

Social Bonds and Juvenile Delinquency in the Northern Mariana Islands

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Introduction

The National Education Goals Panel (1994:109) stated, “By the year 2000, schools in the United States will be free of drugs, violence, and the unauthorized presence of firearms, and will offer a disciplined environment conducive to learning.” The proclamation of this still unfulfilled goal may have been fueled by the need to calm the public’s fears of what seemed to be a skyrocketing increase in crimes committed in the nations’ schools. In addition to media reports, academic papers on school crime have continued to highlight these fears. Research has ranged from prevention (Haynie et al., 1997; Dusenbury et al., 1997), to organizational and community structures conducive to school crime (Hellman and Beaton, 1986; Menacker et al., 1990), to specific offenses, such as bullying (Akira, 1996; Limber, 1998). Remaining unclear is the picture of the nature and causes of misconduct committed by students inside versus outside the school. Moreover, most of the reports on school delinquency lack any clear theoretical framework that may be helpful in understanding this phenomenon.

Hirschi's (1969) social bonding theory is one of the most prominent theories in the etiology of crime and delinquency. The theory argues that four elements of the social bond prevent people from engaging in crime and delinquency. Those attached to others, committed to a conventional life, involved in conventional activities, and those who believe in the value and validity of rules are less likely to commit delinquency. Hirschi and others presented research that supports the theory (Gardner and Shoemaker, 1989; Hepburn, 1976; Hindelang, 1973; Johnson, 1979, Krohn and Massey, 1980, Wiatrowski et al., 1981). In Shoemaker’s (1990) assessment of the literature, social bonding theory accounts for 25% to 50% of the variance in delinquency. Using the theoretical framework of the social bonding theory, the present study explores a wide range of delinquent behaviors committed by students inside and outside the school setting in the Commonwealth of the Northern Mariana Islands (CNMI).

Cultural Context

Prior to the establishment of colonial rule in the late seventeenth century Chamorro society was highly decentralized. Clans, in constant competition with each other, each controlled their own territories. A socio-political hierarchy was comprised of two or three general levels of status, or rank. Individuals in higher statuses were given respectful behavior, preferred seating, special foods at gatherings, and assistance with manual tasks. Respect was also extended to the elders, even to those who occupied a status lower than that of other leaders. It is likely that there were no chiefs who ruled over village confederations, entire islands, or groups of islands. The extent of chiefly powers was limited in scope and geographic range. Instead, village chiefs operating within an extended family structure may have commanded over the affairs of their respective village.

Early missionaries’ accounts suggest that men and women played different roles in the community. Men’s roles included a wide range of occupations from farming to skilled trades like

boat making. Warriors and sea navigators were highly respected. Women were the heads of households (Russell, 1998). Women, particularly elder women who were married and had children were powerful in many areas of society. Women exercised control over family life, property, and inheritance through the matrilineal kinship system (Souder 1992).

Today both Chamorros and Carolinians, or Refaluwasch, can be characterized by a number of general cultural traits. As described by Inos (1994), fiestas for village patron saints and other celebrations organized around Catholic sacraments provide opportunities for family gatherings and socialization. These gatherings of large extended families reflect the strong value of interdependency as well as the culture's rootedness in the Catholic faith. As with their pre-colonial ancestors, Chamorros and Refaluwasch respect elders regardless of their socio-economic status or educational background. Hundreds of years under colonial rule have influenced and altered the indigenous culture of the CNMI. Although the traditional role of women has changed, women continue to play a central role in cultural preservation; and they continue to make important decisions that have an impact on both the family and the wider community.

New opportunities arose in the mid-1980s experienced as the tourism industry expanded. Both Chamorros and Carolinians were able to capitalize on this boom in part because the CNMI Constitution restricts land ownership to people of indigenous descent, American and Japanese businesses invested millions in real estate by leasing instead of purchasing land from Chamorro and Carolinian families. A few indigenous families experienced instant economic prosperity, while others did not. People generally began to recognize that material wealth is a real possibility, and something to value. As a result of the islands' overall economic success, a large number of foreign, or guest, workers arrived in the islands in large numbers in the 1980s from Asian countries, particularly the Philippines, China, and Korea. The majority of guest workers were employed as construction, farm, and domestic laborers but others filled professional occupations such as teaching. Many of these migrants settled permanently, adding new layers to the CNMI's multicultural society.

The rapid change families in the CNMI have experienced leads one to question the nature of their social ties, in essence their social bonds, disrupted by colonial rule, religious conversion, population mobility, and economic transformations. Of interest in the present study is the nature of these bonds among the youth, and whether these bonds can protect and discourage them from engaging in risk-behavior in the form of various juvenile delinquency acts.

Literature Review on Social Bonding Theory

Researchers have tested social bonding theory in a variety of ways. They have examined every element of the bond (Krohn and Massey, 1980, Jenkins, 1997, Gardner and Shoemaker, 1989) or have examined two or three elements of the bond (Agnew, 1985; DeFronzo and Pawlak, 1993; Foshee and Bauman, 1992; Jenkins, 1995; Junger and Marshall, 1997; Marcos et al., 1986; Matsueda and Heimer, 1987; Rankin and Wells, 1990; Weber, 1995). Results of studies on the relative importance of the elements of the bond are not consistent, although there is some evidence that involvement has the weakest relationship to crime and delinquency (Akers and Cochran, 1985; Krohn and Massey, 1980; Empey and Stafford, 1991; Junger-Tas, 1992; Shoemaker, 1990; Thornberry et al., 1991).

One reason for inconclusive findings may be that research on social bonding theory has employed different measurements of the bond elements and of delinquency. Social bonding theory has been tested by exploring the relationships between the elements of the bond and delinquency

in general (Cernkovich and Giordano, 1992; Liska and Reed, 1985), minor and serious delinquency (Krohn and Massey, 1980), and drug use specifically (Marcos et al., 1986; Akers and Lee, 1999). Studies generally involve measurements of the elements of the social bond that include different institutions (or persons and activities in different institutions) without separating out the effects of bonding in various institutions on general delinquency. Some research has looked at social bonding within one institutional setting and its effect on general delinquency (Cernkovich and Giordano, 1992; McBride et al., 1995). There is also an examination of the elements of the social bond within the confines of a specific institution or organization, typically the school, and to study the effects of these bonds on crime and delinquency occurring within the boundaries of the same institution (Jenkins, 1995; 1997; Welsh et al., 1999).

Although Hirschi's (1969) social bonding theory is one of the most popular and widely tested theories in studies of crime and deviance, the current state of social bonding theory is limited by several gaps in the research. First, there is an "ethnic gap" that is present in American sociology literature, as well as the social bonding literature specifically (Matsueda and Heimer, 1987). This is the state of social bonding theory, despite Hirschi's (1969) argument that it can be applied across ethnic and racial groups. Sociological research, including research on social bonding theory, has focused on White participants residing in the US. Rarely are other racial/ethnic groups, with the exception of African Americans, included in sociological research. Pacific Islanders and Asians are largely absent in criminology research, with a few exceptions such as Chui and Chan's (2012) study showing that a strong belief in the legal system, a healthy parent-child bonding, and a strong school commitment are significant protective factors to prevent adolescents from engaging in theft and violent delinquency in Hong Kong.

