Article

Peer Influence on Youth Delinquency: How Does School-Level Teacher Quality Matter?

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Abstract

This study contributes to the literature on peer influence and delinquency by examining the moderating role of school-level teacher quality in contemporary China. Based on social control theory and taking an ecological perspective, our multilevel analysis of the China Education Panel Survey (CEPS) data found that among Chinese middle school students, affiliation with deviant peers correlated with delinquent behaviors; this peer effect was moderated by the proportion of accredited senior teachers at school. With high school-level teacher quality, youth delinquency can be suppressed despite deviant peers; in the absence of qualified personnel, delinquency will emerge with deviant peer affiliation. Our findings suggest China's educational disparities could lead to diverging behavioral risks among youth, potentially reinforcing existing social inequalities in China.

Keywords

youth delinquency, peer influence, school context, multilevel models, social stratification

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The impact of peer affiliation and school context on youth delinquency is well-established, yet limited research explores how school-related factors moderate the relationship between deviant peer affiliation and delinquent behavior (Hirschfield, 2018; McGloin & Thomas, 2019). One explanation for the favorable effect of school context is offered by social control theory (Hirschi, 1969). In this view, schools can shield students from delinquency by promoting behavioral norms and providing teacher supervision. However, studies tend to focus on school-level social composition and school climate (e.g., Chen & Vazsonyi, 2013; Gottfredson, 2000; Lo et al., 2011; Payne, 2008; Reaves et al., 2018), with less emphasis on the role of personnel quality. Drawing on social control theory, we suggest the proportion of qualified teachers at school could be another critical school-level factor that merits attention in studies of adolescent behavior.

The impact of teacher quality on youth delinquency is likely to vary across cultures. In societies with a liberal teaching tradition and where student autonomy is respected, we would expect teachers' influence to be relatively weak. In societies like China where an authoritarian teaching style is prevailing, we expect teachers to have greater influence. China's educational system sets an immersive environment with long school hours and intensive teacher-student interactions (Schoenhals, 2016). Furthermore, China has a cultural disposition toward an authoritarian teaching style and strict discipline. These unique features suggest schools and teachers in China may have a stronger influence on youth. Analyzing the case of China could yield valuable insights into the combined effects of peer affiliation, teachers' influence, and school context on youth delinquency in China and elsewhere.

Taking an ecological perspective, we expect that adolescents who attend schools with more accredited senior teachers should be exposed to more effective social control. We employed two-level hierarchical linear models (HLMs) to analyze more than 8,000 observations from the China Education Panel Survey (CEPS) dataset. The HLM results showed that when potential sociodemographic and family-related variables were controlled for, peer influence and school-level teacher quality (measured by the proportion of accredited senior teachers) were significant predictors of youth delinquency. Moreover, school-level teacher quality was a moderator of peer influence. In other words, when teacher quality at school is low, negative peer influence is stronger; when personnel quality improves, the impact of negative peers diminishes. The findings remained stable in robustness checks and competing hypotheses tests, adding to our confidence in the results.

This paper contributes to the research on youth delinquency, sociology of education, and social inequality in China. First, it supports the vital role of the school context and peer association in shaping youth behaviors, based on the

latest empirical evidence from China. Second, it highlights the critical moderating effect of schools and teachers in reducing youth delinquency. This effect is especially helpful for troubled youth from marginalized social categories, such as students from migrant families, lower-class families, and rural areas. Third, it alerts us to a concentration in the high-quality educational resources in China. This concentration may be advantageous to students from privileged backgrounds but will deprive lower-class students of positive exposure to quality education, leaving them vulnerable to negative peer influences. In the long run, such inequality would reinforce and reproduce itself. Our findings underscore the need for policy interventions to ensure all students, regardless of their backgrounds, have equal access to quality education.

Youth Delinquency: Deviant Peer Affiliation and School Context

Delinquency encompasses a wide range of problematic behaviors displayed by a minor, including class disruption, school misconduct, substance use, violence, and more aggressive violations (Demanet & Van Houtte, 2019; Gottfredson, 2000; Guo et al. 2015). Previous studies have consistently found that many adolescents engage in delinquent behaviors (Demanet & Van Houtte, 2019). Delinquent behaviors, even moderate ones, are disruptive and harmful to the child who commits them and also to his or her peers. Engaging in delinquency during adolescence can lead to adverse consequences, such as substance abuse and mental health problems (Elliott et al., 2012). The repercussions could last into adulthood. Given its enduring impact, researchers have paid considerable attention to the factors and mechanisms contributing to youth delinquency.

Deviant peer affiliation is among the most salient predictors of delinquent behaviors. Scholars have found that adolescents who socialize with deviant peers are more likely to engage in delinquent behavior (Akers et al., 1979; Dishion & Tipsord, 2011; Le et al., 2005). Yet Hirschi's social control theory suggests the negative influence of delinquent peers can be reduced by effective agents for social control, such as family and school (Pratt et al., 2011). Researchers have established various family-related social controls, such as high parental control, stable family structure, strict parental monitoring, and close attachment to parents (Deutsch et al., 2012; Vitaro et al., 2000), as moderators of deviant peer affiliation and youth delinquency. However, the moderating role of school-related social control remains unclear.

First, studies examining school influence vary in their measures of school context, and few have considered the role of teachers in enforcing school

policies and supervising student behaviors. Many studies in this area concentrate on school social composition and school climate. For example, Bradshaw et al. (2009) found the student-teacher ratio and the concentration of student poverty are significant predictors of students' involvement in bullying. A recent meta-analytic review revealed a small but significant relationship between school climate and youth problem behaviors over time (Reaves et al., 2018). Chen and Vazsonyi (2013) demonstrated how school size, school socioeconomic status, and school future orientation climate can predict students' problem behavior. However, although school social composition and school climate can reflect schools' capacity for controlling student behavior to some extent, their influence is likely to vary with the quality of teachers, who are the direct actors exerting social control in a school. LaRusso et al. (2008) showed qualified teachers can help build respectful school climate and prevent students from drug use and depressive symptoms. Likewise, teacher quality may influence youth delinquency and moderate the effect of deviant peer affiliation.

