The Contingent Relationships among Parenting, School Engagement, and Delinquent Behaviors: The Contextual Effect

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Introduction

Recent criminological studies re-introduce social disorganization theory to show how macro level variables (say, social contexts) influence the micro-level outcomes (say, parenting behavior and adolescent delinquency). This perspective brings the social contexts back to adolescent studies and shows the micro-level relationships differ across different social contexts. In literature of adolescent studies, parental behaviors have significant relationships with adolescent prosocial and antisocial behaviors. Parenting behaviors improve children's school engagement in school and prevent children from involvement in delinquent behaviors. Although empirical studies support the significant relationships among these three variables, there is still lack of systematical analysis on this topic in Taiwan. We know little about whether parenting behaviors and academic performance is a protective factor for delinquent behaviors and how this differs under different social contexts.

This paper is going to present a systematic analysis on the relationships among parenting behaviors, school engagement, and delinquent behaviors under different social contexts. From social disorganization theory, we are going to explain the contingent relationships among our research variables across different social contexts. As the theory puts, while high disturbance contexts lead to lack of prosocial opportunities and informal social control and in turn reduces the effect of parenting and school engagement on delinquent behaviors, cohesive contextual characteristics work as protective factors to enhance the influence of micro-level relationships.

We are going to use a prospective longitudinal study including around 2,500 families in urban and rural areas in Taiwan to test our hypotheses. Structural equation

modeling and the multilevel analysis will be used in this study. In the following sections, first, we will make a brief review about disorganization theory and the research on parenting, school engagement, and delinquent behaviors. Next, we will demonstrate a series of results including several SEM models to test the research hypotheses. Finally, a final remark will be provided.

Literature Review

In current study we are going to investigate the relationships among parenting behaviors, school engagement (school performance and academic performance), and delinquent behaviors. The relationship between parenting behaviors and adolescent school performance and problem behaviors has been well established. While Positive parenting such as monitoring, consistent parenting, and inductive reasoning have acted as protective factors for preventing child and adolescent from involvement in delinquent behaviors (Brody et al, 2003; Simons et al, 2002; Simons et al., 1998; Maccoby and Martin, 1983), parental active involvement in adolescent educational activities has positive impact on adolescent school performance (Leung et al., 2004). Researchers have also found the negative correlation between school engagement and delinquent behaviors (Bryant et al., 2003; Maddox and Prinz, 2003; Dornbusch et al., 2001; Loukas and Robinson, 2004). The within part of figure 1 shows the expected relationships.

Although the relationships among these three variables seem obvious, how the relationships change under different social context have just gained attention in literature since 90's. In the following section, we first present the macro-level factors for predicting school engagement and delinquent behaviors. Second, we will discuss the current status of the contingent relationships among the three variables.

Contextual factors

Besides aforementioned interpersonal variables, the influence of contextual

factors has gained emphasis. In their classic work, Shaw and McKay (1947) showed the community disadvantage influence the crime rate around Chicago area. They defined community disadvantage as low economic status, ethnic heterogeneity, and residential mobility. Their study demonstrated these community characteristics led to the disruption of community social organization, which, in turn, accounted for the criminal and delinquent behaviors (Sampson and Groves, 1989). Shaw and McKay brought our attention to influence of the community-level factors on individual outcomes, such as criminal behavior, educational attainment, and psychological functioning. Although, their social disorganization theory indicates the impact of community-level disturbance on individual behaviors in urban areas, the work from ecological studies also show the same situation in small towns and rural areas (Osgood and Chambers, 2000; Simons et al., 1997).

However, as Sampson and Grove (1989) and Bursik (1988) put, Shaw and McKay's theory did not gain direct test, since most studies only test the direct effect of economic conditions of neighborhoods, and rapid social changes. However, in the theory, they propose the external disturbance attenuates the "organization of community". Bursik (1988) links this to the effect of informal social control in local communities and Sampson and Grove (1989) propose three social disorganization factors—community supervision of teenage gangs, informal friendship networks, and participation in form organizations—are influenced by the external disturbance and influence the individual criminal and delinquent behaviors. Therefore, researchers have begun to examine empirically the specific behaviors that adults enact in their neighborhood that promote positive adolescent outcomes (Furstenberg, 1993; Sampson et al., 1997).

Researchers propose the impact of collective socialization as community-level

factors influence the individual-level outcomes (Sampson et al., 1997; Kubrin and Weitzer, 2003). Collective socialization indicates the social ties and informal relationships in neighborhood emphasizing the impact of adult role models and informally shared parenting functions by residents in the community in shaping children's behaviors. Adults in the neighborhood serve a dual role as they are also able to exert social controls by monitoring the behavior of neighborhood children and dealing with potential trouble. Empirical findings support the direct impact of collective socialization on children and adolescent outcomes, such as academic performance, affiliation with delinquent peers (Brody et al., 2001), and delinquent behaviors (Simons et al., 2004). The studies of collective socialization also fit in the argument of social control theory (Hirchi, 1969) in which adults create social ties through participating neighborhood activities and the social ties in turn form informal social control over behaviors of individuals in the neighborhood.

In addition to the efficacy in community, research also proposes the influence of class or school climate as contextual factors to influence adolescent outcomes (Kasen et al., 1990). Except family, school or class is the social context in which adolescents spend most of time. Therefore, its effect should be prominent in modeling adolescent prosocial and problem behaviors. When we operationalize class/school climate as student interpersonal relationships, student-teacher relationships, and achievement (Kupermnc et al., 2001; Loukas and Robinson, 2004), this concept presents the cohesion of a given context that gives students sense of belonging and social attachment. Therefore, in general sense, class/school climate provides informal social control as a protect factor to influence adolescents' prosocial and problem behaviors.