There are only a handful of published studies on the interethnic generalizability of social bonding theory (Junger and Marshall, 1997; Ellickson et al., 1999; Cernkovich and Giordano, 1992; Liska and Reed, 1985). One comprehensive cross-national study is by Junger and Marshall (1997). However, this study relied on data restricted to 788 males in four different ethnic groups in the Netherlands. In contrast, the proposed study seeks to examine both males and females in indigenous and non-indigenous ethnic groups in the CNMI, an ethnically diverse commonwealth of the US.

The second gap that the proposed study addresses is the testing and elaboration of social bonding theory. Hirschi (1969:88) argued that social bonds, particularly parental attachment, should shield individuals from delinquency since "the important consideration is whether the parent is psychologically present when temptation to commit crimes occurs." However, this argument has not been fully explored. Is parental attachment's impact on delinquency inside the school, where parents are largely physically absent, different from its impact on delinquency outside of school, where parents' "psychological presence" may be more salient and where their physical presence is more likely? This question, as well as others, has yet to be fully investigated.

Currently, the bulk of the literature in social bonding does not separate out the influence of school bonds from family and community bonds. The assumption seems to exist that school bonds best explain school delinquency. This assumption is made without simultaneously testing the effects of non-school bonds in models examining the influence of school bonds on school delinquency. Furthermore, research has not looked separately at school bonds' influence on delinquency that occurs outside the school setting. Research has also not examined the effect of non-school related social bonds on delinquency inside and outside the school setting.

These gaps in the literature can be addressed by exploring the following research questions:

R1: What are the varying effects of bonds associated with the school environment on delinquency that occurs inside and outside the school environment?

R2: What are the varying effects of bonds outside the school environment on delinquency that occurs inside and outside the school environment?

R3: Is social bonding theory generalizable across indigenous and non-indigenous ethnic groups in the CNMI?

The present study addresses the gaps in the sociology literature. First, it will help close the ethnic gap with a survey of CNMI public and private high school students. The high schools, which function in an American school system, have an ethnically diverse population that facilitates the inclusion of Asian and Pacific Islanders in the sociology literature. Despite being a US political entity, the CNMI is largely absent in American sociological literature. Most importantly, there is no extensive research on delinquency correlation and causation among ethnic groups in the CNMI. There have been numerous surveys sponsored by government agencies, but their focus has largely been on the incidence and prevalence of drug use and not on the correlates of delinquency. Second, the present study adds to the scarce literature on the generalizability of social bonding theory. Participants are divided into two groups – indigenous (Chamorros and Carolinians) and non-indigenous (Other) ethnic groups, a meaningful separation based on the groups' different historical roots in the islands. Separate analyses are conducted on each group to facilitate a test of social bonding theory's generalizability across the two groups. Third, the study explores the relative impact of school and non-school bonds on delinquency inside and outside of the school setting. The following hypotheses are tested:

H1. Attachment to teachers is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H2. School commitment is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H3. School involvement in clubs is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H4. School belief is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H5. Mother attachment is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H6. Father attachment is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H7. Peer attachment is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H8. Family social activities is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H9. Family chores are negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H10. Non-school belief is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

H11. Religious activity is negatively correlated to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students.

Methodology

Participation of Schools and Respondents

The CNMI Youth Survey was administered in the year 2000. A total of five schools in the CNMI are represented in this study. School A, B, and C are public high schools included in the study. Each is located on a different island, one on Saipan, one on Tinian, and one on Rota. School D and E are private schools located on Saipan. Each school gave their full support and cooperation to the study by giving access to the researcher to teachers, staff members, and students.

The response rates for the five participating high schools ranged from 74 percent to 97.6 percent. The response rates of high schools in the study are presented in Table 1. Also appearing in Table 1 are the percentages of indigenous and non-indigenous students included in the study by school affiliation. More than half of the indigenous and non-indigenous students included in the study are from School A, the largest public high school on Saipan, and at the time the survey was administered, the lone public school on Saipan.

Table 1. Response Rates of Participating High Schools

| School | Overall Response Rate^a | Percentage of Respondents in Survey | Percentage of Indigenous Included in Study^b | Percentage of Non-Indigenous Included in Study^c | Percentage Included in Study^d |
|----------------|--|--|---|---|---|
| Public | | | | | |
| School A | 79.8 | 68.9 | 68.4 | 66.2 | 67.7 |
| School B | 87.3 | 7.3 | 8.8 | 4.4 | 7.3 |
| School C | 91.0 | 8.6 | 11.0 | 2.8 | 8.3 |
| Private | | | | | |
| School D | 74.0 | 9.1 | 9.8 | 8.9 | 9.5 |
| School E | 97.6 | 6.4 | 2.0 | 17.7 | 7.2 |

a Calculation of response rate: number of respondents divided by the number of students enrolled at time of survey administration (excluding those who participated in pre-tests).

b Listwise deletion of cases: N=715

c Listwise deletion of cases: N=361

d Listwise deletion of cases: N=1076

The participants of the study are ethnically diverse, with almost half Chamorro. Table 2 displays the frequency distribution of ethnic groups into indigenous and non-indigenous categories.

Table 2. Frequency Distribution of Ethnic Groups

| Ethnicity | Non-Indigenous | Indigenous | Total |
|-----------------------------|-----------------------|--------------------|--------------|
| Chamorro | ----- | 777(75.7%) | 49.1% |
| Carolinian (Refaluwasch) | ----- | 102(9.9%) | 6.4% |
| Carolinian & Chamorro | ----- | 147(14.3%) | 9.3% |
| Filipino | 176(31.7%) | ----- | 11.1% |
| Chinese | 22(4.0%) | ----- | 1.4% |
| Korean | 117(21.0%) | ----- | 7.4% |
| Palauan | 81(14.6%) | ----- | 5.1% |
| Chuukese | 31(5.6%) | ----- | 2.0% |
| Yapese | 11(2.0%) | ----- | .7% |
| White/Caucasian | 16(2.9%) | ----- | 1.0% |
| Pohnpeian | 28(5.0%) | ----- | 1.8% |
| Other Pacific Islander | 14(.9%) | ----- | .9% |
| Other Asian | 20(3.6%) | ----- | 1.3% |
| Multi-Ethnic Non-Indigenous | 31(5.6%) | ----- | 2.0% |
| Other | 9(1.6%) | ----- | .6% |
| Total | 556(35.1%) | 1026(64.9%) | 100% |

Operationalization of Variables

Delinquency

For the present study, a total of twenty items were used to measure students' delinquency in school. In the survey, students were asked to respond "Yes" or "No" to nineteen questions that asked if they in the current school year had ever committed a list of acts while on school campus or while participating in school-related activities. For each of the nineteen items, "No" is coded 0 and "Yes" is coded 1. An additional question asked students if they had in the current school year cheated on exams, test or quizzes. Responses on a five-point scale ranged from 1) "Always" to 5) "Never." "Never" is coded as 0 and the other responses were coded as 1. Approximately 78 percent of indigenous students and 72 percent of non-indigenous students say they cheated sometime during the school year. For both groups this is the most common delinquent behavior in school, while the two least common delinquent acts for both indigenous and non-indigenous students are using crystal methamphetamine ("ice") and using cocaine ("coke").

