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Authoritarian Parenting and Asian Adolescent School Performance: Insights from the US and Taiwan

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Abstract

Our study re-examines the relationship between parenting and school performance among Asian students. We use two sources of data: wave I of the Adolescent Health Longitudinal Survey (Add Health), and waves I and II of the Taiwan Educational Panel Survey (TEPS). Analysis using Add Health reveals that the Asian-American/European-American difference in the parenting–school performance relationship is due largely to differential sample sizes. When we select a random sample of European-American students comparable to the sample size of Asian-American students, authoritarian parenting also shows no effect for European-American students. Furthermore, analysis of TEPS shows that authoritarian parenting is negatively associated with children's school achievement, while authoritative parenting is positively associated. This result for Taiwanese Chinese students is similar to previous results for European-American students in the US.

Keywords

authoritarian control; cross-culture; parenting style; school performance

Over the past three decades, Diane Baumrind's theory of socialization (Baumrind, 1971, 1989, 1991a, 1991b) has inspired much research that finds parenting styles to be consequential to children's academic and other outcomes. However, although there is a consensus over the importance of parenting styles in children's education, many debate the question of cultural variations, that is, whether and how the parenting– student achievement relationship varies in different cultural contexts.

This debate began with a paradox: in the United States, Asian-American students achieve extraordinary well in school, but the parenting style adopted by most Asian-American parents is the type of parenting that has been found to be harmful to children's development

(Chao, 1994). This paradox led to the growth of two camps. One considers Baumrind's theory as ethnocentric and rejects its application to ethnic, cultural, or national groups other than the European-American White population (hereafter referred to as "European-American"), whereas the other accepts the theory as a general one that can be applied across different cultural or national settings (for a review, see Sorkhabi, 2005). Our study here adds to this debate. Using data from the US and Taiwan, we first compare European-American and Asian-American students in the US and then examine Chinese students in Taiwan to further inform findings on the relationship between parenting style and educational outcomes among Asian-American students.

Conceptualization of parenting styles

Social psychologist Diane Baumrind first conceptualized three types of parenting styles: (1) permissive parenting; (2) authoritarian parenting; and (3) authoritative parenting (Baumrind, 1971, 1989, 1991a, 1991b). Maccoby and Martin (1983) later categorized Baumrind's parenting styles according to two dimensions of parenting: demandingness and responsiveness resulting in an additional parenting type: neglectful parenting.

Demandingness refers to the standards and demands set by parents for their children (e.g., control, supervision), and responsiveness refers to parents' response to and communications with their children (warmth, acceptance, involvement). Thus, neglectful parents are low on both demandingness and responsiveness and are unengaged in their children's activities. Parents who are permissive are very accepting of their children, making few demands for mature behavior and allowing their children substantial self-regulation. By contrast, authoritarian parents are high on demandingness and low on responsiveness. Between these extremes are authoritative parents, who are high on both demandingness and responsiveness. Parents who are authoritative set clear standards for mature behavior while simultaneously encouraging autonomy in their children.

This typology of parenting styles is important because it is systematically associated with children's developmental outcomes. In general, children raised by authoritative parents exhibit higher psychosocial competence, social development, self-perception, and mental health compared to their counterparts raised in permissive and authoritarian homes (Maccoby and Martin, 1983; Lamborn, Monuts, Steinberg, & Dorn-busch, 1991; Steinberg, Monuts, Lamborn, & Dornbrush, 1991). In terms of educational outcomes, authoritative parenting is positively associated with school grades and school engagement, whereas the association for authoritarian or permissive parenting is negative (Dornbusch, Ritter, Leiderman, Roberts, & Fraleigh, 1987; Lamborn et al., 1991; Steinberg, Lamborn, Dornbrush, & Darling, 1992; Steinberg, Lamborn, Darling, & Monuts, 1994).

As in most previous studies on the relationship between parenting and children's schooling, we focus on adolescents. Certainly, it is possible that parents help their children at younger ages to develop their learning skills and study habits, which enable children to succeed academically subsequently as adolescents. Thus adolescents' outcomes may well be a result of early parenting. However, despite this possibility, a review of literature based on a quarter century of research showed that parenting during adolescence is related to many adolescents' outcomes, including ego development, psychosocial competence, psychological

adjustment, emotional autonomy, and academic achievement (Steinberg & Silk, 2002). Parental influence on older children may be qualitatively different from that on younger children, but there is no reason to believe that parents matter less to adolescents than they do to younger children.

Variation and impact of parenting styles across cultures

Within the United States, parenting styles have been shown to differ substantially by cultural groups as measured by their race/ethnicity. Asian-American and Hispanic families were more authoritarian and less authoritative than were European-American families (Dornbusch et al., 1987; Steinberg, Dornbusch, & Brown, 1992). Several studies reported differences in parenting styles by immigrant status. Chao (2001) reported that foreign-born Chinese adolescents and native-born adolescents with Chinese parents were significantly more likely to rate their parents as authoritarian compared with European-American adolescents. Similarly, Kao (2004) found Asian immigrant parents to be reluctant to share decision-making with their children. Confirming earlier studies, Pong, Hao, and Gardner (2005) used more recent data to show that Asian-American parents were indeed more likely than native European-American parents to manifest authoritarian decision-making. At the same time, because Asian-American parents were also less likely to be permissive or neglectful, a large percentage of them were engaged in joint decision-making with their children – percentages that were similar to those found among native European-American parents.