Second, previous studies have demonstrated a link between school-related factors and youth delinquency, but research has yet to fully address school-related moderators in the relationship between peer deviance and youth delinquency. This omission is noteworthy, given that students actively choose or passively accept their peers and build peer relationships at school. Several studies have documented the moderating role of school-related factors and shown that a negative school environment magnifies the negative influence of deviant peers (e.g., Schriber et al., 2018; Wang et al., 2017). These studies, however, reduced the contextual factors to personal subjective feelings and excluded possible inter-school variations. From an ecological perspective, the social contexts in which adolescents interact are crucial determinants of the emergence of youth delinquency (Bronfenbrenner, 1977; Shaw & McKay, 1942). This study sought to fill the research gap by taking a multilevel approach and considering the variations across schools. Following the above discussion on teachers' social control, we argued that youth behaviors would be significantly influenced by the schools they attend, as the students are exposed to different teachers and school environments.

Youth Delinquency in China: School-Level Teacher Quality

The collective teacher effect on youth delinquency may be more pronounced in China than elsewhere. China has a long Confucian tradition of respecting and obeying authorities (T. H. Zhang, 2018), especially the teachers. The ancient Chinese proverb, "a teacher for a day is a father for life," reflects the

deeply rooted belief that students should respect and obey their teachers. As a result, the Chinese education system has several distinct characteristics. On the one hand, the Confucian tradition creates a social context where teachers' authority is respected and rarely challenged. Teachers can discipline students strictly, and public support for teachers' rigorous control over students is higher in China than in most Western countries. For example, corporal punishment is widely accepted in China, and some commonly used sanctions such as forced standing and running are tolerated, or even legalized (Zuo, 2019). Therefore, teachers in China, to a large extent, may suppress students' delinquent behavior and negative peer influence.

On the other hand, the Confucian tradition perceives delinquency as moral deficiency (Cao & Cullen, 2001) and sees teachers as "moral guardians" who are responsible for preventing juvenile delinquency among their students (Zhao & Cao 2017). Beyond ensuring students' academic success, teachers in China have extensive responsibility in disciplining student behavior. In China, many teachers also bear administrative roles such as the chief of a class (responsible for 30–60 students' daily life, discipline, and academic performance), chief of a grade (usually composed of 5–20 or even more classes with 200–1,500 students), dean of students, dorm supervisor, and so on. They are responsible for students' appearance (e.g., clothing and hairstyle), attendance, and daily behaviors (e.g., use of mobile devices, chatting/eating food in class). Students' conformity with or rebellion against these rules is often part of teachers' performance evaluations. This adds to teachers' non-teaching responsibilities and motivates teachers to use strict discipline. Given these realities of Chinese education, the number of experienced, accredited, high-quality teachers may correlate with the likelihood of students' exposure to better supervision.

Teachers matter more in China, as students usually spent long hours at school. Based on the 2014 China Education Panel Survey, our descriptive statistics revealed that junior high school students spend an average of 10.95 hours per day at school. The long hours ensure students are under constant scrutiny and strict control. Considering these features of China's school systems, including the authoritarian teaching environment, teachers' multiple roles in both academic and behavioral guidance, and the long hours students spend at school, we anticipate school-level teacher quality plays a greater role in preventing juvenile delinquency and attenuating negative peer influence in China than in many other societies in the world.

Given the probable school-level teacher quality described above, for the purposes of our analysis, we generated a measure of school-level teacher quality, situating it in the context of China's education system, especially its personnel evaluation and ranking system. Teacher quality is a complex notion

and scholars have used accreditations, certificates, or degrees to measure it (Liao & Zhou, 2018). We used the measure of the proportion of accredited senior teachers in a school (Park & Hannum, 2001). China has a nationwide, longstanding, and well-established teacher evaluation system, which operates on a standardized set of evaluation criteria and categorizes primary and secondary school teachers into five professional ranks: Principal Senior Level (*Zheng Gao Ji*), Senior Level (*Gao Ji*), Level A (*Yi Ji*), Level B (*Er Ji*), and Level C (*San Ji*). Teacher evaluation takes place every year, and eligible teachers may submit their materials to be evaluated for promotion. According to Park and Hannum (2001), teachers holding a Level A or higher rankings are classified as *accredited senior teachers*, and their measurement is adopted by the present study. The *Educational Statistics Yearbook of China* (National Bureau of Statistics, 2019) shows that accredited senior teachers account for 60.47% of all teachers in China.

The professional ranking of primary and secondary school teachers in China serves as an ideal indicator of teacher quality, reflecting teachers' capability in supervising students, promoting normative behaviors, and preventing delinquent behaviors, for several reasons. First, these evaluation criteria are composed of a wide range of commonly used indicators of teacher quality, such as professional knowledge, teaching competence, and working experience. Teachers who have earned accolades in various levels of teacher competitions and possess extensive teaching experience are more likely to achieve promotion in their professional ranks. These traditional evaluation criteria largely reflect a teacher's ability to inspire and guide students.

Second and more importantly, the evaluation criteria of teachers in China place a special emphasis on the ethics and moral values. Official documents have stipulated that a teacher's ethics is the cornerstone and most important standard for professional rank assessment (Ministry of Education of the People's Republic of China, 2013, 2015). This echoes China's traditional social consensus that teachers serve as the "moral guardians" of their students. Through teacher self-assessment, student evaluation, and parental evaluation, teachers' ability to cultivate normative behavior in students is assessed from multiple dimensions and given the highest weight in the review. For instance, teachers are required to provide evidence of their role as moral models, their attentive care for disadvantaged and troubled students, and their contributions to improving student conduct when applying for promotion. With a limited number of promotions available each year, only those teachers who excel both in their teaching performance and moral character can advance within the hierarchical professional ranking system. Based on the evaluation criteria above, we expect that accredited senior teachers are more capable of guiding or supervising student behavior.