Although Sampson and Grove (1989) indicate that community disadvantage exerts its effect through attenuating the collective socialization in the neighborhood,

empirical studies still find the single impact of community disadvantage on individual outcomes in the present of collective socialization (Leventhal and Brooks-Gunn, 2000; Simons, 2004; Brody, 2001). While disturbance in community attenuates the social organization and related social control, it also reduces the opportunity of economic and social attainment. Differential opportunity (Cloward and Ohlin, 1961) proposes that the disturbance of community blocks the legitimate opportunities and provides possible illegitimate opportunities and delinquent subculture for involvement in criminal and delinquent behaviors. Therefore, community disadvantage measured by high population density, low community SES, and high rate of unemployment can be the proxy of lack of legitimate opportunities and has positive influence on criminal and delinquent behaviors. Besides, research also shows the relationship between community SES and school readiness and achievement (see the review from Leventhal and Brooks-Gunn, 2000).

In sum, following disorganization theory and social control theory, current study will incorporate community disadvantage, collective socialization, and class/school climate in the model to test the effect of contextual factors on adolescent prosocial and problem behaviors. We will expect collective socialization and class/school climate would positively predict adolescent school engagement and negatively influence delinquent behaviors. For community disadvantage and collective socialization we measure at village level. Since class is the basic unit in students' school life, we will use class as the unit for measuring class climate.

Contingent relationships among research variables

There are two hypotheses about the relationship between parenting behaviors and

adolescent outcomes under different community contexts (Simons et al, 2002). *Buffering hypothesis* proposes that the effect of positive parenting behaviors become more critical when a family resides in a high-risk community. When residing in disturbance neighborhood, positive parenting behaviors as both protective factor and attachment to conventional institutions prevent kids from involvement in delinquency, substance use, and affiliation with delinquent peers. Parenting also works well for helping kids with school activities and performance when encountering aversive environment.

The other hypothesis puts the converse argument. The *evaporation hypothesis* proposes that under disadvantageous environment, the effect of positive parenting attenuates. Positive parenting becomes less effective, since high disturbance of environment makes the delinquent behaviors widely prevalent. Even if parents devote lots of time to kids, the 'pull force' from the environment is so strong that parenting seems in vain.

Only few studies test these two hypotheses. In their HLM analysis, Simons et al. (2002) support the evaporation hypothesis in an African American data set from rural area. Caregiver's control practice is less effective when situating in community with high prevalence of deviance. However, with the same data set, in their multi-group comparison model, Brody et al. (2003) support the buffering hypothesis. Caregiver's disciplinary has stronger effect in high economic disadvantage community than that in low economic disadvantage community. The difference findings could be the result of different operationalization of community disadvantage and parenting behaviors, but also could be the result of using different statistical methods. While HLM takes care of the clustering effect on the standard errors, SEM takes into account the measurement error. In the current study, we will use multilevel SEM to incorporate

the pros of both methods and get rid of cons.

To our knowledge, there is no study testing the moderation effect of collective socialization on the relationship between parenting behaviors and outcomes. However, following the discussion of community disadvantage and treating low collective socialization as disadvantage, we believe the effect of collective socialization still follow the two hypotheses.

The moderation effect of contextual factors on the relationship between school engagement and delinquent behaviors reminds unclear. To our best knowledge, no empirical study tests this moderation effect. From social control theory, if we treat school engagement as attachment or/and commitment to conventional institution, we hypothesize school engagement is more effective when students situate in disadvantage environment. This is because with the help of good environment, less school engagement is not necessary for students away from involvement in delinquent behaviors. However, if the environment is bad, school engagement become a critical protective factor.

Next, we will use multilevel SEM to test the model shown in figure 1 to test these hypotheses.

Method

Data

The data used in this study is from a prospective longitudinal research in Taiwan. Family and life course research group in Institute of Sociology, Academic Sinica started to this project in 1999. This data set consists of two cohorts. One is 13-years old cohort and the other is 15-years old cohort. Current study uses the younger cohort. The aim of this project is to investigate the influence of family, school, and community on adolescent health behavior. For collecting diverse data regarding different community contexts, researchers investigate Taipei City, Taipei County, and I-lan County. Since the high enrollment rate of junior high school in Taiwan, researchers used all first-grade junior high students in these three areas as sampling frame. Researchers used two-stage sampling procedure to recruit their subjects. At first stage, researchers divided each area into two or three strata according to their urbanization level. Based on the proportion of students in each stratum over the total students, researchers determined the sample size for each stratum. At the second stage, researchers used cluster sampling. Researchers randomly selected two classes at each randomly selected school in each stratum. Once the class was selected, all students were included in the investigation.

In 1999 fall, researchers sent trained interviewers to sampled classes. Students filled out the questionnaire in-class within two hours with interviewers' help. At the same time, reviewers also distributed the parent and teacher questionnaire. Interviewers asked students to bring the parent questionnaire home to their primary caregivers. After parent filled out the questionnaire, the class teachers helped to collect the parent questionnaires and mailed to researchers. Teachers also filled out

teacher questionnaire for each of students in his/her class. Teachers mailed teacher questionnaire in the end of semester in early 2000. In the end of the first year data collection, there were 2,690 students, 2,666 parents, and 2,628 teacher questionnaires. In 2000 and 2001, researchers followed similar procedures to collect student and teacher data. Due to students' transferring in or out, in third wave there were 2,663 students in the data. Around 93% (2,510) of original sample appeared over three years. After listwise deleting, there are 2,422 cases. There are 50.5% boys and 49.5% girls. There are 38.6% in Taipei City, 39.3% in Taipei County, and 22% in I-lan County.