In addition to looking at school delinquency, this study also looks at delinquency outside the school environment. As with school delinquency a total of twenty items is used to measure non-school delinquency. Students were asked to indicate whether they had during the school year ever committed a list of nineteen acts outside the school campus and school-related activities. For each of the nineteen items, "No" is coded 0 and "Yes" is coded 1. Additionally, students were asked if they ever played video poker, available only outside school campuses. "No" is coded as 0 and "Yes" is coded as 1. The most common delinquent behavior outside of school for indigenous students is punching or hitting someone, while pulling or twisting someone is the most common act for non-indigenous students. As with acts committed in the school environment, using crystal

methamphetamine and using cocaine are the least common behaviors. Also, more than half of indigenous students say they smoked marijuana outside of school while only 38.1 of non-indigenous students say they smoked marijuana outside of school during the school year.

The 40 items that constitute the school delinquency and non-school delinquency variables are used to measure total delinquency. For every item “No” is coded as 0 and “Yes” is coded as 1. Frequencies and percentages of the delinquency indexes are displayed in Table 3. Significant difference in proportions between indigenous and non-indigenous students for school and non-school delinquency items are also reported.

| | Indigenous | | | | Non-Indigenous | | | |
|-------------------|------------|------------------------|------------|------------------------|----------------|-----------|------------|-----------|
| | School | | Non-School | | School | | Non-School | |
| | No | Yes | No | Yes | No | Yes | No | Yes |
| Shoved Someone | 640(64.4) | 354(35.6) ^a | 459(46.2) | 535(53.8) ^b | 381(70.0) | 163(30.0) | 304(56.3) | 236(43.7) |
| Sat on or Held | | | | | | | | |
| Someone Down | 745(75.5) | 242(24.5) ^a | 521(52.8) | 465(47.2) ^b | 430(80.1) | 107(19.9) | 323(60.5) | 211(39.5) |
| Drunk or Stoned | 638(65.3) | 339(34.7) ^a | 369(37.4) | 618(62.6) ^b | 420(78.2) | 117(21.8) | 291(54.0) | 248(46.0) |
| Wrote on | | | | | | | | |
| Property | 711(71.2) | 288(28.8) | 709(71.7) | 280(28.3) | 391(72.1) | 151(27.9) | 385(71.4) | 154(28.6) |
| Sold Drugs | 862(86.8) | 131(13.2) ^a | 856(86.3) | 136(13.7) ^b | 509(93.4) | 36(6.6) | 497(91.2) | 48(8.8) |
| Smoked Pot | 631(64.0) | 355(36.0) ^a | 357(36.0) | 636(64.0) ^b | 431(79.5) | 111(20.5) | 337(61.9) | 207(38.1) |
| Drank Alcohol | 790(79.9) | 199(20.1) ^a | 352(35.5) | 640(64.5) ^b | 458(84.0) | 87(16.0) | 236(43.5) | 307(56.5) |
| Pulled or Twisted | 453(45.6) | 540(54.4) ^a | 318(32.1) | 672(67.9) ^b | 276(50.5) | 270(49.5) | 220(40.6) | 322(59.4) |
| Threw Something | 726(73.0) | 269(27.0) | 535(54.0) | 455(46.0) ^b | 408(75.4) | 133(24.6) | 333(61.4) | 209(38.6) |
| Used Ice | 979(98.4) | 16(1.6) | 962(97.1) | 29(2.9) | 537(98.4) | 9(1.6) | 527(96.5) | 19(3.5) |
| Used Coke | 977(98.3) | 17(1.7) | 966(97.7) | 23(2.3) | 534(98.0) | 11(2.0) | 530(97.2) | 15(2.8) |
| Smoked | | | | | | | | |
| Cigarettes | 565(57.0) | 426(43.0) ^a | 324(32.6) | 670(67.4) ^b | 398(73.0) | 147(27.0) | 260(47.8) | 284(52.2) |
| Tricked Someone | 824(82.9) | 170(17.1) | 717(72.4) | 273(27.6) | 458(83.7) | 89(16.3) | 402(73.8) | 143(26.2) |
| Punched or Hit | 527(53.2) | 463(46.8) ^a | 289(29.3) | 698(70.7) ^b | 340(62.2) | 207(37.8) | 237(43.5) | 308(56.5) |
| Stole under \$50 | 897(90.1) | 99(9.9) ^a | 762(76.8) | 230(23.2) | 506(93.2) | 37(6.8) | 416(76.3) | 129(23.7) |
| Stole over \$50 | 962(96.8) | 32(3.2) | 896(90.6) | 93(9.4) | 526(97.0) | 16(3.0) | 478(87.9) | 66(12.1) |
| Stole Money | 914(92.4) | 75(7.6) | 798(80.6) | 192(19.4) | 504(93.0) | 38(7.0) | 456(84.1) | 86(15.9) |
| Used Weapon | 938(94.4) | 56(5.6) | 880(88.6) | 113(11.4) | 523(95.6) | 24(4.4) | 487(89.4) | 58(10.6) |
| Made Threats | 731(73.5) | 263(26.5) ^a | 631(63.5) | 363(36.5) ^b | 433(79.7) | 110(20.3) | 376(69.1) | 168(30.9) |
| Cheated | 221(22.0) | 783(78.0) | ----- | ----- | 151(27.7) | 395(72.3) | ----- | ----- |
| Played Poker | ----- | ----- | 680(70.4) | 286(29.6) | ----- | ----- | 412(78.3) | 114(21.7) |

* Percentages in parentheses

a Significant difference in proportions between indigenous and non-indigenous students for school delinquency items (p < .05)

b Significant difference in proportions between indigenous and non-indigenous students for non-school delinquency items (p < .05)

Table 3: Frequency Distribution of Delinquency Items*

Based on the measures described above, three delinquency indexes are created. The school delinquency and non-school delinquency indexes are calculated by summing across the values of the items comprising the index. The total delinquency index is calculated by summing the scores of the school and non-school delinquency indexes. Items comprising the school delinquency index have a reliability coefficient of .85 for both indigenous and non-indigenous students. A high degree of internal consistency exists also for the items comprising the non-school delinquency index. The items yield a reliability coefficient of .84 for indigenous and .86 for non-indigenous students.

School Social Bonds

Teacher attachment is measured by six items that asked students to assess their relationship with their teachers on a four-point scale ranging from 1) “Strongly agree” to 4) “Strongly disagree.” Responses are reverse re-coded so that a low score indicates low attachment and a high score means high attachment. Thus, “Strongly disagree” is coded as 1 and “Strongly agree” is coded as 4. Indigenous and non-indigenous students indicate that they are strongly attached to their teachers. For many of the items over half of the students indicate that they agree to strongly agree with the statements regarding teachers. Many of the students seemed to care what their teachers think of them. Approximately 43 percent of indigenous students agree with the statement “I care a lot what teachers think of me,” while about 49 percent of non-indigenous students say that they agree with this statement.