Cultural differences in the prevalence of certain parenting styles may not correspond to cultural differences in child outcomes. In fact, one major puzzle in the research on parenting styles is the seemingly contradictory academic success of Asian-American adolescents whose parents tend to be authoritarian. Previous research finds that the negative relationship between authoritarian parenting and school performance is shown among European-American adolescents but not among Asian-American adolescents. Authoritarian parenting has no significant impact on Asian-American adolescents' grades (Dornbusch et al., 1987; Steinberg et al., 1992). Also, a study on Chinese immigrants in the US reports a lack of academic benefits from authoritative parenting to children of Chinese immigrants. Unlike native European-American students, foreign-born Chinese adolescents with authoritative parents are not better off in school than their Chinese peers with authoritarian parents (Chao, 2001).

Outside of the US, the bulk of research on the relationship between parenting styles and children's schooling uses samples of Chinese students. A study comparing native adolescents in Hong Kong and adolescents in the US found that Chinese parents in Hong Kong exhibited higher general authoritarianism and lower authoritativeness than their counterparts in the US (Leung, Lau, & Lam, 1998). Furthermore, authoritativeness was found to be unrelated to the school performance of Chinese students while, contrary to the expected trend, general authoritarianism was positively related to performance. However, one should note that, in this particular study, the samples in each society were drawn from only one high school. Another Hong Kong study that samples over 900 Chinese students from a number of schools finds little association between parenting styles and students' academic achievement, but Chinese parents from academically competitive schools are more

likely to rate themselves as more authoritative and less authoritarian than are Chinese parents from academically less competitive schools (McBride-Chang & Chang, 1998). These results further deepen the questions surrounding the impact of authoritarian parenting and Chinese students' school success.

Applicability of Baumrind's parenting typology to Chinese cultures

The puzzle has resulted in disagreement regarding whether Baumrind's parenting typology is applicable across cultures, and in particular, across cultures that are collectivist in nature, such as the Chinese culture (for a detailed review of this debate, see Sorkhabi, 2005). Chao (1994, 2000, 2001) contends that Chinese parenting is better characterized by the Chinese construct of *guan* (i.e., "training") which involves a high degree of parental guidance and monitoring of behaviors. These aspects of training are consistent with some of the elements of authoritarianism, such as obedience, directiveness, and a set standard of conduct. However, authoritarianism does not fully encapsulate the features of the Chinese parenting style and is insufficient in characterizing its positive impact on achievement. This result and other results lead Chao (1994) to claim that the parenting styles defined by Baumrind are ethnocentric. Subsequently, Chao and Sue (1996) recommend abandoning the use of parenting style in predicting Chinese students' achievement.

McBride-Chang and Chang (1998), however, regarded such recommendations as premature. They raise questions with regards to Chao's theoretical premise that "training" is associated with positive outcomes and that authoritarian parenting therefore does not result in negative outcomes for Chinese students. Using Chao's (1994) measure of *guan*, they found no relation to the achievement of students in Hong Kong. Instead, the high-achieving Hong Kong students were more likely to rate their parents as authoritative rather than authoritarian. Students and parents differ in their response on parenting style too. Students were more likely to rate their parents as more authoritative and permissive than their parents rated themselves. One explanation of this finding is that Hong Kong adolescents viewed their parents as relatively warm compared to parents who focused more on the disciplinary aspects of parenting when self-reporting. Thus, if we base our understanding of *guan* on student responses, which appear to be composed of more warmth than strictness, there may in fact be no contradictory findings between European and Chinese-Americans' authoritarian and authoritative parenting styles.

Several other studies, also based on samples of Chinese students, maintain that Baumrind's typology is indeed relevant for Chinese societies. In a study of children and mothers in Beijing and Shanghai, evidence supported the internal coherence of authoritative and authoritarian parenting patterns, and therefore Chinese parents can in fact be characterized along these distinctive terms (Chen et al., 2000). Chen and his colleagues (Chen, Dong, & Zhou, 1997; Chen, Rubin, Li, & Li, 1999) also found that in Beijing and Shanghai, authoritarianism was associated with lower student competence and school achievement, while authoritativeness was positively associated with school success. These findings regarding the impact of Baumrind's parenting styles are similar to findings found among European-American students in the US.

These similarities to findings among US European-American students may be explained by the significant overlap between “training” and parental warmth characteristic of authoritative parenting found by Stewart and her colleagues (1998) in Hong Kong and Pakistan. Further studies have found that “training” was more consistent with the authoritative parenting style than the authoritarian parenting style (Stewart et al., 1999; Stewart, Bond, Kennard, Ho, & Zaman, 2002; Supple, Peterson, & Bush, 2004). This further opens up the debate on whether there is cultural variation in the distribution and impact of parenting styles on academic outcomes.

The present study

This study revisits this debate and attempts to replicate past research on the impact of the authoritarian parenting style among Asians in two settings: Asian-American students in the US and Chinese students in Taiwan. In particular, we add to the existing discussion by examining the relevance of sample size in interpreting outcome results.

Methods

Samples

We use two sources of data: the National Longitudinal Study of Adolescent Health (Add Health; see Harris et al., 2003, for a detailed description of the study), and the Taiwan Educational Panel Survey (TEPS) (see Chang, 2003). These two sets of data together allow us to test if there are cultural differences within a society, as well as cultural differences between two societies.