For studying the effect of community contexts, researchers also created the community data based on government statistics at village level. This data set was created by student report address. However, due to student's misreport of address, there were around 500 cases not having community data. So, in the multilevel analysis based on village information, the sample size is 2,057. Researchers and readers should caution about the generalization of the research result.

Measures

Delinquent behaviors. We accessed adolescent delinquent behaviors from student questionnaire. There are 10 items adapted from delinquency inventory in National Youth Survey (Elliott, Huizinga, & Ageton, 1985; Elliott, Huizinga, & Millard, 1989). There are 23 items in original inventory. Here researchers use reduced version. Students reported the following questions in the first and third wave: "How often did you have the following behavior during past year?" The items are typical delinquent behaviors for adolescents in Taiwan including running away, skipping school, stealing, biting others, and speeding motorcycles. Respondents reported 1 as never and 5 as always. We summed these items together to form our delinquency measure of

adolescents.

School engagement. There are three indicators measuring school engagement. Leadership was measured by asking students: Have you ever been in these positions: class representatives, club representatives in school, and teaching assistants in class. Students reported 1 as yes and 0 as no. We summed three items together to form leadership measure. School performance was measured by asking them: Have ever participated these activities: athletic or dancing, arts or calligraphy, essay or speech competition, music, and scientific competition. Students reported 1 as yes and 0 as no. We summed these five items to form our school performance measure. Teachers reported students' grade ranking in last semester. The response format was 1 for below 30^{th} rank and 5 for within top 5^{th} rank. To include teacher's information makes us get rid of problem of share method variance. We gained these measures in three waves. As presented in figure 2, we can see 1) three indicators loaded well under a latent construct over time and 2) the stability of school engagement was very high. Therefore, we only included wave 2 measures in the later SEM model without controlling for the previous status. For using wave 2 measures, we can also use the temporal sequence as rationale for making school engagement to predict delinquent behaviors.

Parenting behaviors. We gained parenting behaviors from parent report questionnaire in first wave. We used three indicators to form the parenting latent variable. **Warmth** was measured by asking parents: When you go along with your kid, what did s/he do to you? 5 items in the warmth measure, such as s/he asked what you think about important things, listen carefully to your thought, and care about you. Parents responded 1 as never and 7 as always. We summed the five items together as our warmth measure. **Parental control** consisted of two behaviors: monitoring and

consistent parenting. Parents reported their monitoring by answering questions such as “you know where the kid is everyday”, “you know whom the kid is with”, and “you know the kid come home or go to bed”. Consistent parenting was measured by asking: “If the kid did not do what you want him/her to do, you will care”, “you will punish him/her, if s/he breaks rules”, and “once you decide to punish the kid, you really punish him/her”. Parents reported 1 as never and 5 as always. We summed the six items together to form the parental control measure. Three questions consisted of **inductive reasoning**. They were “How often do you give your kid reasons for your decisions”, “How often do you ask your kid what s/he think before making a decision about him/her”, and “How often do you ask your kid’s opinions when making any decision in the family”. Parents reported 1 as never and 5 as always. We summed the three items together to form the inductive reasoning measure.

There were three contextual variables in current study. Class climate was measured by asking students four questions about the cohesion of the class, such as “classmates always help each others”, “I don’t like go along with classmates”, “classmates love each others just like a family”, and “classmates sometimes don’t get along well”. We recoded the items so that 1 represents not applicable and 4 represents very applicable. We summed the four items together to gain class climate measure in which higher score means high solidarity in the class. Then, we aggregated it at class level to gain climate score for each class.

Collective socialization consisted of three subscales. **Community cohesion** was measured by asking students about the social contact and solidarity of their neighborhood, such as knowing who is whose child, number of daily contact, and willingness of helping each other. **Participation in community activities** was measured by asking whether their family participate in various activities in

community. **Community strength** was measured by students' evaluation of their neighborhood, such as safety, convenience, and cleanness. 1 is for "extremely disagree" and 7 is for "extremely agree". We summed the three subscales together and form our community efficacy measure in which higher score means strong community. Then, we aggregated it at village level to gain collective socialization for each village.

We also created community disadvantage measure from government statistics for each village unit. It included 6 indices, such as percentage of people who have college degree or above in 15 or older population, percentage of divorced female of 15 or older population, the ratio of the elder to the younger population, percentage of people who participate in first section labor force in 15 or older population, the ratio of the dependent to population, the percentage of the elder and the incapable in 15 or older population. We standardized these indices and summed them together to form our community disadvantage measure for each village unit.

Analytic strategy

Next section, we will first present descriptive statistics for research variables. Second, we will present the structural equation model for testing our hypothetical model. We will also conduct three-group comparison model to see if the relationships among variables varying across different areas. Finally, we will conduct four sets of multilevel analyses with random intercept and slope models to test our contingency hypotheses.

Result

Descriptive statistics

Table 1 presents the zero-order correlations among research variables. We can see the parenting measures and school engagement measures have good intra-correlation. The correlations are above .30. This means our indicators for these two can load together well. Parenting measures generally have relative weak relationships with delinquent behavior than that with school engagement. However, it is in predicted direction. School engagement measures are significantly related to delinquent behaviors. It seems teacher's ranking has stronger effect than other two indicators; however, they are still in expected direction. The weak correlations cast doubt of whether the significance is due to the large sample size. Researchers randomly selected half of the sample and ran the correlations with the reduced sample. The relationships remain significant. Therefore, although weak, we can't deny the relationships between these constructs. Besides, because of the influence of measurement error, zero-order correlations underestimate the true relationships (Bollen, 1989). Therefore, we next go to SEM model to see the relationships after correction of attenuation.