School commitment is assessed with seven items. Students were asked to state how strongly they agreed or disagreed with statements about their education on a four-point scale ranging from 1) “Strongly agree” to 4) “Strongly disagree. As with teacher attachment variables, responses are reverse re-coded so that a low score indicates low school commitment and a high score indicates high school commitment. Thus, “Strongly disagree” is coded as 1 and “Strongly agree” is coded as 4. These numbers suggest that there is a very high level of school commitment for both indigenous and non-indigenous students; 80.4 percent of indigenous and 75 percent of non-indigenous students strongly agreed that education is important. Furthermore, an overwhelming majority of the students indicate that they want to continue their education after high school. This is consistent with the findings by Inos (1994), who found that most of the students attending Rota High School planned to go to college. Furthermore, she found that this was directly related to the expectations of their parents.

In contrast to the other school social bonds, one item is used to assess a student’s involvement in school. Students were asked how often during the school year they participated in extra-curricular activities such as student government and school clubs. Responses range from 1) “Never” to 5) “Everyday.” Data show that 55 percent of indigenous and 46.1 percent of non-indigenous students say that they never participate in extra-curricular activities.

Seven items are used to measure students’ school belief. Students were asked to indicate how strongly they agreed or disagreed with statements about their school’s rules and enforcement on a four-point scale ranging from 1) “Strongly agree” to 4) “Strongly disagree.” Responses are reverse coded so that 1 means “Strongly disagree” 4 means “Strongly agree.” Students generally seem to have a positive assessment of school rules. However, only 28.4 percent of indigenous students strongly agree that punishment is the same for everyone; while only 18.6 percent of non-indigenous students strongly agree that their principal is fair.

Prior to determining the measurement of social bonding variables, factor analysis was conducted on items expected to represent diverse dimensions, or elements, of the social bond.

Factors with an eigenvalue of 1 or greater are included in all factor analyses in the present study. Initially, factor analysis was conducted on school bonding items for indigenous and non-indigenous students separately (Table 4). Drawing on the social bonding literature, the expectation was that the list of school social bonding items would collapse into four distinct dimensions – the first measuring teacher attachment, the second measuring school commitment, the third school involvement, and the fourth measuring school belief. Initial factor analysis of twenty items showed that they loaded onto four different factors as expected. However, the item “School involvement in activities” had a low communality of .224 and factor loading of .408 for non-indigenous students, so it was removed from the analysis. Subsequent factor analysis of the remaining school bonding items shows that the rotated matrix of factor loadings form, as hypothesized, distinct dimensions of the social bond.

The items that load highly on the teacher attachment dimension for both indigenous and non-indigenous students are 1) “Care what teachers think,” 2) “Have a favorite teacher,” 3) “Most teachers like me,” 4) “I like most teachers,” 5) “Miss teachers if I leave,” and 6) “Easy to talk to teachers.” The items in this index exhibit internal consistency, with a reliability coefficient of .82 for indigenous and .79 for non-indigenous students.

For indigenous students, items 1) “Care homework done right,” 2) “Honor roll important,” 3) “Think classes are important,” 4) “Grades matter,” 5) “Education important,” 6) “Disappointed if fail a class,” and 7) “Want to continue education” load onto a single factor representing school commitment. Factor loadings are similar for non-indigenous students, except “Care homework done right” and “Think classes are important” load onto a different factor. However, these two items are included with the other items as an indicator of school commitment since there is no theoretical argument to separate them from the other five items that load onto the school commitment dimension. These two items are consistent with the theoretical meaning of school commitment. Furthermore, reliability analysis shows that the alpha coefficient increases from .78 to .81. when these two items are included with the other five items for non-indigenous students. For indigenous students, the reliability coefficient is .79 for the school commitment index

Seven items load onto the school belief dimension. They include 1) “School rules fair,” 2) “Students treated fairly,” 3) “Everyone knows school rules,” 4) “Most teachers fair,” 5) “Punishment same for everyone,” 6) “Know type of punishment,” and 7) “Principal fair.” The items for the school belief index also exhibit internal consistency, with a reliability coefficient of .79 for both indigenous and non-indigenous students.

To prevent the unnecessary loss of cases while maintaining the theoretical meaning of the factor-based indexes, it is necessary to allow for a limited number of missing responses for all the factor-based indexes in the present study. Summing the response values of the items comprising the factor-based index, and then dividing by the number of valid responses produces each individual’s index score. Thus, the factor-based index scores represent a weighted average of valid responses. However, it should be noted that for each factor-based index there is a limit on the number of missing responses allowed. In other words, a score is calculated only if the individual has a certain number of valid responses among the items comprising the index.

| | Indigenous | | | Non-Indigenous | | | | Communality | |
|------------------------------|------------|-----|------|----------------|------|------|------|-------------|-----|
| | 1 | 2 | 3 | 1 | 2 | 3 | 4 | | |
| Teacher Attachment | | | | | | | | | |
| Care What Teachers Think | .42 | .54 | .16 | .49 | .54 | .22 | .36 | .24 | .52 |
| Have a Favorite Teacher | .03 | .67 | .01 | .45 | .65 | -.01 | .02 | .09 | .43 |
| Most Teachers Like Me | .17 | .69 | .17 | .54 | .59 | .01 | .26 | -.27 | .50 |
| I Like Most Teachers | .15 | .78 | .19 | .67 | .70 | .28 | .20 | .08 | .62 |
| Miss Teachers If I Leave | .19 | .79 | .15 | .68 | .73 | .21 | .10 | .17 | .62 |
| Easy to Talk to Teachers | .07 | .69 | .10 | .50 | .62 | .19 | -.08 | .19 | .46 |
| School Commitment | | | | | | | | | |
| Care Homework Done Right | .63 | .15 | .11 | .43 | .23 | .08 | .38 | .66 | .64 |
| Honor Roll Important | .67 | .10 | .12 | .48 | .13 | .02 | .59 | .41 | .53 |
| Think Classes are Important | .55 | .28 | .22 | .43 | .22 | .20 | .29 | .69 | .64 |
| Grades Matter | .75 | .05 | .06 | .57 | .06 | .08 | .70 | .34 | .61 |
| Education Important | .69 | .10 | .06 | .49 | .19 | .09 | .70 | .11 | .54 |
| Disappointed If Fail a Class | .61 | .05 | -.02 | .38 | -.01 | .13 | .72 | -.10 | .55 |
| Want to Continue Education | .64 | .09 | .01 | .42 | .12 | .03 | .74 | .13 | .58 |
| School Belief | | | | | | | | | |
| School Rules Fair | .08 | .22 | .65 | .47 | .37 | .55 | .10 | .22 | .50 |
| Students Treated Fairly | .00 | .16 | .75 | .59 | .29 | .72 | -.09 | .05 | .61 |
| Everyone Knows School Rules | .16 | .01 | .58 | .37 | -.07 | .52 | -.02 | .35 | .42 |
| Most Teachers Fair | -.00 | .29 | .64 | .49 | .37 | .58 | .10 | -.08 | .50 |
| Punishment Same for Everyone | .07 | .03 | .64 | .42 | .13 | .71 | .02 | .12 | .54 |
| Know Type of Punishment | .11 | .00 | .60 | .38 | -.02 | .66 | .25 | .12 | .51 |
| Principal Fair | | | | | | | | | |
| Principal Fair | .07 | .12 | .73 | .55 | .23 | .62 | .21 | -.21 | .53 |