National Longitudinal Study of Adolescent Health (Add Health) Survey—The Add Health Survey is a nationally representative study of youth in grades 7–12 in the United States. The study over-sampled Chinese-American students. The first wave was completed in 1995 with a sample of over 20,000 adolescent students. Add Health collected detailed data on the target adolescent's family situation and parent–child relationships. The analyses reported in this article make use of the 1995 data from the first wave survey: the in-school survey,¹ in-home adolescent survey, and in-home parent survey.²

Our sample size is restricted to in-home adolescent respondents who have valid identification, sample weights, and region variables that are related to the sampling design of Add Health. We further select only European-American and Asian-American students for our comparison. Subsequent deletion in our statistical analysis is due to missing values in the dependent variables of grade point average (GPA). We also dropped one case with missing gender. Missing household income (27%) was imputed as the predicted value from regressing observed household income on both parents' and adolescents' characteristics, including parental education, work status, public-assistance payments, as well as the child's

¹In-school wave I, data were collected from September 1994 to April 1995 in one 45–60 minute session (one class period). Of the students present the day of the survey, 80% completed the questionnaire.

²The in-home adolescent survey and the parent interviews were conducted between May of 1995 and December of 1995. The in-home survey sample was randomly selected from school rosters which include students not in the in-school survey. These in-home respondents completed a survey for a 90-minute interview. The in-home sample also had an 80% response rate (20,748 responses). Parental interviews were conducted for roughly 85% of those adolescents who completed the in-home survey (17,670 responses).

reported race/ethnicity, number of siblings, family structure, urbanicity, and region. A dummy variable was included in regression analysis to indicate these imputed values. For all dichotomous or ordinal variables, dummy variables were included in the multivariate analysis to represent their missing values. Our working sample size includes 10,668 adolescents.

Taiwan Educational Panel Survey (TEPS)—Our second database, the Taiwan Educational Panel Survey (TEPS), was conducted under the auspices of Academia Sinica in Taiwan, the Ministry of Education, and Taiwan's National Science Council. Fielded in 2001, the first wave of the survey was a clustered multistage stratified probability sample of two populations: 7th and 11th graders. The second wave of the survey was conducted in 2003. In addition to a student questionnaire, TEPS has questionnaires for the parents and it administered independent cognitive ability tests in each wave. In the wave-I study, 13,042 7th graders took the cognitive ability tests. A very high percentage – 98% of these students (12,840) – took the achievement tests again two years later in wave II. For more details of the survey design of TEPS, see Chang (2003).

We extracted information from both waves to create two different measures of parenting styles. Because the two variables are not comparable, we treated the two waves of data as two cross-sectional databases even though they are longitudinal.

Both wave I and wave II samples were restricted to the Chinese ethnicity to avoid potential difference in parenting styles in the aborigines' family. There are three groups of Chinese: Minnan, Hakka, and the mainlanders. The Minnan and Hakka people were early immigrants from Fujian Province in China, and the Mainlanders immigrated to Taiwan later after the Communists took power in China in 1949.

Missing data are quite minor in TEPS. Missing parenting-style measures only amount to 4%. We created dummy variables to represent missing values, but listwise deletion is used for continuous or interval variables. After deleting missing cases, we have 12,429 seventh graders in 2001 and 12,211 ninth graders in 2003.

Missing parental data

Although there is little missing parental data in TEPS, this is not the case in Add Health. About 15% of the American adolescents' parents did not fill out a parent questionnaire. This affects our parenting style measures because they are based on both adolescents' and their parents' information. One strategy would be to remove all cases without a parent survey, but we decided against this strategy for three reasons. First, not removing these cases allows us to use information from the adolescents to shed light on the missing parenting data and how they might affect our results. Second, parent surveys are not missing at random, and deleting these cases will bias our estimates. In fact, missing parent information is unequally distributed by grade level and by race/ethnicity. In our working sample, parent questionnaires are missing for about 10% of middle school students in 7th or 8th grade, for 13% of junior high school students (9–10th grade) and for 22% of senior high school students (11–12th grade). Also, whereas 11% of the parents of European-American students did not fill out a questionnaire, about 37% of the parents of Asian-American students did not

do so. Too many cases in the Asian-American sample or in the 11th or 12th grade sample would be discarded if we removed adolescents without a parent questionnaire.

Thus, we decided to retain cases in the American sample even when parental data were missing, and used the dummy variable method to treat missing parental data. This method ensures that, in our multivariate analysis, the comparisons between categories of parenting styles are essentially the same. That is, each parenting style, including the missing parenting style, is compared to a reference group. The relationships between parenting styles and adolescents' school performance were not affected by the missing parental data.

Measures

GPA—To revisit past US research on the effects of parenting styles on children's education, we examine self-reported grade-point-average (GPA) in Add Health. GPA is the arithmetic mean of the self-reported grades in mathematics, science, and English. The grade for each subject is measured on a 4-point scale with A = 4, B = 3, C = 2, and D/F = 1. Our measure of GPA is self-reported and is inevitably subject to reporting bias. A recent study suggests that over-reporting is more frequently found among students with lower actual grades than those with higher actual grades (Kuncel, Crede, & Thomas, 2005). Thus, our results likely produce upward bias estimates for the low-performing groups. However, a previous study using self-reported grades from Add Health finds that the relative ranking of racial/ethnic groups on these grades closely resembles the relative ranking of the same groups on other measures of achievement, including national reading tests, the Scholastic Assessment Test (SAT), and ACT (Bankston & Zhou, 2002). This reassures our use of Add Health grades in this study.

As GPA is not available in TEPS, we use another reliable indicator of student learning, student's cognitive ability score, which is a combined test score from four domains: math, language, science, and problem solving/logical reasoning. All four tests, except that of problem solving/logical reasoning, are curriculum-based. These combined scores are constructed based on Item Response Theory (IRT) and are standardized with a mean of 0 and a standard deviation equal to 1 in the original sample.