Table 1 around here

Structural equation modeling and multi-group comparison

Before running the hypothetic model, we ran a series of models to test the causal directions between school engagement and delinquent behaviors. Although social control theory put engagement as a cause of delinquent and criminal behaviors, there

still could be that involving in delinquent careers reduces the change of individuals' attachment with conventional institutions (say, school). In figure 2, we demonstrate a cross-lagged model across three waves for school engagement. We can see in the model the stability of this construct is pretty high (β=.95). It seems to us that students with high engagement in previous wave tend to have high engagement in the following waves. Therefore, since a relatively stable variable has higher chance to be predictor rather than being predicted, in the following analyses, we use engagement as predictor for delinquent behaviors (an additional analysis, not shown here, using two-variable-cross-lagged reciprocal model also shows engagement has stronger effect on delinquency than the vice versa). This corresponds to the results in several studies that the attachment to conventional institutions reduces adolescent delinquency.

Figure 2 around here

Figure 3 around here

Figure 3 shows the conventional SEM for testing the hypothetical model. Because the relatively large sample size, the chi-square test can not be trusted for model evaluatoin. Here we use alternative fit indices. GFI and AGFI both show the model fit is good, since they are all above .95. After controlling for gender and delinquent behavior at wave 1, we can see parenting behaviors positively predict school engagement and in turn school engagement predicts delinquent behaviors. Although the relationship is weak, parenting behaviors have significant direct effect on delinquent behaviors. All the relationships are in the expected direction. Positive parenting behaviors improve adolescent prosocial behaviors and prevent their

delinquency. Current study confirms various studies in the U.S. and Taiwan about the influence of parenting behaviors.

School engagement significantly decreases delinquent behaviors, even after controlling for initial level of delinquency, parenting behaviors, and gender. The affiliation with conventional institution, such as being leaders in class, having good academic ranking, and participating in school competition, reduces adolescent delinquent behaviors. This corresponds to what social control theory said: attachment and commitment as informal social control to prevent problem behaviors.

For now, we have presented the basic model. Next, we are going to test the contingent hypotheses for the relationships among these three constructs. We are going to answer the following questions: 1) Will our data support buffering effect or evaporating effect of parenting behaviors on prosocial and delinquent behavior under community disadvantage and collective socialization? 2) Will the data support school engagement as attachment and commitment that operate differently under different social contexts?

Table 2 presents multi-group comparisons across three areas in this study. This is a rough test for the contingency of the relationships, since we treat the three areas as relatively homogenous at within level and ignore the within variations of the social context. As you can see, the result does not show any contingent relationships across different areas.

Table 2 around here

Multilevel analysis

Multilevel analysis has gained attention since late 90's. The basic logic of this kind of analysis is that the estimates of standard errors in conventional statistical

procedures (say, regression) are biased due to the clustering effect in complex survey design data (Raudenbush, 2001). Besides, when incorporating cluster-level variables in the model, OLS estimates can't be trusted. Therefore, researchers need to perform some statistical adjustment for this linear model.

Before we start the multilevel analysis, we need to make sure if we get significant between level variations. Heck (2001) indicates that intra-class correlations can reflect the problem of design effect. Heck suggests that 0.05 can be a cut-point for diagnosing this problem. Since the sampling procedures show that students are nested in classes, we used class as cluster unit for calculate the intra-class correlations. The formula for intra-class correlations is:

$$\rho=\sigma_b^2 / (\sigma_b^2+\sigma_w^2)$$

where σ_b^2 is between-group variance and σ_w^2 is within-group variance

Using HLM, we calculate the intra-class correlations for each dependent variable. The ρ for leadership is 0.058, for performance is 0.052, for rank is 0.007, for delinquent time 1 is 0.012, for time 3 is 0.024. It seems we don't have serious clustering effect in this data; however, there are still two ρ's over .05 and as Murray (1998) indicates even the intra-class correlations below 0.01, there still could be design effect. Therefore, in the following analyses, we still perform multilevel analyses.

Table 3 around here

We use Mplus (Muthèn and Muthèn, 2004) to gain the estimates. The latest version of Mplus incorporates the ability to handle interaction of latent variables in SEM framework. Mplus handles random slopes modeling through the interaction model with maximum-likelihood estimation (Muthén and Asparouhov, 2003). This includes interaction model in conventional sense and the inter-level interaction model

in multilevel analysis. Here we fit the random intercept and slope as shown in figure 1. Suppose y is the dependent variable and we have one predictor in each level (X for within and W for between), the model is as following:

$$Y_{ij} = \pi_{0j} + \pi_{1j} X_{ij} + e_{ij} \quad (1)$$
$$\pi_{0j} = \beta_{00} + \beta_{01} W_j + u_{0j} \quad (2)$$
$$\pi_{1j} = \beta_{10} + \beta_{11} W_j + u_{1j} \quad (3)$$

$$Y_{ij} = \beta_{00} + \beta_{01} W_j + \beta_{10} X_{ij} + \beta_{11} X_{ij} W_j + (u_{0j} + u_{1j} X_{ij} + e_{ij}) \quad (4)$$

where i for individual, j for group

Mplus estimates equation (4). When y or/and x are latent variable, Mplus just substitutes them with latent variables η and ξ. We first ran full model. If it does not work, we reduced the parameters until we gain a good model. There are two limitations in current Mplus model. First, we can't run the full model, since the model is too complex to be estimated. Mplus just crashed when we tried to run the full model. So, we ran the model with only one variable each for dependent and independent variable. Second, in the interaction model, Mplus does not provide standardized coefficients. Therefore, coefficients are not easy to interpret. We will use graphs to help our presentation.

