experienced violent victimization while
998 cases did not experience violent victimization. The odds
are 42:998 of experiencing violent victimization, conditional
upon the fact of being in a school were gang fights occur at

least once a year. Dividing those two observed cell frequencies puts the odds in ratio form. In this instance 42 / 998 = .04, the odds ratio conditional on being in the category of schools where gang fights occur (Davis, 1978). (For ease of comparison, we have adopted a convention in these analyses of dividing the smaller frequency by the larger.) Notice that the conditional odds ratio (for violent victimization) is 1.8 for students reporting no gang fights, but 4.0 for students reporting at least one gang fight per year. The conditional odds ratio more than doubles with reported gang fights, supporting the hypothesis.

The bottom row of cells in the table contain measures that summarize the degree of association between the two variables. The cell in the bottom left is the <u>log-linear analysis parameter coefficient</u> computed using a cell weighting that takes into account the complex random sample technique that the NCVS/SCS uses (Clogg and Eliason, 1988). The next entry to the right, the coefficient Z-value, is an appropriate measure of the sampling variability of the log-linear coefficient. As usual, Z-values greater than 1.96 in absolute value are statistically significant at the .05 level.

The entry "Signif. Assoc'n" designates the probabilistic significance of the association between the two variables. This is computed from the change in the Chi-square values reflected in moving from a model of <u>independence</u> of the variables to one of <u>association</u> between the variables. In

effect, the probability that the seeming association between the variables is due entirely to random variation is less than about .000. Together, the coefficient Z-values and the probability based on the change in Chi-square are our key criteria for support of (or rejection of) each hypothesis. Thus, this particular hypothesis is supported beyond the .05 level of statistical significance.

Finally, two other measures of association are presented for interested readers: Kendall's Tau B and Somers' D. Since an appropriate significance test could not be computed for these two measures because of the complex random sample involved, no Z-values or confidence intervals are listed for these last two measures. Our assessment of the statistical significance of our analyses is based exclusively on the cell-weighted log-linear analyses.

Our first hypothesis was that direct experiences with criminal victimization have a low but statistically significant level of association with perceived risk in the school environment. The patterns we found in the data were somewhat stronger than we expected, both between direct experiences with violent victimization and with the perceived risk of danger at schools constituted by gang fights at school on the one hand, and with attacks on teachers on the other hand. There does seem to be a linkage between perceived risk in the school environment and the respondents' own reported experience of violent victimization.

Our second hypothesis was that direct experiences with criminal victimization have a high level of association with sociodemographic roles. We were surprised to find that the association with Hispanic ethnicity did not reach even the .05 level of statistical significance and that there was no relationship worth considering between violent victimization and race. We did find modest levels of association between violent victimization and younger ages on the one hand and with male sex on the other hand.

Third, our hypothesis that those students who have themselves experienced criminal victimization are substantially more likely to express fear of victimization than students without a personal experience of victimization was clearly confirmed. Both fear of attack at school and fear of attack while traveling to and from school were strongly associated with violent victimization.

Fourth, the hypothesis that students who have themselves experienced criminal victimization are substantially more likely to change their behavior in an effort to reduce their fear was perhaps the most strongly supported of all of the hypotheses. Violent victimization was strongly associated with three behavioral adaptations: bringing something to school to protect themselves, staying away from particular places at school and on the way to and from school, and staying home because of fear.

Fifth, we expected little or no correlation between students' age or sex and their perception of the risk of violent victimization in the school. The degrees of association that we did find were indeed modest.

Sixth, we had hypothesized that students who perceive greater risk of violent victimization in the school are more likely to feel afraid. As expected, we found strong relationships between perceptions that gang fights occur at their school and fear of attack at school, and also between perceptions that attacks on teachers had occurred and the student's own expressed fear of attack at school.

Seventh, our hypothesis that students who perceive greater risk of violent victimization in the school are more likely to respond behaviorally to cope with their perception of risk, was strongly supported. Students who perceive indications of heightened risk at school (e.g., fighting gangs and attacks on teachers at school) were indeed more likely to avoid particular locations at school. As predicted, such students were also more likely to bring something to school for self-protection.

Hypothesis 8, the prediction that sociodemographic roles (such as age, sex, race/ethnicity) would be moderately associated with fear, produced mixed results. Age and Hispanic ethnicity were modestly associated with fear of attack at school. However, race was not related to fear, and (more of a surprise to us) neither was sex.

Hypothesis 9 was a collection of subhypotheses to the effect that sociodemographic roles (such as age, sex, race/ethnicity, social class, and metropolitan location) are associated with a variety of behavioral responses to fear of victimization. We found, for example, that younger students are indeed more likely than older students to avoid places at school that they assumed presented greater risks of violent victimization. As expected, we found that public schools were disproportionately associated both with fear of victimization and with actual violent victimization. (In both instances the rates in public schools were about twice as high as in private schools. We thought that the difference would be even greater.) Similarly, we confirmed that male students were more likely than female students to bring something to school to protect themselves. On the other hand, we were somewhat surprised to find that Blacks and Hispanics were not disproportionately likely to bring weapons to school and that whites and non-Hispanics were not disproportionately likely to avoid certain location out of concern for their safety. As expected, students in central cities are more likely to report fear at school and avoidance of particular locations at school.

Our tenth, and final, general hypothesis was that the level of association between fear and behavioral responses to fear is high. As predicted we found significant relationships between poor attendance at school and with both fear of being

victimized at school (or going to and from school) and with efforts to avoid victimization at school.

Table 11.2 summarizes the conclusions of our investigation. The predictions we had made prior to analyzing the data are presented in lower case letters. Our crude verbal summary of the overall degrees of relationship we found in our hypothesis test is in bold, upper case.

By and large, our orienting ideas that the student's (1) cognition of risk associated with his/her sociodemographic roles, (2) the student's personal perception of risk-relevant aspects of the school environment, and (3) the student's memory of direct experience (or nonexperience) with victimization have helped us to predict (statistically) the students' emotional responses of fear and what those students will do in response to a perceived risk of violent victimization. These ideas help us to make sense of empirical generalizations about victimization, fear, and such behavioral response as avoiding particular locations at school or bringing things to school for self-protection.

	Cognitions			Responses	
	Direct	School	Roles	Fear	Behavior
Direct		1.Low MEDIUM	2.High MEDIUM	3.High HIGH	4.High HIGH
School			5.Low LOW	6.High HIGH	7.High HIGH
Roles				8.Medium LOW	9.Medium MEDIUM
Fear					10. High LOW
Behavior					

TABLE 11.2.   Strengths of Association between the Five Categories of Variables. (The empty cells are redundant).

REFERENCES

Clogg, Clifford C. and Scott R. Eliason. 1988. "Some Common Problems in Log-Linear Analysis." In J. Scott Long ed., <u>Common Problems / Proper Solutions: Avoiding Error in Quantitative Research</u>. Newbury Park, CA: Sage.

Davis, James A. 1978. "Hierarchical Models for Significance Tests in Multivariate Contingency Tables: An Exegesis of Goodman's Recent Papers." Chapter 7 in Leo A. Goodman's <u>Analyzing Qualitative Categorical Data</u>. Cambridge, MA: Abt.