Parenting styles—Lamborn and his colleagues (Lamborn, Dornbusch, & Steinberg, 1996) found that the way parents exercise their decision-making power is a good proxy of the types of parenting styles defined by Diane Baumrind. In Add Health, decision-making is reported by both the parent and the adolescent. Parents were given a scale from 1 to 5 to indicate how often they make decisions with the child, while the adolescents were asked whether or not they make decisions in six aspects: choice of friends, clothing, amount of TV, TV programs, bedtime, and diet. Cross-classifying these student and parent data, Pong and her colleagues (2005) define four types of family decision-making: joint decisions, unilateral youth decisions, unilateral parental decisions, and ambiguous decisions. These four types of decision-making correspond to the four parenting styles. Authoritative parenting corresponds to Joint Decisions where both parents and adolescents gave high scores on the decision-making scale. Permissive parenting corresponds to Unilateral Youth Decisions where adolescents reported making all decisions themselves and parents score low

on the decision scale. Authoritarian Parenting corresponds to Unilateral Parent Decisions where adolescents make few decisions and their parents also report not sharing decision-making with them. The remaining few cases represent Ambiguous Decisions, which corresponds to Neglectful Parenting, where both adolescents and their parents made few or no decisions. In our analysis, Authoritative Parenting is the reference group. All parenting style variables are dummy variables.

Two measures of parenting styles were available in TEPS. In wave I, Taiwanese parents were asked how they would respond to the situation where there is disagreement between them and their children. We use these four responses to tap permissive, authoritative, authoritarian, and neglectful parenting styles. Four responses were given: (1) Parents act according to the child's wishes or avoid direct conflict (permissive); (2) Parents act according to the most reasonable suggestions, theirs or the children's (authoritative); (3) Parents impose their own wishes either by persuasion or by force (authoritarian); and (4) Parents do not try to resolve any disagreement but let it disappear by itself (neglectful). There was one additional response, that is, "other". We group this category with the missing cases and will not interpret its result.

The wave I measures were not repeated in wave II. Rather, in wave II, Taiwanese students were asked to indicate whether their father or mother do any of the following: (1) make demands on their daily activities; (2) control their use of money; (3) supervise their homework; (4) restrict what they say, how they behave, and what they wear; (5) restrict their decisions on eating and other matters; (6) restrict their decisions on making friends; (7) tell them not to hurt their parents or make them lose face; (8) not permit their answering back when being talked to; (9) compare them to siblings or other children; (10) worry about them and remind them of things all the time; (11) make decisions on matters concerning them; and (12) are strict. Each question allows a (0, 1) response. We averaged all 12 items which have an internal reliability score of .78 (Cronbach's alpha) and then standardized the score to construct a continuous variable of authoritarian parenting. It has a maximum of 1.406 and a minimum of -2.524.

Family background—Parenting styles may be confounded by family background variables. Thus we controlled for family background in our multivariate analysis. Family background is measured by parental education level, family income, and family structure. The wave II Taiwanese survey did not report students' living arrangements. Therefore we used parents' report of their marital status as a proxy of family structure.

Results

Basic descriptive statistics of the US sample

The US sample included 9,479 Europe-American students and 1,189 Asian-American students. Sample characteristics of the two groups were similar for gender (49 versus 53% for European- versus Asian-Americans) and family income (10.62 versus 10.64, in natural log). However, Asian-American students were more likely to come from senior high school, in 11th or 12th grade than were European-American students (51 versus 33%), and Asian-American students exhibited more desirable family backgrounds in terms of having a parent

with a college or higher degree (45 versus 26%) and of living with two parents (70 versus 57%). Average GPA was higher among Asian-American students (3.00) than among European-American students (2.83).

Distribution of parenting style in the US

The US data did not exhibit any large differences between European-Americans and Asian-Americans in terms of parenting styles. Among European-Americans, the percentage distributions are 48.7 for authoritative parenting, and 23.1 for authoritarian parenting (see Table 1). The corresponding figures for Asian-Americans are 46.1 and 25.6%. This suggests that European-American parents are about 2% more likely to be authoritative, whereas Asian-American parents are about 2% more likely to be authoritarian.

No large differences were found between the two ethnic groups when we took parental education into account. Table 1 shows that, among European-Americans, authoritative parenting was more prevalent among highly educated parents. Authoritarian parenting appeared to be equally distributed along the parental education line. Similarly, among Asian-Americans, authoritative parenting was more common among parents who were college-educated. The only obvious ethnic difference was authoritarian parenting. Asian-American authoritarian parents were either found among the least educated parents or, to the other extreme, among their most highly educated counterparts.

Parenting style and school performance in the US

The bivariate relationship between parenting styles and students' GPA is shown in Table 2. Previous studies on the relationship between parenting styles and students' school performance were done on high school students, therefore we included the high school sample to compare with the full sample of 7th–12th graders. In addition to presenting GPA for the full samples of European- and Asian-American students, we report results drawn from a random sample of 1,189 European-Americans, equivalent to the sample size of Asian-Americans. We found that students with authoritarian parents have a lower GPA than those with authoritative parents regardless of samples. However this difference is very small.

To examine net associations, we controlled for other factors in a multivariate statistical framework. Table 3 shows adjusted GPA in two models for European- and Asian-Americans separately. Model 1 controlled for student grade level, gender, and parenting styles. In addition to these variables, model 2 included student socioeconomic background. Both models were estimated by the ordinary-least-squares (OLS) method, which is the statistical procedure used in previous research to find racial/ethnic differences in the effects of parenting styles on self-reported GPA.

Doing so, we were able to replicate a previous result by Dornbusch and his colleagues (1987). In both models 1 and 2, European-American children of authoritative parents exhibited higher GPAs than European-American children with permissive, neglectful, and authoritarian parents. Asian-American students showed a similar pattern with one exception: authoritarian parenting did not differ from authoritative parenting in its association with

GPA. This finding seems to imply that authoritarian parenting does not affect Asian-American student success.