We believe that exploring the effect of school-level teacher quality can enrich our understanding of the collateral consequences of educational inequality on youth delinquency in China. Prior China-based research on youth delinquency has focused on comparisons of urban and rural youth, migrant and non-migrant students, and left-behind and non-left-behind children (Shen & Zhong, 2018). Rural youth, migrant students, and left-behind children are reported to have more delinquent behaviors. While these studies have identified huge differences in delinquent behavior across youth groups with distinct educational resources, their dichotomous approach fails to capture the continuum of unequal educational resource distribution in China, which varies across regions, urban and rural areas, different household registrations, and even across neighborhoods within the same city (Wu, 2011; Yang et al., 2014; T. H. Zhang et al., 2020). Instead, we suggest that the varying school-level teacher quality can serve as a continuous indicator of school quality beyond the urban-rural divide, with the potential to shed light on the adverse effects of the unequal distribution of educational resources in China.

Research Hypotheses

Based on the preceding discussion, we formulated the following research hypotheses:

H1: A higher proportion of accredited senior teachers at the school level will be associated with lower rates of adolescent delinquent behavior (the teacher quality thesis).
H2: Deviant peer affiliation will increase adolescent delinquent behavior, while having no deviant friends will decrease adolescent delinquent behavior (the peer influence thesis).
H3: The association between deviant peer affiliation and adolescent delinquent behavior will be weaker for adolescents who attend schools with more accredited senior teachers (the teacher moderation thesis).

Method

The CEPS Data (2013–2015)

Data for this study came from the CEPS, administered by the National Survey Research Center at the Renmin University of China. The CEPS is a nationally representative school-based survey that uses a multistage sampling method with probability proportional to size (PPS). Data collection for the survey began with 19,487 students from the seventh and ninth grades across

112 middle schools during the 2013 to 2014 academic year. We restricted our sample to the seventh graders ($N = 10,279$) in the first wave because only this group participated in both waves of the survey (retention rate = 91.9%), and only the second wave included our dependent variable—delinquent behavior. All our variables (deviant peer affiliation, school-level teacher quality, and student- and school-level control variables) came from the baseline survey of the CEPS, except for the dependent variable and parental marital status, which were first measured in the second wave of data. After performing a listwise deletion of cases with missing data on selected variables, we had a final sample of 8,210 students nested in 102 schools (valid response rate = 79.9%).

Variables

Delinquent Behavior. We measured delinquent behavior with eight items in the CEPS. Respondents were asked how frequently they engaged in each of the following delinquent activities over the previous year: cursing or saying swear words; quarreling with others; fighting with others; bullying the weak; skipping classes, being absent, or truanting; copying homework from others or cheating on exams; smoking or drinking alcohol; going to Internet bars or video arcades.[1] Response options ranged from 1 = *never* to 5 = *always*. Responses to the eight items were averaged to form a scale and obtain the score of delinquent behavior (Cronbach's alpha = .81; $M = 1.43$, $SD = 0.45$). As the distribution of delinquent behavior was skewed to the right, scores greater than three standard deviations were rounded down to the critical value ($M = 1.42$, $SD = 0.40$). To facilitate model result interpretation, the scores were transferred into a scale of 0 to 100 to obtain the final score of delinquent behavior ($M = 23.32$, $SD = 22.07$).

Deviant Peer Affiliation. The CEPS measured deviant peer affiliation with five items. Respondents were asked to rate how many of their best friends fitted each of the following descriptions: skipping class; being criticized or punished for violating school rules; constantly fighting with others; smoking or drinking alcohol; and constantly frequenting Internet bars or video arcades. Response options were: 1 = *none of them*; 2 = *one or two of them*; 3 = *most of them*. Responses to the five items were averaged to form a scale (Cronbach's alpha = 0.85). Respondents who reported having one or more friends exhibiting deviant behavior were coded as 1, and those without such friends were coded as 0.

School-Level Teacher Quality. We measured school-level teacher quality by the proportion of accredited senior teachers. School principals were asked to

report the number of teachers for each professional rank. As previously discussed, there are Principal Senior Level, Senior Level, Level A, Level B, and Level C. Teachers at Level A or higher are classified as *accredited senior teachers*. Five schools were excluded from the analysis due to missing information on teachers' ranking. Given potential self-reporting errors, we cross-checked the aggregate number of teachers of all professional levels with two other items in CEPS that also measured the total number of teachers. We discovered 24 inconsistencies, 4 of which were excluded due to an inconsistency rate of more than 20%. The remaining 20 schools had within-acceptable error margins. In other words, nine schools were excluded due to missing or highly inconsistent data on the teacher quality measure. Another school was excluded due to missing data on school-level control variables, leaving 102 schools in the final sample for analysis.

Control Variables. In reviewing the literature, we identified the association of various sociodemographic, family-related, and school-related factors with delinquent behavior. We therefore controlled for individual-level factors, including gender (1 = *female*; 0 = *male*), migration status (1 = *migrant*; 0 = *non-migrant*), parental marriage status (1 = *divorced*; 0 = *not divorced*), parent-child relationship (continuous variable ranging from 1 to 3), parental discipline (continuous variable ranging from 1 to 3), boarding at school (1 = *yes, 0 = no*), and attachment to school (continuous variable ranging from 1 to 4), as well as school-level factors, including school location (1 = *central urban area*; 0 = *others*) and neighborhood delinquency (1 = *always or often*; 0 = *seldom or no*).