Table 3 presents the results of multilevel analyses. M1 presents the interaction between parenting and community disadvantage. Although it is not like the interaction model convention in which we did not include main effect of community disadvantage due to model fitting concern, the interaction term shows the evaporating effect of parenting behaviors. Figure 4 shows that in high disturbance context parenting behaviors have less influence on school engagement.

Figure 4 around here

Figure 5 around here

Figure 6 around here

M4 also shows same effect when parenting behaviors predict delinquent behaviors. Figure 6 shows that in high disturbance context parenting behaviors have less influence on delinquent behaviors. We also found the interaction effect between parenting behaviors and community efficacy. Although the effect is weak (we graph the interaction, but can't find very clear pattern), the negative coefficient indicates that high community efficacy improves the impact of parenting behaviors on delinquent behaviors. This supports the theory of collective socialization and empirical findings from Sampson et al. (1997) and Simons et al. (2004).

M2 and M3 both show the contextual factors moderate the impact of school engagement on delinquent behaviors. In M2, we used class as level 2 unit and the contextual variable is classroom climate. The interaction term is positive indicating that the impact of school engagement on delinquent behaviors is higher in less cohesive classroom climate than in cohesive climate. Figure 5 presents this relationship. If students live in a cohesive environment and have close relationship with classmates, the impact of school engagement on delinquent behaviors is not so important. However, if students does not situate in a supportive environment, the engagement and good standing in school become critical for preventing from delinquent behaviors. This supports our hypothesis.

Although the interaction effect is not prominent (we graphed the interaction and did not get obvious pattern), M3 shows the same situation. When situating in a high efficacy community (measured at village level), school engagement seems not as important as when situating in a low efficacy community. The main effect

corresponds to control theory that attachment to conventional institutions prevents involvement in delinquent behaviors. Current findings go further to indicate that under difficult social contexts, the effect of the school engagement on delinquent behaviors becomes critical.

A final remark

In this study we try to present the contingent relationships among parenting behaviors, school engagement, and delinquent behaviors in our multilevel SEM analysis. Using the first three waves data from a prospective longitudinal study, we found the following results:

Our results support past research about the relationships among parenting behaviors, school engagement, and delinquent behaviors. Parenting behaviors and school engagement as protective factors negatively predict delinquent behaviors. Current study also supports part of argument from social disorganization. We found collective socialization negatively predicts delinquent behaviors; however we did not find main effect for community disadvantage. Besides, class climate also negatively predicts delinquent behaviors.

In the contingent relationships part, current study supports the evaporating hypothesis, showing community disadvantage weakens the effect of parenting behaviors on delinquent behaviors. The finding for collective socialization also supports the evaporating hypothesis. Parenting behaviors become less effective when community has low collective socialization. The result on moderation analysis for school engagement and delinquent behaviors supports our hypothesis that school engagement is critical when students situate in adverse social context, such as low

collective socialization and bad class climate.

Current study is a first step in Taiwan to investigate the contingent relationships among three research variables across different social contexts. There are some limitations requiring our further exploration. The lack of main effect of community disadvantage may indicate we got inadequate measure. Lack of crime rate in community decreases our ability to test disorganization theory. Future study should incorporate the crime measure in the data. Besides, we only present pieces of the full model when running multilevel SEM in Mplus. We hope in the future Mplus can allow running more complex model, so that we can understand the questions well. The influence of community is the key question in sociological studies. Therefore, we would expect more studies in the future.

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Table 1 Correlations, means, and standard deviations for research variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Gender (1=M, 0=F)	1.00								
(2) Warmth	-.02	1.00							
(3) Inductive reasoning	-.02	.33**	1.00						
(4) Parental control	.00	.23**	.43**	1.00					
(5) Leadership	-.06**	.16**	.08**	.09**	1.00				
(6) Performance	-.11**	.08**	.05*	.06**	.34**	1.00			
(7) Grade ranking	-.12**	.16**	.14**	.09**	.42**	.32**	1.00		
(8) Delinquent Behaviors T1	.11**	-.07**	-.07**	-.05*	-.07**	-.06**	-.16**	1.00	
(9) Delinquent Behavior T3	.15**	-.07**	-.08**	-.08**	-.07**	-.02	-.21**	.26**	1.00
Means	---	29.87	12.41	24.19	1.22	1.15	2.97	10.62	6.68
SD	---	6.76	2.90	4.36	0.92	1.28	1.24	1.84	2.28

* p<.05
** p<.01

Table 2 Group Comparisons across Taipei City, Taipei County, and I-lan County

	χ^2	Degree of freedom	$\Delta\chi^2(2)$
S1			
All free	277.99	91	---
Equal across groups	280.22	93	2.23
S2			
All free	277.99	91	---
Equal across groups	282.48	93	4.49
S3			
All free	277.99	91	---
Equal across groups	280.91	93	2.92

Table 3 Multilevel Analyses for Relationships among Parenting Behaviors, School Engagement, and Delinquent Behaviors

	School Engagement	Delinquent Behaviors		
	M1**	M2*	M3**	M4**
Variables at Individual Level				
Gender	-0.16	0.48	0.50	0.57
Delinquent BehaviorsT1		0.29	0.29	0.30
Parenting Behaviors	.23			-.40
School Engagement		-4.63	-1.87	
Variables at Contextual Level				
School Climate		-0.02		
Collective Socialization			-0.06	-0.08
Community Disadvantage				
Cross Level interaction				
Engagement X Climate		0.28		
Engagement X Socialization			0.05	
Parenting X Disadvantage	-0.06			0.43
Parenting X Socializaiton				-0.37