However, a closer look at the two coefficients of authoritarian parenting reveals that this conclusion may be premature. The coefficient of authoritarian parenting for Asian-Americans is negative and in fact larger than the coefficient for European-Americans. We performed a *t*-test and found that the difference between the Asian- and European-American coefficients was not statistically significant ($t = .618$). Because the sample size of European-American students is more than eight times larger than that of Asian-American students, it is possible that the differences are due to the statistical power of these two samples.

To provide further evidence that Asian-Americans do not differ from European-Americans regarding the association between GPA and parenting styles, we used a random number procedure to generate a sample of 1,189 European-Americans equivalent to the sample size of Asian-Americans. This smaller sub-sample of European-Americans produced a result (see Table 3) similar to that found of the Asian-American sample: fewer coefficients were statistically significant in the sub-sample compared to those of the full sample. More importantly, authoritarian parenting was no longer negatively associated with GPA. In other words, the apparent difference between European- and Asian-American students regarding the effects of parenting style on GPA appears to be unjustified.

Chinese-American sub-sample

As previous debates have focused specifically on the Chinese parenting style, in an exploratory analysis not shown here, we restricted the Asian-American sample to the 241 Chinese-American students.³ Chinese-American students exhibited a higher GPA (3.41) than other Asian-American students (2.89). In addition, Chinese-American students with authoritarian parents had a *higher* average unadjusted GPA than those with authoritative parents. However, one should interpret these unadjusted GPA with caution. First, no statistically significant differences were detected for any two types of parenting styles among Chinese-American students in the descriptive or multivariate analyses. A random sample of 241 cases was drawn from the European-American sample, which also produced largely insignificant results including the parenting variables. Second, not only was the Chinese-American sample size too small to generalize, the number of missing parent surveys was very large. About half of the parents of these 241 Chinese students did not fill out a questionnaire.

How might these missing parent surveys affect our results? As mentioned above, adolescents were asked whether or not (0, 1) they make decisions in six aspects: choice of friends, clothing, amount of TV, TV programs, bedtime, and diet. Using this information, we created a variable of *limited decision-making power* that indicates adolescents being able to decide only 0–2 aspects on the list. Only 8% reported such limited decision-making power. The percentage of adolescents who have limited decision-making power is greater among Asian-American (11%) and Chinese-American students (8.3%) than among

³Some 298 students identified themselves as Chinese but only 241 of them also checked “Asian” (i.e., Asian-American) in the survey question about race.

European-American students (5.5%). We further conducted a logistic regression analysis of missing parental survey (1 = missing, 0 = otherwise). Our finding reveals that adolescents' limited decision-making power is a significant predictor of missing parental surveys among Asian and Chinese Americans but among European Americans. The implication is that the large proportion of Asian- or Chinese-American parents who did not fill out a parent questionnaire were parents of students who had little or no say at home – authoritarian parents who did not share decision making with their children. Looking back at Table 2 we see that all missing cases of parenting styles among Asian-American students have lower GPA. Thus a reasonable conjecture would be that parents who did not fill out a parent survey held an authoritarian parenting style. If we had had their responses, the mean GPA in the authoritarian parenting group among Asian- or Chinese-American adolescents would have been lower, increasing the GPA gap between authoritarian and authoritative parenting.

Basic descriptive statistics of the Taiwan sample

To take our investigation of cultural difference in the impact of parenting style a step further, we analyzed TEPS that provides a large sample of Chinese students in Taiwan. To what extent would a large Asian sample replicate the results we found from the US data? Is Chinese children's school performance really unaffected by authoritarian parenting?

In both waves of TEPS, the majority of the respondents were aged 11–12 (62%), followed by the 13-year-olds (34%). Few were aged 14–15 (2%). The distribution between male and female students was half–half (51 versus 49%). The majority ethnic group, Minnan, constituted 76% of the total sample, whereas Hakka and Mainlanders each made up 12%. The average standardized test score was .065 and .046 in waves I and II, with standard deviations equalling .93 and .99, respectively.

Distribution of parenting style in Taiwan

Table 4 illustrates that slightly more Taiwanese students had authoritarian parents (46%) than authoritative parents (43%). While there was not a clear distribution pattern of authoritative parenting, it is clear that authoritarian parenting was lower on both ends of the distribution of parental education. This pattern is somewhat consistent with the continuous measure of authoritarian parenting, which was low among the least and most educated groups. However, the continuous variable of authoritarian parenting peaked among the junior college-educated parents whereas the categorical measure of authoritarian parenting peaked among parents with a university degree.

Parenting styles and school performance in Taiwan

Table 5 presents the regression analysis of 7th graders' test scores in 2001 (wave I). In the absence of students' socio-economic status (model 1), students with authoritarian parents had significantly lower test scores than students with authoritative parents. After including student's socioeconomic status in model 2 and family structure in model 3, the negative harmful impact of authoritarian parenting remained highly significant ($p < .01$).

Table 6 shows the regression results for the wave II cognitive ability test scores among the ninth graders in 2003. The continuous variable shows that there was a negative relationship

between authoritarian parenting and students' test scores in Taiwan. Controlling for socioeconomic status and family structure did not alter this relationship. Interestingly, this relationship was not linear: the marginal reduction of test score was lower at lower levels of authoritarian parenting and much higher at higher levels of authoritarian parenting.

Overall, results from both data sources suggest that the impact of parenting style on school achievement among Chinese students in Taiwan and European-American students in the US are similar. Authoritative parenting is beneficial to children's education, while authoritarian parenting is less desirable because it is negatively associated with children's school performance. In other words, we did not find cultural variations of this relationship between the US and Taiwanese society.