a Principal component analysis, Varimax rotation

b N=905, Listwise deletion of cases

c N=484, Listwise deletion of cases

Table 4. Factor Analysis of School Social Bonding Items^a

| | Indigenous ^b | | | | | Non-Indigenous ^c | | | | | | |
|--------------------------------|-------------------------|------|------|------|------|-----------------------------|------|------|------|------|------|-------------|
| | 1 | 2 | 3 | 4 | 5 | Communality | 1 | 2 | 3 | 4 | 5 | Communality |
| Mother Attachment | | | | | | | | | | | | |
| Mother Understands | -.02 | .23 | .70 | -.07 | .01 | .56 | -.04 | .29 | .75 | -.03 | .11 | .65 |
| Share Thoughts with Mother | .09 | .18 | .78 | .01 | -.02 | .65 | .02 | .18 | .80 | .02 | .03 | .68 |
| Do Things with Mother | .10 | .09 | .72 | .28 | .11 | .63 | .06 | .17 | .74 | .16 | .01 | .62 |
| Father Attachment | | | | | | | | | | | | |
| Father Understands | -.01 | .83 | .17 | -.00 | .03 | .73 | -.00 | .81 | .22 | .03 | .10 | .72 |
| Share Thoughts with Father | .04 | .80 | .18 | .03 | .02 | .67 | .06 | .77 | .22 | .08 | .03 | .65 |
| Do Things with Father | .04 | .80 | .13 | .12 | .10 | .67 | .06 | .76 | .19 | .19 | .02 | .66 |
| Peer Attachment | | | | | | | | | | | | |
| Respect Friends' Opinions | .61 | -.07 | .08 | .02 | .08 | .39 | .57 | .01 | -.02 | -.07 | .17 | .35 |
| Friends Stick by Me | .77 | .08 | -.07 | .14 | -.02 | .63 | .74 | .03 | .04 | .10 | .01 | .56 |
| I Stick by Friends | .72 | .06 | -.17 | .12 | -.04 | .57 | .68 | -.15 | .06 | .03 | .10 | .50 |
| Friends Consider Me Friend | .65 | .09 | .16 | .01 | -.02 | .46 | .71 | .07 | .12 | -.00 | -.14 | .54 |
| Friends Interested in Problems | .72 | -.08 | .08 | -.01 | -.01 | .53 | .70 | .08 | -.05 | .01 | -.00 | .49 |
| I Fit in Well with Friends | .74 | .04 | .08 | -.04 | .07 | .56 | .74 | .08 | -.06 | .05 | .04 | .56 |
| Family Involvement | | | | | | | | | | | | |
| Help with Family Party | .04 | .01 | -.03 | .83 | -.01 | .70 | .00 | -.02 | .12 | .85 | -.06 | .73 |
| Attend Family Party | .06 | .07 | -.03 | .76 | -.05 | .58 | .00 | .16 | -.04 | .78 | .06 | .65 |
| Chores | .04 | .05 | .26 | .53 | .07 | .35 | .06 | .10 | .06 | .63 | .09 | .42 |
| Non-School Belief | | | | | | | | | | | | |
| Government Laws Fair | .07 | .12 | .05 | -.03 | .79 | .65 | .04 | .01 | -.01 | .14 | .85 | .74 |
| Police Fair to Most | -.02 | .01 | .01 | .03 | .82 | .68 | .09 | .12 | .15 | -.04 | .77 | .65 |

a Principal component analysis, Varimax rotation

b N=786, Listwise deletion of cases

c N=418, Listwise deletion of cases

Table 5. Factor Analysis of Non-School Social Bonding Items^a

Non-School Social Bonds

To measure students' attachment to their mother they were asked to respond to three items regarding their relationship with their mother. Responses ranged from 1) "Always" to 5) "Never." Responses are reverse coded so that 1 is "Never" and 4 is "Always." Thus, a low score on the mother attachment variable indicates low mother attachment, while a high score indicates that the student is highly attached to his or her mother. The majority of indigenous and non-indigenous students say that their mother sometimes to always understands them, and that they sometimes to always share thoughts and do things with their mother.

Father attachment is measured in the same manner as mother attachment. Students were asked to assess their relationship with their father on a five-point scale ranging from 1) "Always" to 5) "Never." Responses are reverse coded so that 1 is "Never" and 4 is "Always." Thus, a low score on the father attachment variable signifies low father attachment, while a high score indicates that the student is highly attached to his or her father. Although father attachment seems high among students, indigenous and non-indigenous students are less likely to say that their father, in comparison to their mother, always understands them, and that they always share thoughts and do things with their father.

Items asking students to evaluate their relationships to close friends by responding to six items that measure peer attachment. Responses for each item ranged from 1) "Strongly agree" to 4) "Strongly disagree." Responses are reverse coded so that 1 is "Strongly disagree" and 4 is "Strongly agree."

Another non-school bond included in this study is family involvement. Students were asked two questions about the frequency of their involvement in the family's social activities and one question about family chores. Specifically, questions about the family social activities addresses how often they help prepare for family parties such as birthdays, weddings, etc., and how often they attend these family functions. Responses range from 1) "Never" to 6) "More than 8 times."

Non-school belief is another social bond that is included in the study. Students were asked to respond to two statements about fairness of government laws and the police on a four-point scale ranging from 1) "Strongly agree" to 4) "Strongly disagree." Responses are reverse coded so that responses range from 1) "Strongly disagree" to 4) "Strongly agree."

A single item that asked students about the frequency of religious services or activity measures religiosity. Responses range from 1) "Never" to 6) "More than once a week." Less than 9 percent of indigenous and less than 11 percent of non-indigenous students say that they never participate in religious services or activities.

As with the social bonding indexes, prior to determining how non-school bonding indexes are created, factor analysis is conducted on items that were expected to represent diverse dimensions, or elements, of the social bond outside the school environment (Table 5). Again, factor analysis is conducted on non-school bonding items for indigenous and non-indigenous students separately. Drawing on the social bonding literature, the expectation was that the list of non-school social bonding items would collapse into several distinct dimensions –mother attachment, father attachment, peer attachment, family involvement, and non-school belief.

Items that load highly on the mother attachment dimension are 1) "Mother understands, 2) "Share thoughts with mother," and 3) "Do things with mother." A high degree of internal consistency among the items comprising this index is indicated by a reliability coefficient of .68 for indigenous and .70 for non-indigenous students. Three similar items load onto the father

attachment dimension. Reliability coefficients are slightly higher for the items comprising the father attachment index – .77 for indigenous and .76 for non-indigenous students.

Six items load onto the peer attachment dimension. They include 1) “Respect friends’ opinions,” 2) “Friends stick by me,” 3) “I stick by friends,” 4) “Friends consider me a friend,” 5) “Friends interested in my problems,” and 6) “I fit in well with my friends.” Reliability coefficient for these items is .99 for both indigenous and non-indigenous students, indicating a high degree of internal consistency.