All coefficients are unstandardized and are significant at α=.05
* The contextual unit is class
**The contextual unit is village

Figure 1 Hypothetical Model

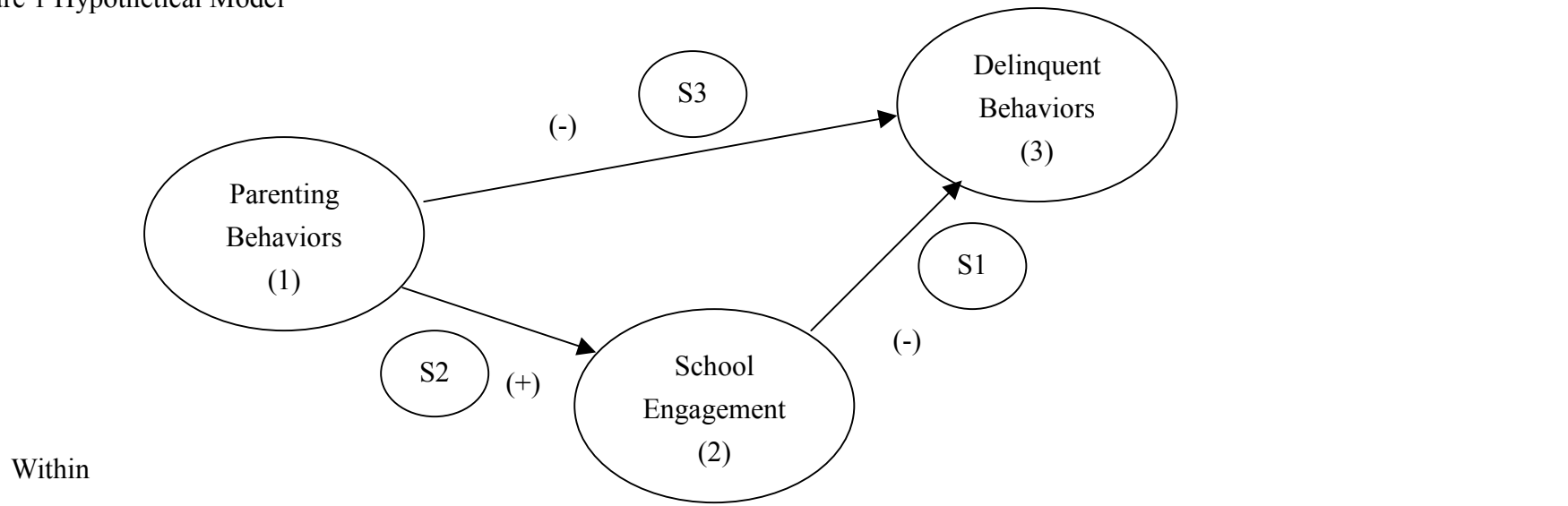
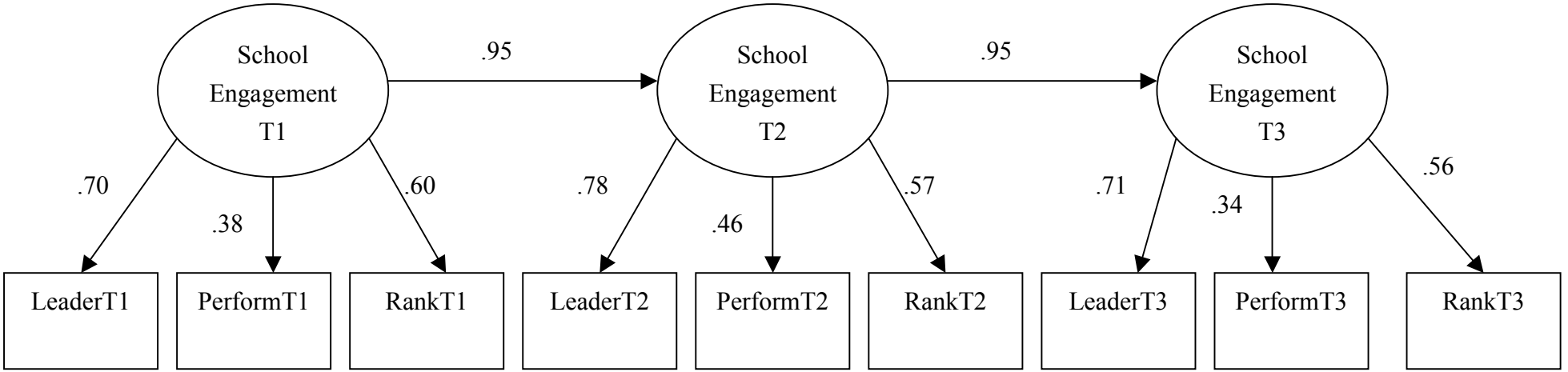