The parent-child relationship was measured by the average of students' overall relationships with both mother and father (1 = *not close*; 2 = *not too near nor too far*; 3 = *very close*), with higher scores indicating closer parent-child relationships. Parental discipline was measured by students' indication of the degree of care and strictness of their parents for each of the following eight items: their homework and examinations; their behavior at school; school attendance; the time they got home every day; with whom they made friends; their dress style; the time they spent on the Internet; the time they spent watching television. Response options were: 1 = *they do not care*; 2 = *they do care about it but are not strict*; 3 = *they are very strict about it*. Responses to the eight items were averaged to form a scale, with higher scores indicating stricter parental discipline (Cronbach's alpha = 0.76). Attachment to school was measured by averaging responses to the following three items coded from 1 = *strongly disagree* to 4 = *strongly agree*: "I feel close to people in this school"; "I feel bored in this school" (reverse coded); "I hope that I could transfer to another school" (reverse coded). Higher scores indicated greater attachment to school.

For the school-level control variables, school location was measured by asking principals to select the category best describing the community where the school was located (1 = *center of the city/town*; 2 = *outskirts of the city/town*; 3 = *rural-urban fringe zone of the city/town*; 4 = *town outside of the city/town*; and 5 = *rural area*). Our previous review concluded that schools in central urban areas enjoy better educational resources than others; therefore, school location was coded as a dummy variable, with the first option coded as *central urban area* and the last three combined to form *others*. Neighborhood delinquency was assessed by asking principals whether juvenile delinquency happened in the community where the school was located. Response options were: 1 = *no*; 2 = *seldom*; 3 = *often*; and 4 = *always*. The first two and the last two options were combined separately to form a dummy variable of neighborhood delinquency.

Analytic Strategy and Robustness Check

Because of the nested nature of the data, that is, students within schools, we adopted multilevel modeling as the primary model approach. We fitted two-level HLMs with the R package "lme4" to examine the association between deviant peer affiliation, school-level teacher quality, and delinquent behavior. We established the following four models to test our hypotheses. First, we assessed the effect of deviant peer affiliation on delinquent behavior (Model 1; peer influence thesis) with random slopes and intercepts after adjusting for a set of sociodemographic (i.e., gender and migration status), family-related (i.e., parent marital status, parent-child relationship, and parental discipline), and school-related (i.e., boarding at school and attachment to school) covariates.

Second, we added school-level teacher quality (i.e., the proportion of accredited senior teachers) as a Level 2 predictor of delinquency (Model 2; teacher quality thesis). Third, building on Model 2, we added the cross-level interactions of deviant peer affiliation and school-level teacher quality to the random sample to test the moderating effect of school-level teacher quality (Model 3; teacher moderation thesis). Finally, since there might be unobserved school-level characteristics that could bias our estimate, we fitted a city-level fixed-effects-only model (Model 4), which contained the same predictors as the previous model and controlled for the unobserved features at the city level which may confound with other effects. To sum up, we had four models:

Model 1: Control variables + Deviant Peer Affiliation (for Hypothesis 1)

Model 2: Model 1 + School-Level Teacher Quality (for Hypothesis 2)

Model 3: Model 2 + Interaction Effect of Deviant Peer Affiliation and School-Level Teacher Quality (for Hypothesis 3)

Model 4: Model 3, with city fixed effects only.

We then fitted additional models as robustness checks. They were all adapted from Model 3 (the best-fitting model and the source of the final results). We started with Model 5, which was based on the pooled estimates of imputed sample ($N = 9{,}422$). We used the R package "Amelia" to complete the multiple imputations, which operates with Expectation-Maximization with Bootstrap (EMB) methods. We then fitted Model 6 with robust estimating method applied to hierarchical linear models. Next, we fitted Model 7 and Model 8 to examine the competing hypotheses of school location and neighborhood delinquency. The former may reflect the influences of the urban-rural divide and the economic context; the latter may reflect the effects of both school-level features and individuals' exposure to negative peer influences. Previous work has suggested both variables are potentially relevant (Shen & Zhong, 2018; Zimmerman & Messner, 2010). We hoped to rule out the possibility that they were the cause of the effect we are about to report. The robustness checks can be summarized as below:

Model 5: Model 3, on pooled estimates of multiply imputed sample (N = 9,422).

Model 6: Model 3, on the final sample, using robust estimating method.

Model 7: Model 3, with school location being controlled.

Model 8: Model 3, with neighborhood delinquency being controlled.

Results

Table 1 presents descriptive information for all student- and school-level variables. Our final sample consisted of 3,940 girls and 4,270 boys, ranging in age from 12 to 14 years. The majority were non-migrant students; only 18% were migrant students. In general, children had a close relationship with their parents ($M = 2.69$, $SD = 0.45$), and parents were strict with their children ($M = 2.37$, $SD = 0.39$). Seven percent of the sample had parents who were divorced. The sample was diverse in terms of boarding at school: 33% reported living on campus on weekdays and 67% reported not living on

Table 1. Descriptive Statistics.

Variables	Mean/Proportion	*SD*
Individual-level (*N* = 8,210)		
Female	0.48	0.50
Migrant	0.18	0.39
Divorced parents	0.07	0.26
Boarding at school	0.33	0.47
Deviant peer affiliation	0.20	0.40
Parent-child relationship (1–3)	2.69	0.45
Parental discipline (1–3)	2.37	0.39
Attachment to school (1–4)	3.33	0.64
Delinquent behavior (0–100)	23.32	22.07
School-level (*N* = 102)		
Located in central urban area	0.34	0.48
High neighborhood delinquency	0.20	0.40
Teacher quality (Accredited senior teachers)	0.64	0.22

campus. Their level of attachment to school was relatively high ($M = 3.33$, $SD = 0.64$). In the sample, 19.99% of participants reported having peers with delinquent behaviors, and the final score of delinquent behavior ranged from 0 to 100 ($M = 23.32$, $SD = 22.07$). Of the 102 schools in our final sample, 35 were in central urban areas, and 20 were in neighborhoods with high levels of delinquency. The proportion of accredited teachers in the schools ranged from 0.11 to 0.99 ($M = 0.64$, $SD = 0.22$). This confirms the previously described continuum of unequal distribution of educational resources in China.