Other explanatory variables

Although authoritarian parenting had a negative association with Taiwanese students' test scores, its impact was relatively small compared to some other family variables. Looking at wave I results in Table 5, the standardized coefficients in square brackets were smaller for authoritarian parenting than are those for parental education level, family income, and family structure. In other words, having more highly educated parents, higher family income, or living with two parents tended to matter more to students' educational success than the impact of parenting style. Likewise wave II results shown in Table 6 also illustrate that the impact of authoritarian parenting was less than the impact of other family background variables. A change in half of a standard deviation in authoritarian parenting at sample means was $-.045$, which was less than the impact of a change of any level of parental education.

Discussion

This study replicates and supports previous work that finds decision-making patterns to be a good proxy of parenting styles defined by Diane Baumrind, and that authoritative parenting is associated with higher school performance among European-American adolescents than are other parenting styles. Furthermore, our study also reveals several points which add to the previous literature on the impact of parenting styles on Asian students. By studying Taiwan, we strengthen the existing literature, which is primarily based on data from Hong Kong and China (McBride-Chang & Chang, 1998; Chen et al., 1999), on the benefits of authoritative parenting and costs of authoritarian parenting for Chinese children's school performance. Although Taiwanese culture was shaped by Japanese colonialism, it was a province in China for much longer than it was claimed to be the colony of Japan. Thus, Taiwan maintains many aspects of a common Chinese culture shared by Chinese in Hong Kong or mainland China. These aspects include filial piety, respect for the elderly, and a strong value for education. There may well exist persistent structural components of the Chinese culture among Chinese in different geographical locations that are resistant to change (Su, 1993). In any case, revisiting the debate on whether culture makes a difference in the link between parenting styles and child outcomes, our findings support the argument that cultural differences may be overexaggerated. We found that authoritarian parenting is

negatively associated with children's school achievement in both the United States and Taiwan and among European-Americans and Asian-Americans alike.

The relationship between authoritarian parenting and ethnic differences in educational achievement consists of two components: (1) distribution difference, that is, differential distribution of parenting style across ethnic groups; and (2) relationship difference, that is, the impact of parenting styles on achievement. First, we found that the distribution difference between authoritative and authoritarian parents was small, with slightly more authoritarian parents among Asian-American and Asian students (about 2%, see Tables 1 and 3). This finding is consistent with previous research (Chao, 2001; Kao, 2004) which indicated that Asian parents tended to be more authoritarian, but the proportion was only slightly higher compared to authoritative parents. Second, we found that the impact on school performance (relationship difference) was small compared to other family background variables, especially parental education. Therefore, authoritarian parenting should not be granted too much importance in its role in Asian educational achievement.

Considering that Asian-American parents are not overwhelmingly authoritarian and that parenting style plays a minor role compared to other family factors, the paradox that Asian-American students succeed in spite of a higher prevalence of authoritarian parenting may be less puzzling upon closer inspection. There are positive and negative forces shaping Asian-American students' achievement. Authoritarian parenting is but one minor negative factor easily compensated by other positive ones.

Finally, our study suggests that sample size must be considered when interpreting multivariate results across groups, particularly for relatively smaller populations (i.e., Asian Americans compared to European Americans). In our case, the null hypothesis was that there is no difference in mean GPA between two groups of students: one with authoritative parents and the other with authoritarian parents. We follow the convention to reject the null hypothesis if the GPA difference falls within a critical region defined by the .05 significance level, and accept the null hypothesis otherwise. However, the sample size affects this statistical test. If the sample is small, one can easily commit a type II error, i.e., failing to reject the null hypothesis when it is false. The power of a test, defined as $1 - (\text{probability of a type II error})$, increases with the sample size because a larger sample size produces smaller standard errors, making it possible to reject the null hypothesis with smaller deviation from the hypothesized values. Simply put, even though we found no significant effects of authoritarian parenting for Asian-American students, its negative association with GPA may be substantively meaningful. The insignificant coefficient was a result of both a small effect size and a small sample size, generating low statistical power that fails to recognize its statistical significance.

Our study is somewhat limited by the data available to us. One such limitation is the large number of missing parent questionnaires among Asian-American students, and particularly among Chinese-American students. Another limitation is the different outcome variables in the two databases we use. The Add Health Survey contains GPA but not standardized test scores whereas TEPS provides test scores but not GPA. Results from the two databases are therefore not entirely comparable. The third limitation is that we are unable to take

advantage of the longitudinal data to apply methods with which we could draw conclusions about causal relations. This is because the TEPS parenting variables were not repeated in each wave. Also, the two waves of Add Health are only one year apart, which leaves little room for parenting style to change. Small changes are not useful for methods of panel data analysis. Future research should look into other methods that could draw more definitive conclusions about causal relations between parenting and adolescents' outcomes. Fruitful research should also extend beyond definitive statements about causal relations to the mechanisms that create the parenting-school performance correlation. Parenting affects important aspects of adolescents' psychological well-being, such as motivation, self-esteem, and psychological competence (Steinberg & Silk, 2002), all of which have strong implications on adolescents' school performance.