Figure 2 Stability of School Engagement

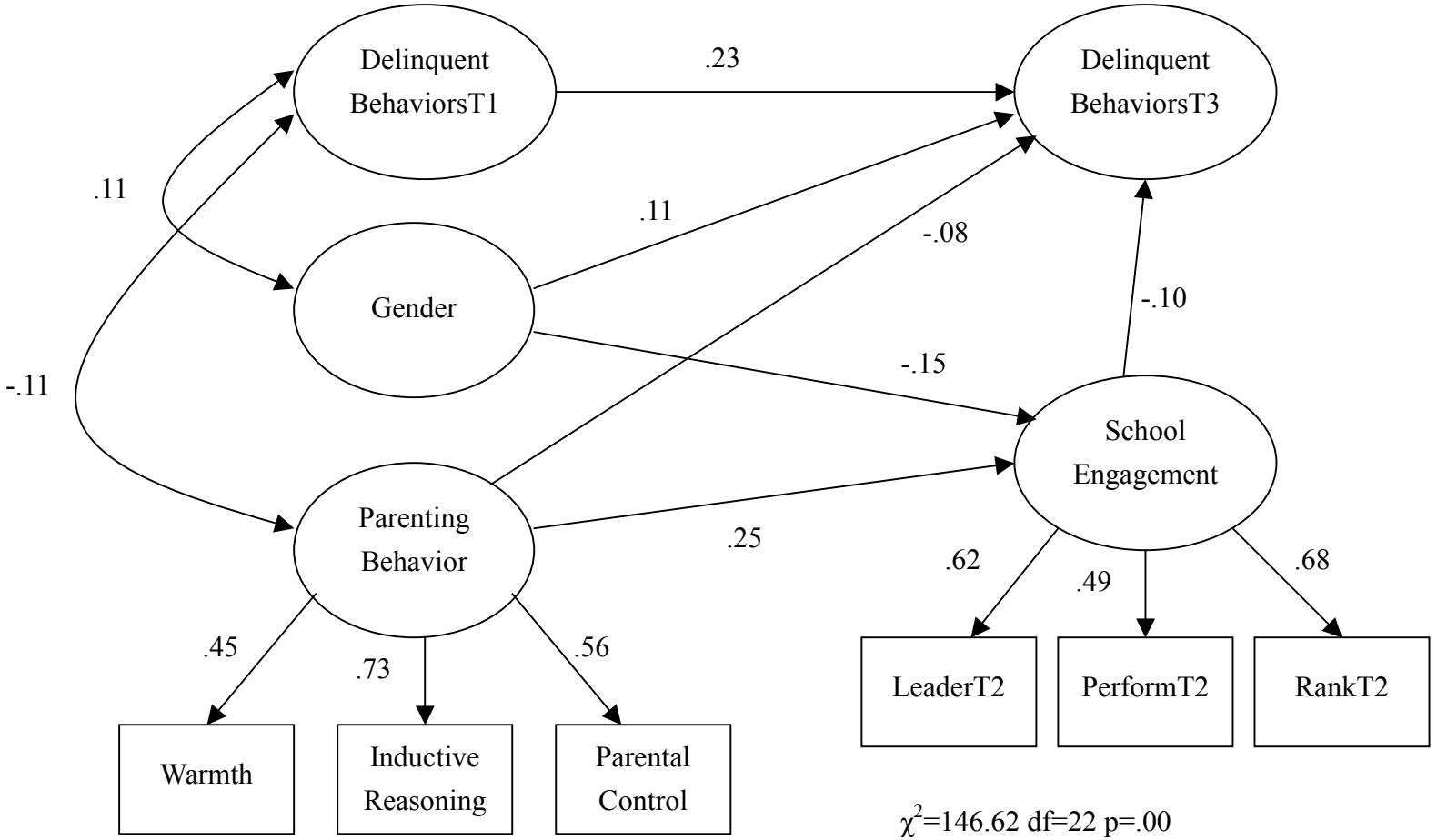


χ^2=118.00 df=19 p=.00

GFI=.99 AGFI=.97

All coefficients are significant at α=.05

Figure 3 Structural Equation Model for Relationships among Parenting Behaviors, School Engagement, and Delinquent Behaviors



χ^2=146.62 df=22 p=.00
GFI=.99 AGFI=.97
All coefficients are significant at α=.05

Figure 4 Community Disadvantage Moderates Relationship between Parenting Behaviors and School Engagement