The items that load onto the family involvement dimension are 1) “Help with family party,” 2) “Attend family party,” and 4) “Family chores.” The reliability coefficient decreases for both groups (.5496 for indigenous and .6256 for non-indigenous) with the three items combined, but increases with family chores excluded. Therefore, two measures of the family involvement concept were created. The first is an index measuring family social activities that includes items “Help with family party” and “Attend family party.” Reliability coefficient is .60 for indigenous and .67 for non-indigenous students. The single item asking students how often they do chores is the second measure of the family involvement concept. Since the exclusion of family chores increases the reliability coefficient for both groups, and because it is conceptually distinct from family social activities, the three items are not combined.

Two items load onto the non-school belief dimension. They include 1) “Government laws fair” and 2) “Police fair to most.” The items have a moderate, but acceptable degree of internal consistency, indicated by the reliability coefficient of .49 for indigenous and .51 for non-indigenous students.

Demographic Variables

Gender is a key demographic variable that has been closely linked with delinquency. A dummy variable was created so that female is coded as 0 and male is coded as 1. Females make up 50.6 percent of indigenous students and 48.1 percent of non-indigenous students. A second demographic variable is age. Students were asked for their current age in years. The sample has students from ages twelve to twenty-one. Most students fell between fifteen to seventeen years old.

Table 6 displays the variables, metrics, and descriptive statistics for the indigenous and non-indigenous groups. The mean delinquency inside and outside of school is higher for indigenous students in comparison to non-indigenous students. Non-indigenous students have higher average scores for teacher attachment, school involvement, religious activity, and age in comparison to indigenous students.

| Variables | Metrics | Indigenous (N=715) | | Non-Indigenous (N=361) | | | |
|-------------------------------------|---|--------------------|------|------------------------|-------|------|---------|
| | | Mean | S.D. | Min-Max | Mean | S.D. | Min-Max |
| Dependent Variables | | | | | | | |
| School Delinquency | (Number of different types of delinquent acts inside school) | 5.35 | 3.86 | 0-20 | 4.43 | 3.80 | 0-20 |
| Non-School Delinquency | (Number of different types of delinquent acts outside school) | 7.72 | 4.14 | 0-20 | 6.57 | 4.45 | 0-20 |
| Total Delinquency | (Total number of different types of delinquent acts) | 13.07 | 7.54 | 0-40 | 10.99 | 7.72 | 0-40 |
| School Bonding Variables | | | | | | | |
| Teacher Attachment | (1=Strongly disagree...4=Strongly agree) | 2.75 | .68 | 1-4 | 2.78 | .59 | 1-4 |
| School Commitment | (1=Strongly disagree...4=Strongly agree) | 3.54 | .44 | 1-4 | 3.50 | .47 | 1.57-4 |
| School Involvement | (1=Never...5=Everyday) | 2.06 | 1.40 | 1-5 | 2.34 | 1.47 | 1-5 |
| School Belief | (1=Strongly disagree...4=Strongly agree) | 2.70 | .61 | 1-4 | 2.65 | .57 | 1-4 |
| Non-School Bonding Variables | | | | | | | |
| Mother Attachment | (1=Never, 5=Always) | 3.54 | .94 | 1-5 | 3.19 | .96 | 1-5 |
| Father Attachment | (1=Never...5=Always) | 3.06 | 1.10 | 1-5 | 2.78 | 1.01 | 1-5 |
| Peer Attachment | (1=Strongly disagree...4=Strongly agree) | 3.46 | .47 | 1-4 | 3.42 | .43 | 2-4 |
| Family Social Activities | (1=Never...6=More than 8 times) | 5.10 | 1.19 | 1-6 | 4.39 | 1.52 | 1-6 |
| Family Chores | (1=Never...5=Everyday) | 4.20 | 1.04 | 1-5 | 3.70 | 1.27 | 1-5 |
| Non-School Belief | (1=Strongly disagree...4=Strongly agree) | 2.60 | .67 | 1-4 | 2.45 | .68 | 1-4 |
| Religious Activity | (1=Never...6=More than once a week) | 3.91 | 1.68 | 1-6 | 4.18 | 1.71 | 1-6 |
| Demographic Variables | | | | | | | |
| Gender | (0=Female, 1=Male) | .47 | .50 | 0-1 | .50 | .50 | 0-1 |
| Age | (Number of years) | 15.95 | 1.35 | 13-20 | 16.33 | 1.37 | 14-20 |

* Listwise deletion of cases

Table 6. Variables, Metrics, Descriptive Statistics*

Results

Zero-Order Correlations among All Variables

Zero-order correlations among all the variables, which show the strength and direction of the relationship between two variables, are displayed in Table 7 and Table 8. As seen in these tables, although many of the relationships among the variables are relatively weak or moderate, many are in the expected direction and statistically significant at the .05 or .01 level.

The zero-order correlations between the school bonding variables and the three measures of delinquency are largely in the expected direction. Teacher attachment has a weak negative, but significant relationship to school delinquency ($r = -.224$), non-school delinquency ($r = -.189$), and total delinquency ($r = -.218$) for indigenous students. The correlations for non-indigenous students are also significant, weak, and negative ($r = -.339$ for school delinquency, $r = -.384$ for non-school delinquency, and $r = -.388$ for total delinquency). This suggests that students who are attached to their teachers commit a fewer number different types of school, non-school, and total delinquent acts. School commitment has a weak negative, but significant relationship to school delinquency ($r = -.201$), non-school delinquency ($r = -.184$), and total delinquency ($r = -.204$) for indigenous students. The correlations for non-indigenous students are also significant and negative, but stronger ($r = -.277$ for school delinquency, $r = -.242$ for non-school delinquency, and $r = -.276$ for total delinquency). These correlations suggest that students who are committed to school commit a fewer number of different types of school, non-school, and total delinquent acts than those not committed to school. School involvement does not have a significant relationship to school delinquency, non-school delinquency, and total delinquency for both indigenous and non-indigenous students. For indigenous students, school belief has a weak negative, but significant relationship to school delinquency ($r = -.258$), non-school delinquency ($r = -.232$), and total delinquency ($r = -.260$). The correlations for non-indigenous students are also significant, weak, and negative ($r = -.220$ for school delinquency, $r = -.255$ for non-school delinquency, and $r = -.255$ for total delinquency).

An examination of the zero-order correlations between non-school attachment variables and the three measures of delinquency reveals that the relationships are largely in the expected direction. For indigenous students, mother attachment has a weak negative, but significant relationship to school delinquency ($r = -.149$), a slightly stronger relationship to non-school delinquency ($r = -.106$), and total delinquency ($r = -.134$). The correlations for non-indigenous students are also significant, weak, and negative ($r = -.167$ for school delinquency, $r = -.195$ for non-school delinquency, and $r = -.195$ for total delinquency). These correlations suggest that students who are attached to their mother commit a fewer number of different types of school, non-school, and total delinquent acts than those not attached to their mother. The relationships of father attachment to school delinquency ($r = -.098$), non-school delinquency ($r = -.091$), and total delinquency ($r = -.100$) are also significant, weak, and negative for indigenous students. These correlations suggest that indigenous students who are attached to their father commit a fewer number of different types of school, non-school, and total delinquent acts than those not attached to their father. The relationship of father attachment to school delinquency, non-school delinquency, and total delinquency is non-significant for non-indigenous students. Additionally, peer attachment has a non-significant relationship to school delinquency, non-school delinquency, and total delinquency for both groups.