We also conducted bivariate correlations between all continuous variables. Results showed students' delinquent behavior was negatively associated with the strictness of parental discipline ($r = -.11$, $p < .001$), their close relationship with parents ($r = -.14$, $p < .001$), and their attachment to school ($r = -.23$, $p < .001$). The proportion of accredited senior teachers was negatively related to youth delinquency ($r = -.15$, $p < .001$). All continuous variables correlated with the dependent variable in the expected direction. The absolute values of correlations between other continuous covariates were all below 0.40, indicating a low probability of multicollinearity.

A preliminary null model demonstrated significant variation in student delinquency across schools (school-level variance = 55.24), even though most variation was at the individual level (student-level variance = 436.23). Multilevel analysis was thus required, as single-level models assuming

regression coefficients apply equally to all contexts would result in biased estimates of the standard errors of the slopes. Based on these parameters, the calculation of the intraclass correlation coefficient (ICC) indicated that school-level variables accounted for 11.24% of the variance in student delinquency. This percentage is comparable to the typical proportion of variance in student outcomes attributed to schools, usually between 8% and 15% (Gottfredson, 2000). The finding suggests the importance of the effects of school-level factors on youth delinquency.

Table 2 includes estimates for Models 1 to 4. In Model 1, we tested the association between deviant peer affiliation and delinquent behavior after adjusting for a set of Level 1 sociodemographic, family-related, and school-related control variables (the peer influence thesis). Results showed deviant peer affiliation was positively and significantly associated with delinquent behavior ($\beta = 7.34$, $SE = 0.81$, $p < .001$; [95% CI] = [5.68, 8.94]). Thus, holding all student-level potential variables constant, compared to students who did not socialize with deviant peers, students who had such friends reported 7.34% more delinquent behavior.

Model 1 also showed that girls reported significantly less deviant behavior than boys ($\beta = -7.01$, $SE = 0.46$, $p < .001$; [95% CI] = [−7.91, −6.12]). Migrant students reported more deviant behavior than non-migrants at a marginal level of significance ($\beta = 1.21$, $SE = 0.63$, $p = .055$; [95% CI] = [−0.03, 2.45]). Students who lived on campus during the week tended to engage in more deviant behavior than those who did not live on campus ($\beta = 3.62$, $SE = 0.70$, $p < .001$; [95% CI] = [2.01, 5.02]). Students with divorced parents reported more deviant behaviors than those whose parents were still married ($\beta = 3.16$, $SE = 0.87$, $p < .001$; [95% CI] = [1.45, 4.87]). Last, students who affiliated with deviant peers reported more delinquency ($\beta = 7.34$, $SE = 0.81$, $p < .001$; [95% CI] = [5.68, 8.94]).

Adding the proportion of accredited senior teachers in Model 2, we examined the association between school-level teacher quality and youth delinquency (the teacher quality thesis). Results revealed that school-level teacher quality, measured by the proportion of accredited senior teachers, was negatively and significantly related to youth delinquency ($\beta = -7.22$, $SE = 2.28$, $p < .01$; [95% CI] = [−11.98, −2.48]). In other words, a 0.2 increase in the proportion of accredited senior teachers resulted in a 1.44-point decrease in the 100-point delinquent behavior. This influence was notable because the interquartile range of student delinquency was 6.98 to 34.88 despite its 100-point scale. Introducing teacher quality did not alter the association between peers and delinquency. Deviant peer affiliation continued to be a significant predictor of youth delinquency ($\beta = 7.40$, $SE = 0.81$, $p < .001$; [95% CI] = [5.74, 9.00]). These results support the peer influence thesis and the teacher quality thesis.

Table 2. Regression Models of School and Peer Influences on Youth Delinquency.

	Model 1	Model 2	Model 3	Model 4
	Peer effect	Teacher effect	Interaction effect	Fixed effects model
(Intercept)	52.85*** (2.11)	57.53*** (2.56)	57.46*** (2.56)	53.39*** (2.69)
Student-level variables				
Gender (Female = 1)	−7.01*** (0.46)	−7.00*** (0.46)	−7.00*** (0.46)	−6.95*** (0.46)
Migrant status (Migrant = 1)	1.21 (0.63)	1.16 (0.63)	1.16 (0.63)	2.20*** (0.62)
Parent-child relationship (1–3)	−3.59*** (0.52)	−3.58*** (0.52)	−3.59*** (0.52)	−3.67*** (0.53)
Parental discipline (1–3)	−2.46*** (0.59)	−2.45*** (0.59)	−2.44*** (0.59)	−2.60*** (0.59)
Parent marital status (Divorced = 1)	3.16*** (0.87)	3.14*** (0.87)	3.15*** (0.87)	2.97*** (0.88)
Boarding at school (Yes = 1)	3.62*** (0.70)	3.33*** (0.71)	3.33*** (0.71)	2.31*** (0.69)
Attachment to school (1–4)	−4.23*** (0.37)	−4.22*** (0.37)	−4.21*** (0.37)	−4.35*** (0.38)
Deviant peer affiliation (Having such friend(s) = 1)	7.34*** (0.81)	7.40*** (0.81)	14.76*** (2.25)	15.64*** (1.68)
School-level variable				
Teacher quality (Proportion of accredited senior teachers)		−7.22** (2.28)	−7.23** (2.28)	−4.98** (1.72)
Cross-level interactions				
Deviant peer affiliation × Teacher quality			−11.57*** (3.36)	−11.22*** (2.51)
AIC	72,493.92	72,487.20	72,477.92	
BIC	72,585.09	72,585.39	72,583.12	
Log likelihood	−36,233.96	−36,229.60	−36,223.96	
Number of observations	8,210	8,210	8,210	8,210
Number of groups	102	102	102	
School-level variance (Intercept)	18.45	16.16	16.19	
Residual variance	388.32	388.31	388.27	
R^2, marginal (fixed effects only)	0.11	0.12	0.13	0.18
R^2, conditional (entire model)	0.17	0.18	0.18	0.17