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Table 1

Percentage distribution of parenting styles for different education groups by European-American and Asian-American ethnicity in the US

	Neglectful parenting	Permissive parenting	Authoritative parenting	Authoritarian parenting
European-American				
Less than high school	11.71	25.03	41.31	21.95
High school graduate	8.00	23.00	46.26	22.74
Some college	8.09	19.44	49.39	23.07
College grad. and more	5.74	16.49	53.71	24.05
Total	7.81	20.38	48.70	23.11
Asian-American				
Less than high school	13.79	25.29	36.78	24.14
High school graduate	10.71	22.14	46.43	20.71
Some college	13.02	18.34	43.20	25.44
College grad. and more	7.88	13.94	50.00	28.18
Total	10.33	17.91	46.14	25.62

Note. The number of observations is 9,479 European-American students, and 1,189 Asian-American students.

Table 2

Average GPA by parenting style and race/ethnicity

	European-American full sample	Asian-American full sample	European-American sub-sample
All grades (7th–12th)			
Neglectful parenting	2.61 (.80)	2.84 (.76)	2.47 (.81)
Permissive parenting	2.65 (.81)	2.88 (.83)	2.71 (.81)
Authoritative parenting	2.94 (.76)	3.08 (.77)	2.94 (.76)
Authoritarian parenting	2.89 (.79)	3.00 (.79)	2.91 (.81)
Missing	2.75 (.79)	2.98 (.76)	2.72 (.77)
Total observations	9479	1189	1189
High school grades (9th–12th)			
Neglectful parenting	2.53 (.78)	2.71 (.74)	2.44 (.79)
Permissive parenting	2.66 (.80)	2.86 (.87)	2.66 (.79)
Authoritative parenting	2.90 (.76)	3.07 (.76)	2.88 (.77)
Authoritarian parenting	2.78 (.78)	2.90 (.79)	2.85 (.76)
Missing	2.73 (.80)	2.98 (.76)	2.70 (.75)
Total observations	6703	1013	1013

Note. Standard deviations are in parentheses.

Table 3

Regression analysis of GPA, with and without socioeconomic backgrounds, for three groups of US students

	European-American full sample		Asian-American full sample		European-American sub-sample	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Grade 7 and 8	0.180 ** [0.101]	0.185 ** [0.105]	0.126 ⁺ [0.055]	0.122 ⁺ [0.053]	0.109 ⁺ [0.061]	0.121 * [0.068]
Grade 11 and 12	0.115 ** [0.067]	0.096 ** [0.057]	-0.124 * [-0.079]	-0.123 * [-0.078]	0.110 * [0.064]	0.103 ⁺ [0.061]
Male	-0.245 ** [-0.154]	-0.253 ** [-0.158]	-0.204 ** [-0.130]	-0.191 ** [-0.122]	-0.247 ** [-0.154]	-0.260 ** [-0.162]
Parenting style (ref: authoritative)						
Neglectful (ambiguous decision)	-0.325 ** [-0.104]	-0.267 ** [-0.086]	-0.265 ** [-0.084]	-0.228 * [-0.072]	-0.441 ** [-0.146]	-0.335 ** [-0.111]
Permissive (unilateral youth)	-0.263 ** [-0.127]	-0.206 ** [-0.100]	-0.178 * [-0.072]	-0.139 ⁺ [-0.056]	-0.209 ** [-0.099]	-0.154 * [-0.073]
Authoritarian (unilateral parent)	-0.057 * [-0.029]	-0.056 ** [-0.028]	-0.108 [-0.050]	-0.101 [-0.047]	-0.012 [0.006]	0.008 [0.004]
Missing parenting style	-0.200 ** [-0.078]	-0.055 [-0.021]	-0.087 [-0.047]	-0.075 [-0.047]	-0.233 ** [-0.092]	0.080 [0.032]
Parents' education level (ref: less than high school)						
High school graduate		0.124 ** [0.071]		-0.075 [-0.032]		0.193 * [0.111]
Some college		0.214 ** [0.120]		-0.045 [-0.021]		0.415 ** [0.232]
College and more		0.436 ** [0.229]		0.172 ⁺ [0.099]		0.595 ** [0.314]
Family structure (ref: nuclear)						
Step family		-0.127 ** [-0.052]		-0.151 [-0.043]		-0.122 ⁺ [-0.048]
Single parent family		-0.209 ** [-0.110]		-0.197 ** [-0.089]		-0.214 ** [-0.106]
Guardian family		-0.257 ** [-0.085]		-0.094 [-0.037]		-0.319 ** [-0.110]
Log household income		0.079 ** [0.074]		0.038 [0.032]		0.019 [0.015]
Constant	2.969 ** [3.719]	1.982 ** [2.482]	3.238 ** [4.145]	2.836 ** [3.630]	2.993 ** [3.773]	2.496 ** [3.113]
R ²	0.06	0.12	0.04	0.07	0.06	0.14
Observations	9479	9479	1189	1189	1189	1189

Note. Normalized beta coefficients in parentheses; dummy variables representing missing cases are included, but not shown except for parenting style. Two models are shown for each group of US students. Model 2 includes parental education and family structure whereas Model 1 does not.

⁺ $p < .10$

* $p < .05$

** $p < .001$.

Table 4

Percentage distribution of parenting styles in Taiwan, by parental education level

Parental education level	Wave I			Wave II	
	Neglectful parenting	Permissive parenting	Authoritative parenting	Authoritarian parenting	Authoritarian parenting
Less than junior high	9.69	5.71	42.67	41.92	-.014
High school or vocational	6.58	3.76	43.05	46.61	.058
Junior college	5.99	1.70	45.30	47.00	.078
University graduate	5.33	1.71	42.10	50.86	-.044
Graduate school	3.75	1.34	47.99	46.92	-.209
Total	7.02	3.58	43.44	45.96	.000

Table 5

Regression of Taiwanese students' academic test scores (wave I, 2001) on four types of parenting styles