Generally, the zero-order correlations between the family involvement variables and the three measures of delinquency are in the expected direction. For indigenous students, only, family social activities has a weak positive, but significant relationship to non-school delinquency ($r = .108$), and total delinquency ($r = .091$), suggesting that indigenous students who engage in family social activities commit more non-school and total delinquency than those who do not participate in family social activities. The relationships are not significant for non-indigenous students. For indigenous students only, family chores have a weak negative, but significant relationship to school delinquency ($r = -.125$) and a slightly stronger relationship to non-school delinquency ($r = -.124$), and total delinquency ($r = -.132$). Indigenous students who engage in family chores commit a fewer number of school, non-school, and total delinquent acts. The relationships of family chores to school delinquency, non-school delinquency, and total delinquency are non-significant for non-indigenous students.

Non-school belief has a weak negative, but significant relationship to school delinquency ($r = -.122$), and total delinquency ($r = -.102$) for indigenous students. Indigenous students who believe in non-school rules and enforcement commit a fewer number of different types of school and total delinquent acts than indigenous students who do not believe in the non-school rules and enforcement. Non-school belief has a weak negative, but significant relationship to non-school delinquency ($r = -.113$) and total delinquency ($r = -.108$) for non-indigenous students, suggesting that non-indigenous students who believe in school rules and enforcement commit a fewer number of different types of non-school and total delinquent acts than those who do not view non-school rules and enforcement positively.

For indigenous students, the relationships of religious activity to school delinquency, non-school delinquency, and total delinquency are non-significant. Religious activity has a weak negative, but significant relationship to school delinquency ($r = -.144$), non-school delinquency ($r = -.167$) and total delinquency ($r = -.167$) for non-indigenous students only, suggesting that non-indigenous students who engage in religious activity commit a fewer number of different types of school, non-school and total delinquent acts than non-indigenous students who do not participate in religious activity.

An examination of the zero-order correlations between demographic variables and the three delinquency measures shows that the relationships are in the expected direction. Gender has a weak positive, but significant relationship to school delinquency ($r = .171$), non-school delinquency ($r = .173$), and total delinquency ($r = .183$) for indigenous students. The correlations for non-indigenous students are also significant, weak, and positive ($r = .227$ for school delinquency, $r = .238$ for non-school delinquency, and $r = .249$ for total delinquency).

A review of the zero-order correlation between the delinquency measures reveals, as expected, that school delinquency has a significantly strong positive relationship with non-school delinquency for indigenous ($r = .775$) and non-indigenous ($r = .750$) students. Although strong, this relationship is not perfect. Students who engage in delinquent acts in the school environment do not necessarily commit the same number of different types of delinquent acts outside the school setting. Various factors may impact differently the delinquent behavior of youths inside and outside of school. Furthermore, the impact of these factors may not be the same for indigenous and non-indigenous students.

| | X ₁ | X ₂ | X ₃ | X ₄ | X ₅ | X ₆ | X ₇ | X ₈ | X ₉ | X ₁₀ | X ₁₁ | X ₁₂ | X ₁₃ | Y ₁ | Y ₂ | Y ₃ |
|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|
| (X ₁) | 1.00 | | | | | | | | | | | | | | | |
| (X ₂) | .406** | 1.00 | | | | | | | | | | | | | | |
| (X ₃) | .219** | .149** | 1.00 | | | | | | | | | | | | | |
| (X ₄) | .362** | .283** | .004 | 1.00 | | | | | | | | | | | | |
| (X ₅) | .183** | .191** | .055 | .095* | 1.00 | | | | | | | | | | | |
| (X ₆) | .228** | .168** | .089* | .139** | .377** | 1.00 | | | | | | | | | | |
| (X ₇) | .135** | .227** | .102* | .048 | .088* | .061 | 1.00 | | | | | | | | | |
| (X ₈) | .054 | .075* | .049 | -.018 | .096* | .070 | .096* | 1.00 | | | | | | | | |
| (X ₉) | .171** | .236** | .094* | .065 | .196** | .145** | .084* | .285** | 1.00 | | | | | | | |
| (X ₁₀) | .120** | .093* | -.011 | .342** | .067 | .093* | .018 | -.013 | .011 | 1.00 | | | | | | |
| (X ₁₁) | .140** | .168** | .179** | .047 | .058 | .088* | .040 | .128** | .160** | .050 | 1.00 | | | | | |
| (X ₁₂) | -.079* | -.105** | -.076* | -.031 | .020 | .177** | -.203** | -.034 | -.113** | .022 | -.075* | 1.00 | | | | |
| (X ₁₃) | .163** | .012 | .090* | .000 | .061 | .035 | .022 | -.012 | .007 | -.106** | -.076* | .088* | 1.00 | | | |
| (Y ₁) | -.224** | -.201** | -.030 | -.258** | -.149** | -.098** | .015 | .061 | -.125** | -.122** | -.001 | .171** | -.020 | 1.00 | | |
| (Y ₂) | -.189** | -.184** | -.066 | -.232** | -.106** | -.091* | .056 | .108** | -.124** | -.071 | -.016 | .173** | .024 | .775** | 1.00 | |
| (Y ₃) | -.218** | -.204** | -.051 | -.260** | -.134** | -.100** | .038 | .091* | -.132** | -.102** | -.009 | .183** | .003 | .938** | .946** | 1.00 |

a. N=715. Listwise deletion of cases. *p ≤ .05, **p ≤ .01
 Note: X₁ is Teacher Attachment, X₂ is School Commitment, X₃ is School Involvement, X₄ is School Belief, X₅ is Mother Attachment, X₆ is Father Attachment, X₇ is Peer Attachment, X₈ is Family Social Activities, X₉ is Family Chores, X₁₀ is Non-School Belief, X₁₁ is Religious Activity, X₁₂ is Gender, X₁₃ is Age, Y₁ is School Delinquency, Y₂ is Non-School Delinquency, Y₃ is Total Delinquency.