Note. In Model 4, city fixed effects are controlled but not displayed.
***$p < .001$. **$p < .01$. *$p < .05$

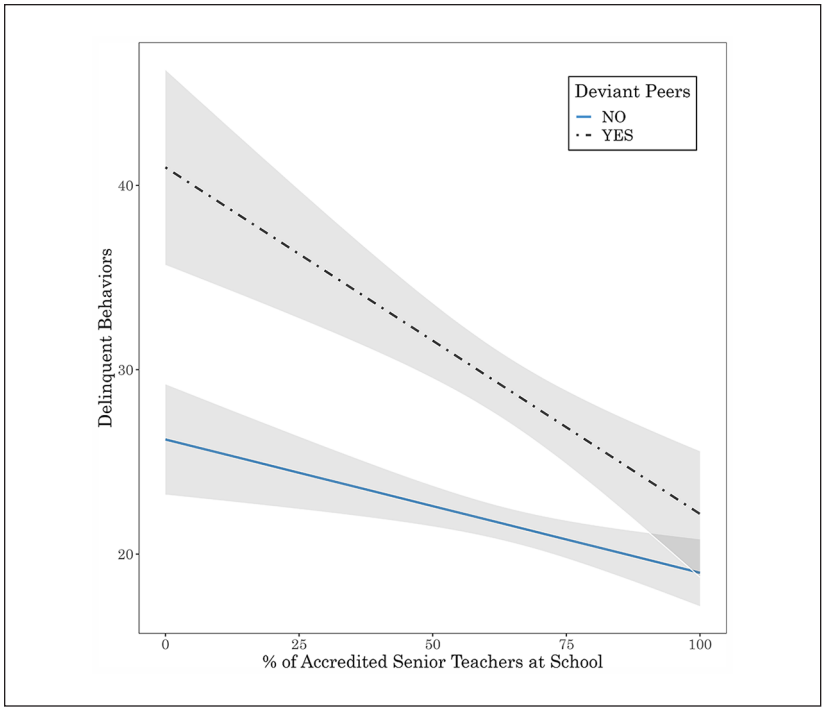

Figure 1. Interaction effect of school quality and deviant peer affiliation on student delinquency (based on Model 3).

Moving to the teacher moderation thesis, the results of Model 3 revealed a significant cross-level interaction effect of deviant peer affiliation and school-level teacher quality ($\beta = -11.57$, $SE = 3.36$, $p < .001$; [95% CI] = [−18.25, −4.94]). This result suggests the moderating role of school-level teacher quality on the relationship between deviant peer affiliation and personal delinquent behavior. Specifically, students who socialized with deviant peers had lower frequencies of engaging in delinquent behavior if they attended schools with more accredited senior teachers. When students attended schools with more than 90% accredited senior teachers, delinquent behavior among students with deviant peers decreased and now overlapped with delinquent behavior among those who did not affiliate with deviant peers (see Figure 1). Out of the 102 schools, only 10 had more than 90% accredited senior teachers; therefore, the school-level quality of teachers in combating peer influence on adolescent delinquent behavior cannot be overemphasized.

To capture unobserved heterogeneity across schools that could be correlated with independent variables and bias the results, we used a fixed effects model (Model 4) to help isolate the effects of our variables of interest. After controlling for city fixed effects, the main effect of deviant peer affiliation remained significant ($\beta = 15.65$, $SE = 1.768$ $p < .001$). While the effect magnitude of school-level teacher quality slightly declines ($\beta = -4.98$, $SE = 1.72$, $p < .01$) from previous models, the interaction effect between deviant peer affiliation and school-level teacher quality remained significant ($\beta = -11.22$, $SE = 2.51$, $p < .001$). Therefore, our main findings remained unchanged, and the association between deviant peer affiliation and youth delinquency still depended on school-level teacher quality.

From Model 1 to Model 4, almost all student-level covariates showed a significant association with youth delinquency and the findings are consistent. Being female, enjoying a good relationship with parents and parental controls, and having a high attachment to schools all discourage deviance; students with divorced parents and students in boarding schools show more deviant behaviors. One noteworthy change is found in the variable of migration status. We found an insignificant relationship between migration status and delinquent behavior in Model 1 to 3, but the relationship reached statistical significance in Model 4 ($\beta = 2.20$, $SE = 0.62$, $p < .001$). This change indicates that in China, the impact of migration status is mediated by the city-level effects. This is due to the fact that most migrant workers are disproportionately concentrated in bigger cities; their relative disadvantages of being migrants are compensated by the better education resources in bigger cities.

In our next step, we fitted four additional models to check the robustness of our findings, as shown in Table 3. In Model 5, we used multiple imputation (20 imputations) to impute missing data at the individual level. Pooled estimates showed that the main findings remained unchanged. Deviant peer affiliation and school-level teacher quality were still significant predictors of youth delinquency (deviant peer affiliation: $\beta = 12.42$, $SE = 2.10$, $p < .001$; [95% CI] = [8.31, 16.54]; school-level teacher quality: $\beta = -4.63$, $SE = 2.18$, $p < .05$; [95% CI] = [−8.92, −0.35]), as was the interaction effect of deviant peer affiliation and school-level teacher quality ($\beta = -7.67$, $SE = 3.12$, $p < .05$; [95% CI] = [−13.79, −1.56]). In Model 6, we implemented the Robust Scoring Equations estimator for linear mixed effect models in Model 3. Once again, the three main findings remained unchanged.