	Model 1	Model 2	Model 3
Age 11–12	–0.034 [*] [–0.018]	–0.060 ^{**} [–0.031]	–0.062 ^{**} [–0.032]
Age 14–15	–0.922 [*] [–0.139]	–0.783 ^{**} [–0.118]	–0.706 ^{**} [–0.107]
Male	–0.068 ^{**} [–0.037]	–0.070 ^{**} [–0.038]	–0.048 ^{**} [–0.026]
Ethnic Hakka	–0.081 ^{**} [–0.029]	–0.125 ^{**} [–0.044]	–0.117 ^{**} [–0.041]
Ethnic Mainlander	0.202 ^{**} [–0.071]	–0.026 [–0.009]	–0.013 [–0.005]
Parenting style (ref: authoritative parenting)			
Neglectful parenting	–0.165 ^{**} [–0.042]	–0.075 [*] [–0.019]	–0.063 ⁺ [–0.016]
Permissive parenting	–0.378 ^{**} [–0.071]	–0.215 ^{**} [–0.040]	–0.207 ^{**} [–0.039]
Authoritarian parenting	–0.065 ^{**} [–0.034]	–0.083 ^{**} [–0.044]	–0.076 ^{**} [–0.040]
Other/missing parenting	–0.068 ^{**} [–0.027]	–0.005 [–0.002]	0.012 [0.005]
Parents' education level (ref: senior high)			
Junior high or less		–0.288 ^{**} [–0.134]	–0.279 ^{**} [–0.130]
Technical college		0.335 ^{**} [0.136]	0.324 ^{**} [0.131]
4-year college		0.561 ^{**} [0.18]	0.548 ^{**} [0.175]
Graduate school		0.654 ^{**} [0.127]	0.638 ^{**} [0.124]
Family income in \$TWD (ref: 20,001 to <50,000)			
<=20,000		–0.210 ^{**} [–0.065]	–0.155 ^{**} [–0.048]
50,001 to <100,000		0.167 ^{**} [0.086]	0.148 ^{**} [0.076]
100,001 to <150,000		0.265 ^{**} [0.083]	0.234 ^{**} [0.073]
150,001 to <200,000		0.257 ^{**} [0.045]	0.225 ^{**} [0.039]
200,001 or more		0.330 ^{**} [0.05]	0.296 ^{**} [0.045]
Family structure (ref: nuclear)			
Step family			–0.526 ^{**} [–0.076]
Single parent family			–0.239 ^{**} [–0.083]
Guardian family			–0.659 ^{**} [–0.160]
Constant	0.187 ^{**} [0.202]	0.088 ^{**} [0.094]	0.140 ^{**} [0.151]
R ²	0.04	0.19	0.22
Observations	12429	12429	12429

Notes. Normalized beta coefficients in parentheses. Dummy variables representing missing cases are included, but not shown. Model 1 does not include any socioeconomic variables. Model 2 includes parental education and family income, and Model 3 adds family structure.

⁺ $p < .10$

^{*} $p < .05$

**
 $p < .001$.

Table 6

Regression of Taiwanese students' academic test scores (wave II, 2003) on the interval measure of authoritarian parenting style

	Model 1	Model 2	Model 3
Age 11–12	–0.003 [–0.002]	–0.030 ⁺ [–0.015]	–0.029 ⁺ [–0.014]
Age 14–15	–0.766 ^{**} [–0.106]	–0.636 ^{**} [–0.088]	–0.626 ^{**} [–0.087]
Male	–0.108 ^{**} [–0.055]	–0.120 ^{**} [–0.061]	–0.120 ^{**} [–0.061]
Ethnic Hakka	–0.072 ^{**} [–0.024]	–0.116 ^{**} [–0.038]	–0.119 ^{**} [–0.039]
Ethnic Mainlander	0.179 ^{**} [0.059]	–0.082 ^{**} [–0.027]	–0.073 ^{**} [–0.024]
Parenting style			
Authoritarian	–0.051 ^{**} [–0.052]	–0.060 ^{**} [–0.061]	–0.090 ^{**} [–0.091]
Authoritarian-squared			–0.044 ^{**} [–0.057]
Parents' education level (ref: senior high)			
Junior high or less		–0.285 ^{**} [–0.125]	–0.285 ^{**} [–0.125]
Technical college		0.379 ^{**} [0.145]	0.373 ^{**} [0.143]
4-year college		0.670 ^{**} [0.203]	0.665 ^{**} [0.201]
Graduate school		0.886 ^{**} [0.163]	0.875 ^{**} [0.161]
Family income in \$TWD (ref: 20,001 to 50,000)			
≤20,000		–0.232 ^{**} [–0.078]	–0.213 ^{**} [–0.072]
50,001 to <100,000		0.190 ^{**} [0.089]	0.183 ^{**} [0.086]
100,001 to <150,000		0.258 ^{**} [0.072]	0.246 ^{**} [0.069]
150,001 to <200,000		0.254 ^{**} [0.042]	0.242 ^{**} [0.040]
200,001 or more		0.210 ^{**} [0.033]	0.202 ^{**} [0.032]
Family structure (ref: nuclear)			
Divorced and/or separated			0.016 [0.003]
Cohabitation			–0.165 ^{**} [–0.044]
Other			–0.316 ^{**} [–0.054]
Constant	0.108 ^{**} [0.109]	0.020 [0.020]	0.085 ^{**} [0.086]
R ²	0.03	0.20	0.21
Observations	12211	12211	12211

Note. Normalized beta coefficients in parentheses. Dummy variables representing missing cases are included, but not shown. Model 1 does not include any socioeconomic variables. Model 2 includes parental education and family income, and Model 3 adds family structure.

⁺ $p < .10$

^{**} $p < .001$.