Table 7. Zero-Order Correlations among All Variables for Indigenous Group^a

| | X ₁ | X ₂ | X ₃ | X ₄ | X ₅ | X ₆ | X ₇ | X ₈ | X ₉ | X ₁₀ | X ₁₁ | X ₁₂ | X ₁₃ | Y ₁ | Y ₂ | Y ₃ |
|--------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|----------------|----------------|----------------|
| (X ₁) | 1.00 | | | | | | | | | | | | | | | |
| (X ₂) | .362* | 1.00 | | | | | | | | | | | | | | |
| (X ₃) | .155** | .171** | 1.00 | | | | | | | | | | | | | |
| (X ₄) | .510** | .276** | .095 | 1.00 | | | | | | | | | | | | |
| (X ₅) | .238** | .180** | .110* | .268 | 1.00 | | | | | | | | | | | |
| (X ₆) | .188** | .150** | .064 | .228** | .503** | 1.00 | | | | | | | | | | |
| (X ₇) | .167** | .240** | .100 | .206** | .070 | .125* | 1.00 | | | | | | | | | |
| (X ₈) | .037 | .034 | .020 | .108* | .110* | .191** | .036 | 1.00 | | | | | | | | |
| (X ₉) | .228** | .203* | .102 | .184* | .147** | .187** | .070 | .324** | 1.00 | | | | | | | |
| (X ₁₀) | .311** | .123* | -.041 | .418** | .142** | .107* | .142** | .058 | .105* | 1.00 | | | | | | |
| (X ₁₁) | .106* | .186** | .056 | .128* | .064 | .149** | .081 | .037 | .009 | .018 | 1.00 | | | | | |
| (X ₁₂) | -.059 | -.088 | -.063 | -.003 | -.056 | .075 | -.176** | .002 | -.085 | .096 | -.114* | 1.00 | | | | |
| (X ₁₃) | .171** | .024 | .020 | .033 | .025 | -.055 | -.011 | .009 | -.139** | -.048 | -.057 | .129* | 1.00 | | | |
| (Y ₁) | -.339** | -.277** | -.030 | -.220** | -.167** | -.060 | -.033 | .066 | -.045 | -.088 | -.144** | .227** | -.064 | 1.00 | | |
| (Y ₂) | -.384** | -.242** | -.089 | -.255** | -.195** | -.022 | -.024 | .052 | -.044 | -.113* | -.167** | .238** | -.080 | .750** | 1.00 | |
| (Y ₃) | -.388** | -.276** | -.066 | -.255** | -.195** | -.042 | -.030 | .062 | -.047 | -.108* | -.167** | .249** | -.078 | .924** | .946** | 1.00 |

a N=361, Listwise deletion of cases, *p ≤ .05, ** p ≤ .01
 Note: X₁ is Teacher Attachment, X₂ is School Commitment, X₃ is School Involvement, X₄ is School Belief, X₅ is Mother Attachment, X₆ is Father Attachment, X₇ is Peer Attachment, X₈ is Family Social Activities, X₉ is Family Chores, X₁₀ is Non-School Belief, X₁₁ is Religious Activity, X₁₂ is Gender, X₁₃ is Age, Y₁ is School Delinquency, Y₂ is Non-School Delinquency, Y₃ is Total Delinquency

Table 8. Zero-Order Correlations among All Variables for Non-Indigenous Group^a

Discussion and Conclusions

A review of the zero-order correlations reveals some support for the generalizability of social bonding theory across ethnic groups based on the hypotheses tested in this study. For indigenous youth, teacher attachment (H1), school commitment (H2), school belief (H4), mother attachment (H5), father attachment (H6), and family chores (H9) are negatively correlated with various measures of delinquency. For family social activities, although significant, the correlation is positive; resulting in the rejection of the hypothesis (H8). There is only partial support for non-school belief (H10). For non-indigenous youth, teacher attachment (H1), school commitment (H2), school belief (H4), mother attachment (H5), and religious activity (H11) are negatively correlated with various measure of delinquency. There is limited support for non-school belief (H10).

All the social bonding variables are positively correlated with each other, except the correlation between family social activities and non-school belief and the correlation between school involvement and non-school belief for indigenous students. Furthermore, most of these correlations are significant. School bonding variables are positively correlated with each other for both indigenous and non-indigenous students, while the relationships among the non-school bonding variables are also positive. Furthermore, the correlations suggest that students who have positive views of school rules and enforcement commit a fewer number of different types of school, non-school, and total delinquent acts than those who have a low level of school belief. Additionally, school bonds are positively correlated with non-school bonds. These findings are consistent with Hirschi's (1969) argument that the elements of the social bond are positively related to each other, and consistent with other research (Jenkins ,1997; Gardner and Shoemaker, 1989).

The correlations also suggest that male students commit more school, non-school, and total delinquency than female students. Age, however, does not have a significant relationship to the delinquency measures for either indigenous or non-indigenous students.

The social bonds our youth have with others and their community are at meaningful levels and can deter them from engaging in delinquent acts. For both indigenous and non-indigenous youth, mother attachment is an important factor, pointing to the strong matriarchal role women still wield in the family and the community, and to the notion of respect for elders. The importance of teacher attachment is also an indicator of the respect the youth still have for adults.

Limitations of Study

Although the present study contributes to our current understanding of delinquency, it is not devoid of limitations. One limitation is its treatment of the element of attachment, particularly its focus on parental attachment. Although the element of attachment has been studied primarily with a focus on attachment to parents, the influence of the attachment to the family is not limited to parents. The focus of attachment to parents ignores other possible recipients of an individual's attachment within the family. First, there is attachment to siblings, which may reinforce or take the place of missing or weakened parental attachment. Second, in communities such as those in the Marianas, close ties with extended families provide more opportunities for attachment that go beyond what the mother or father can offer. Extended families may include various combinations of relatives in different generations, such as parents, grandparents, parents' siblings, siblings' spouses, uncles, aunts, and cousins. An examination of the family structures of the students who participated in the survey revealed that family structures are extremely complex in the CNMI, and

that the nuclear family structure, where only parents and their children live in the household, is uncommon. Thus, including these potential attachments in a study of delinquency in the CNMI may allow a more complete exploration of the element of attachment.

As with most other studies on social bonds, the present study relies on cross-sectional data and the methodology focuses on correlations. This does not allow for the examination of the causal direction of the relationships between the bonds and delinquency. Longitudinal research has found that these relationships are either weak, or reciprocal.

Suggestions for Future Study

This study is a first major step in comprehending the etiology of delinquency in the islands comprising the CNMI. The following suggestions provide opportunities for future research. First, as previously discussed, a longitudinal study on delinquency will provide a better understanding of the causal processes involved. Second, future analyses should be conducted on the relationships between social bonds and different types of delinquency. The third suggestion involves an in-depth examination of the family, including an assessment of the family structures and extended-family attachments. Fourth, middle school students should be included in any study of delinquency, since this is a critical period in which many youths begin to display delinquent behaviors. Furthermore, this will provide an opportunity to study whether social bonding theory is more applicable to younger rather than older adolescents.

The present study of delinquency in the CNMI presents some unique opportunities and difficulties. It allows for the examination of the generalizability of an American theory of delinquency among a population comprised mostly of US citizens whose ethnic composition is unique. Because of the unique cultural and historical experiences of the students from the islands, there is the concern that the traditional measures of social bonds used in this study may not be capturing the distinctive ways in which people are bonded to each other in the CNMI. Although there may be increasing similarities in the customs and beliefs between the CNMI and the US, the islands' relatively new US commonwealth status, efforts to preserve the indigenous culture, and the islands' geographic distance from the US mainland limit complete acculturation. In the future, an in-depth exploration of indigenous perspectives on delinquency may uncover more meaningful concepts for examination and may lead to the integration of non-American theories of delinquency with social bonding theory. Thus, because of this and other limitations previously discussed, the results of the study should be interpreted with care. What is certain, however, is that the social ties that bind our youth can serve as protective factors against a variety of behavior that negatively impacts their well-being.

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