We used Models 7 and 8, both based on Model 3, to examine the competing hypotheses on the effects of school location and neighborhood delinquency. School location was added to Model 7. Unobserved characteristics of school location, especially those related to the urban-rural divide, could influence youth delinquency (Shen & Zhong, 2018). We attempted to

Table 3. Additional Regression Models for Robustness and Competing Hypotheses Testing.

	Model 5	Model 6	Model 7	Model 8
	Multiply imputed sample	Robust estimation model	School location controlled	Neighborhood delinquency controlled
(Intercept)	54.98*** (2.40)	50.96*** (2.29)	58.00*** (2.55)	57.31*** (2.55)
Student-level variables				
Gender (Female = 1)	−7.05*** (0.43)	−5.63*** (0.39)	−7.01*** (0.46)	−7.00*** (0.46)
Migrant status (Migrant = 1)	0.93 (0.60)	1.39* (0.54)	1.19 (0.63)	1.13 (0.63)
Parent-child relationship (1–3)	−3.18*** (0.49)	−3.19*** (0.45)	−3.61*** (0.52)	−3.58*** (0.52)
Parental discipline (1–3)	−2.41*** (0.55)	−2.04*** (0.50)	−2.43*** (0.59)	−2.42*** (0.59)
Parent marital status (Divorced = 1)	3.74*** (0.82)	2.66*** (0.74)	3.18*** (0.87)	3.17*** (0.87)
Boarding at school (Yes = 1)	3.39*** (0.68)	2.86*** (0.62)	2.96*** (0.72)	3.31** (0.71)
Attachment to school (1–4)	−4.36*** (0.35)	−3.58*** (0.32)	−4.20*** (0.37)	−4.20*** (0.37)
Deviant peer affiliation (Having such friend(s) = 1)	12.42*** (2.10)	14.97*** (2.00)	14.83*** (2.25)	14.82*** (2.25)
School-level variable				
Teacher quality (Proportion of accredited senior teachers)	−4.63* (2.18)	−7.68*** (2.19)	−6.51** (2.24)	−7.67*** (2.27)
School location (Central urban area = 1)			−2.48* (1.01)	
Neighborhood delinquency (Always or often = 1)				1.92 (1.19)

(continued)

Table 3. (continued)

	Model 5	Model 6	Model 7	Model 8
	Multiply imputed sample	Robust estimation model	School location controlled	Neighborhood delinquency controlled
Cross-level interactions				
Deviant peer affiliation × Teacher quality	−7.67* (3.12)	−12.89*** (2.98)	−11.68*** (3.35)	−11.64*** (3.36)
AIC	83,271.88	*NA*	72,474.01	72,477.42
BIC	83,379.15	*NA*	72,586.22	72,589.63
Log likelihood	−4,1620.94	*NA*	−36,221.00	−36,222.71
Number of observations	9,422	8,210	8,210	8,210
Number of groups	112	102	102	102
School-level variance (Intercept)	16.05	16.10	15.05	15.55
Residual variance	392.66	268.73	388.24	388.29
R^2, marginal (fixed effects only)	0.12	0.15	0.14	0.14
R^2, conditional (entire model)	0.17	0.21	0.18	0.18

Note. For robust estimating methods, the model information statistics are not comparable and therefore not displayed.
***$p < .001$. **$p < .01$. *$p < .05$.

eliminate the possibility that school location was the cause of our reported effect. Results of Model 7 showed students who attended schools in the central urban area reported significantly less deviant behavior than students elsewhere ($\beta = -2.48$, $SE = 1.01$, $p < .05$; [95% CI] = [−4.48, −0.49]). This result echoes the social reality that education resources in Chinese society are tilted toward the central urban area and suggests the influence of location on the divergence in students' deviant behaviors. Nevertheless, our main findings remained the same. Excellent school-level teacher quality still deterred youth delinquency and could moderate the relationship between deviant peer affiliation and personal delinquent behavior. This result caught our attention; to be precise, when certain schools accumulate not only economic and social resources but also good teachers, others are deprived, and this comes at a cost: their students are likely to exhibit more deviant behaviors.

Neighborhood delinquency was added to Model 8. The level of juvenile delinquency in the neighborhood could have an influence on both the school-level characteristics and the exposure of individual students to adverse peer influences (Zimmerman & Messner, 2010). Thus, the exclusion of neighborhood delinquency might bias the results. Results of Model 8 demonstrated students whose schools were in neighborhoods with higher levels of delinquency did not report significantly more delinquency than those whose schools were in neighborhoods with little delinquency ($\beta = 1.92$, $SE = 1.19$, $p = 0.11$; [95% CI] = [−0.47, 4.30]). The result is not surprising because K-12 schools in China are isolated from their surrounding neighborhoods because of concerns about security and discipline. Students are seldom allowed to leave campus during school hours. The strict control and closed environment could partially explain why neighborhood-level delinquency did not show a significant association with youth delinquency.

Our findings on deviant peer affiliation and school-level teacher quality remained stable after controlling for neighborhood delinquency in Model 8. In other words, the teacher quality thesis cannot be explained away by "locating in a rich neighborhood" or other alternative explanations. In sum, Models 5 to 8 added to our confidence in our reported pattern of an interaction effect between teacher quality and peer influence on youth delinquency.

Discussions and Conclusion

In response to calls for a better understanding of how peers and schools influence youth delinquency (Hirschfield, 2018; McGloin & Thomas, 2019), we turn to the context of contemporary China, where schools and educators are known to have a strong influence over the younger generation. Drawing from ideas of the social control theory and adopting an ecological perspective, our

results yield supportive evidence for three key hypotheses: the teacher quality thesis, the peer influence thesis, and the teacher moderation thesis. First, we found that higher teacher quality at the school level was associated with a reduction in delinquent behavior among middle school students in China. Second, we found youth delinquency was associated with deviant peer affiliation, a finding consistent with previous work in psychology and criminology (Dishion & Tipsord, 2011; McGloin & Thomas, 2019). Third, high-quality school personnel can effectively offset this negative peer influence.