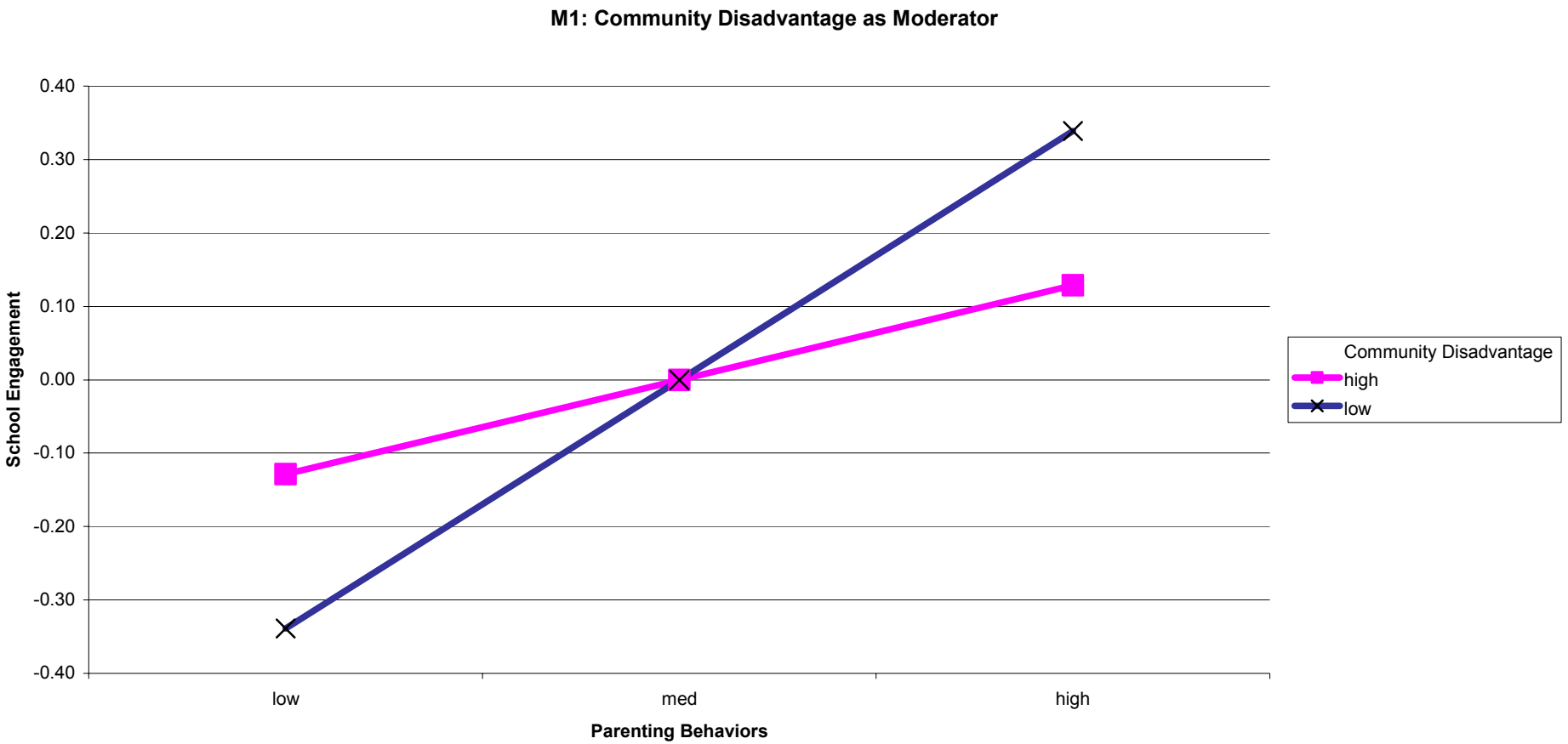


Figure 5 Class Climate Moderates Relationship between School Engagement and Delinquent Behaviors

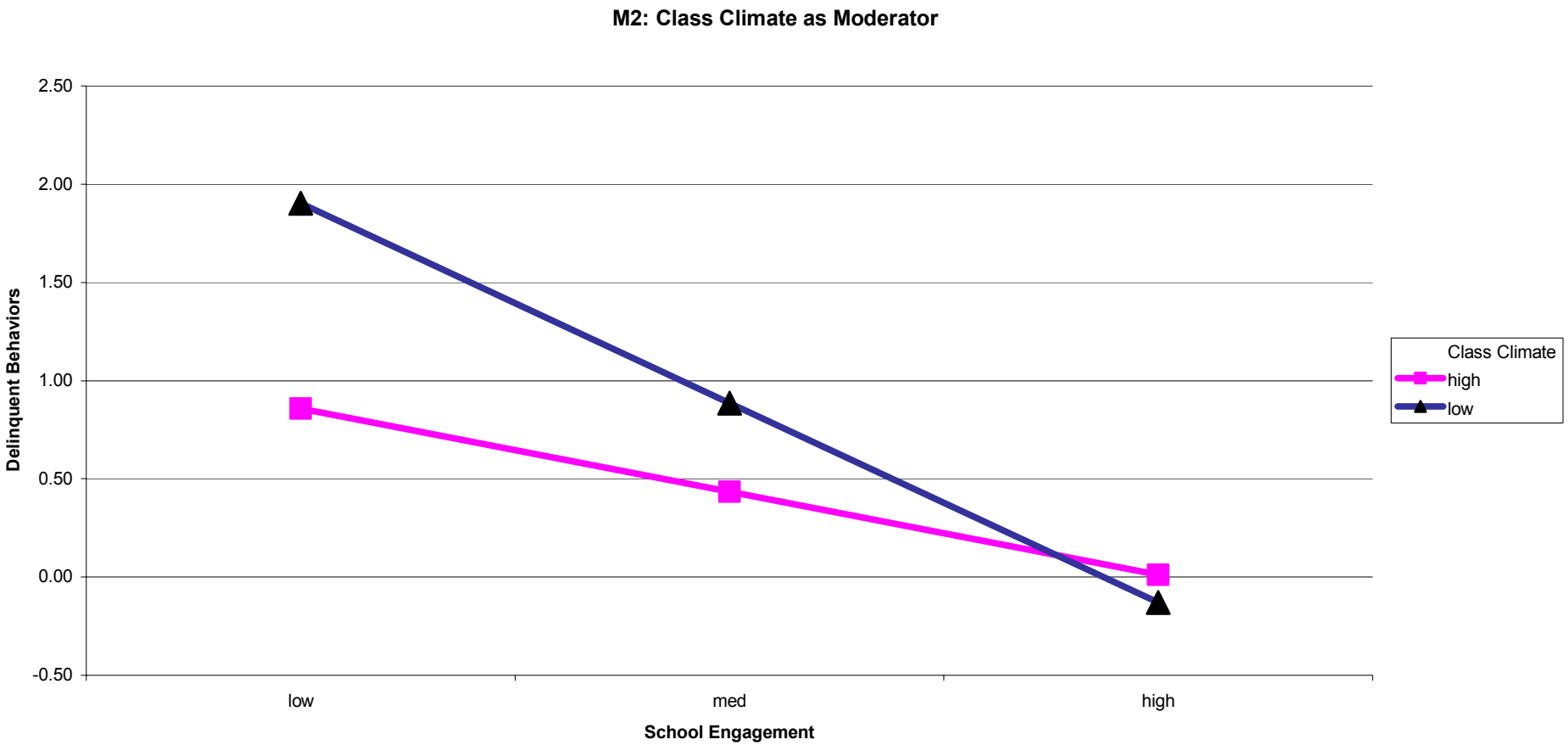


Figure 6 Community Disadvantage Moderates relationships between Parenting Behaviors and Delinquent Behaviors