In offering these findings, we contribute to the existing body of literature concerning social control within educational settings. While prior studies in this field have extensively explored how social control factors such as attachment, involvement, belief, and commitment related to school affect youth delinquency (e.g., Booth et al., 2008), there has been a dearth of attention directed toward the quality of educators themselves—the individuals responsible for exercising social control within schools. Using the proportion of accredited senior teachers as an indicator of school-level teacher quality, which largely reflects the collective capacity of educators to guide student behavior, our study provides support for the role of high teacher quality in steering students away from juvenile delinquency, despite exposure to deviant peers. In addition, by taking an ecological perspective, our study extends beyond the previous scholarly focus on individual subjective feelings of the school environment (e.g., Schriber et al., 2018; Wang et al., 2017), and emphasizes the role of school personnel quality in shaping youth delinquency. Therefore, the present paper follows a rising trend of integrated multilevel analysis in criminological research. Our paper also echoes a long tradition in criminological theories, such as Agnew's general theory of crime and delinquency (Agnew, 2005; Y. Zhang et al., 2012), which also emphasizes the interplay between positive and negative exposures, and the social environment.

Our work carries several significant implications for policy intervention. First, this paper calls for policymakers' attention to the critical role of quality education and its equal accessibility to the youth, especially the vulnerable ones. In China, education system is a critical channel for elite selection and class reproduction (T. H. Zhang, 2019; Zhou et al., 2016), and the system itself has become more unequal: our descriptive statistics have shown a disproportionate concentration of accredited senior teachers in elite schools, which are often located in the developed cities such as Beijing and Shanghai. Given that high-quality teachers not only enhance student academic achievements (Darling-Hammond, 2000) but also reduce delinquency, the concentration of education resources will widen the academic and behavioral gaps across students and stifle social mobility in the long run. China is witnessing

an increasing overlap of elite students, high-quality teachers and schools, and rich neighborhoods; it is time to consider policy measures to prevent further exacerbation of social inequality.

Two ways to ameliorate this situation merit consideration, namely increasing teacher mobility across schools, and improving the overall teacher quality—especially in the rural areas and less developed neighborhoods. Promoting teacher mobility requires policies that encourage teachers to move between schools. While initial steps have been taken in China in this direction[2], there remains a lack of willingness for senior teachers to participate; more effective incentives are thus necessary. In addition, the potential social costs associated with large-scale teacher mobility, including its impact on teaching quality and student behaviors, require careful evaluation. In the long term, improving overall teacher quality emerges as a fundamental approach. Specific policies should be targeted at schools with relatively low teacher quality, offering them more support to form a high-quality teacher team. More investigation into strategies for enhancing teacher quality and ensuring an equitable allocation of high-quality educational resources is certainly warranted.

While prior studies have advocated for specific school intervention programs targeted at reducing delinquent behavior (Gottfredson, 2000), this study suggests that broader measures, such as improving teacher quality in schools, have the potential to curb deviant behavior as well. Second, considering the continuing impact of peer delinquency regardless of teacher quality, it remains necessary for delinquency prevention and intervention programs to persist in their emphasis on altering peer norms and promoting prosocial peer connections.

Despite the theoretical and practical contributions, we note a few limitations remain and suggest a research agenda for future improvements. First, as the outcome variable is only measured once (in the second wave of the panel data), longitudinal analysis for causal identification was not an option. While we have uncovered evidence of an association between deviant peer affiliation, teacher quality, and delinquent behavior, we cannot be certain of a causal mechanism. That being said, a recent comprehensive review in criminology by McGloin and Thomas (2019) has endorsed the causal relationship between peer associations and delinquency, which partially alleviates this concern. Second, our reliance on self-reported measures of individual delinquency and peer delinquency may introduce interpersonal bias—respondents may have different perceptions of what qualifies as "delinquency," or "delinquent peers." For example, students from elite schools may consider minor misconducts as "severe" violations, while students in worse situations may

see some delinquent behaviors as "alright." We acknowledge this as a methodological challenge but not an empirical one; even if such bias exists, it will not hurt our conclusion. It only means the disadvantages and struggles faced by the vulnerable students are substantial in reality, if not underestimated by the current study.

Third, since the dataset does not provide measures on the nature and types of peer connections (such as in-school versus out-of-school contact, or in-person versus online interactions), we could not identify how the types of connections matter. Future research may improve on the current study by distinguishing and comparing the various kinds of peer networks and examine behavioral embeddedness in meso and micro contexts (e.g., cities, neighborhoods, and schools). Lastly, our results are based on evidence from contemporary China where teachers are effective agents of social control. Notably, the Confucian cultural tradition and the political regime in China both encourage youth to be obedient and submissive to authorities (Ma, 2021; T. H. Zhang 2018). We need to be cautious when generalizing the findings to other social contexts. In societies where the cultural norms, teaching atmospheres, and administrative systems vary from China, teachers may play a different role in shielding students from the adverse impacts. We invite future research to adopt a comparative perspective to reveal how schools and teachers perform differently across various cultural traditions, socio-economic development stages, and political institutions.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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Ethical Approval

Not applicable; the present study only conducts statistical analysis on anonymous survey data and no human subjects were involved or harmed in any forms.

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Notes

1. The delinquency scale, developed by the CEPS, includes common behaviors that are regarded as delinquent in China.
2. *The Outline of the National Plan for Medium- and Long-term Education Reform and Development* (2010–2020) states unequivocally that "a system of teacher-to-teacher and principal-to-principal exchange within counties or districts shall be implemented."

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