

# An integrated model of cultural reproduction: The case of China

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## Abstract

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**Keywords:** Cultural capital, habitus, reproduction, SDP framework, educational inequality

## Introduction

The cultural capital theory is one of the core explanations for understanding the persistence of educational inequality. Bourdieu uses the concepts of cultural capital and habitus to explain the cultural reproduction process through the educational system and address the effect of social origin on the educational outcomes (Bourdieu and Wacquant, 1992: p.160). In his theory, Bourdieu refers to the dominant culture as cultural capital and notes that cultural capital can be translated into advantages in educational outcomes. He also claims that the concept of cultural capital and habitus should be used as a system, which is integrated into the structure of society and acted through practice (1990: p.87). According to Bourdieu, the cultural capital,

habitus, social structure, field, and practice should be studied as an integrated theoretical framework; he uses a theoretical equation "[cultural capital] habitus + field = practice" to elaborate the connection between those concepts (1986: p.101). Over past decades, there is an established body of research that has shown the significant impact of cultural capital on educational outcomes (for a review, see Davies and Rizk, 2018). Yet, fewer research has rigorously tested and applied this theoretical framework in an integrated way. Earlier cultural capital scholars have simplified the cultural capital to so-called "high-brow" cultural activities, such as go to a musical, visit museums and art gallery, and found these cultural activities have limited impact on educational outcome in the US (Dimaggio, 1997; Aschaffenburg and Maas, 1997). Others include the concept of habitus in their studies and found compare to high-brow cultural activities, habitus appears to be more important in the cultural reproduction process in the field of education. They suggest that "good" students are those who have higher intelligence and cognitive ability, which are developed during the child-rearing process. The dominant class has a higher preference and capability to invest in activities that can improve children's intelligence and cognitive ability (Hoff-Ginsberg, 1991; Lareau and Weininger, 2003; Dumais, 2013; Lareau, 2015; 2011: pp.361-371; Nash, 2002). However, most of the quantitative studies failed to show the interrelationship between social structure, habitus, and cultural capital. Thus they could not provide sufficient evidence to prove the causal link between family background and different strategy of rearing children which leads to educational inequality (Rokasa and Robinson, 2016; Dumais, 2015; Davies and Rizk, 2017). The qualitative studies give more insight into how the habitus applied in daily parenting activities configure the objectified cultural capital. Still, it is difficult to draw a general conclusion from qualitative research due to the small sample size (Nash, 2004).

Nash proposed to apply Sorokin's scientific realist 'structure-disposition-practice' (SDP) explanatory framework with the quantitative method in analyzing the cultural reproduction process (Sorokin, 1998; Nash, 2005a). The SDP analytical framework based on a simple logic that the social position generates the socialized dispositions, and the socialized disposition produces the practice which differentiates the future social position (Nash, 2002). This study attempts to provide an integrated empirical framework of the cultural reproduction process based on the SDP framework, then applies it using structural equation model to the Chinese case. The main research questions are: a) How cultural advantage is transmitted from parents to students? b) What is the relationship between parents' position, family's disposition, cultural practices, and their children's educational outcomes? c) Does cultural reproduction produce the same result in different categories of educational outcomes?

The unique socioeconomic condition of contemporary China provides a very interesting case for studying the cultural reproduction process. First, the evolution of social structure in China is not continuity. Unlike the Western countries only experience technical changes, the fast modernity process in China is driven by both political regime change and technical development, which only involved in structural change, exclude the exchange mobility. Structure change creates the middle-class occupation, on the other hand, exchange mobility changes the context of the occupation, make previous working-class occupation become the middle-class occupation (Erickson and Goldthorpe, 1992). Thus, the structural change in China simplifies the intergeneration mobility due to middle-class occupation is a new-born class, there is no pre-exist middle-class culture. Second, the size of middle-class has increased from 5 to 225 million households between 2000 to 2016 (Leaders, 2016), boosting of the middle-class in China are highly tied to the urbanization and higher education reform, and most of the middle-class households are professionals and lives in the urban areas (Goodman, 2016). Last, studies also found the middle-class in China prefer high technology and brand products, spending leisure time traveling and learning; and choosing education-intensive for their children (e.g., international school, learning English, and foreign cultures). It seems that the consumption habits of Chinese middle-class is distinctive to standard working-class (Song et al., 2016). All the above characteristics indicate that the middle-class in China has a similar lifestyle to the middle-class in other Western countries. Besides, it is the first-generation middle-class parents, which makes it an important case of study to test the cultural reproduction process in contemporary society without considering the influence of the grandparents' social position.

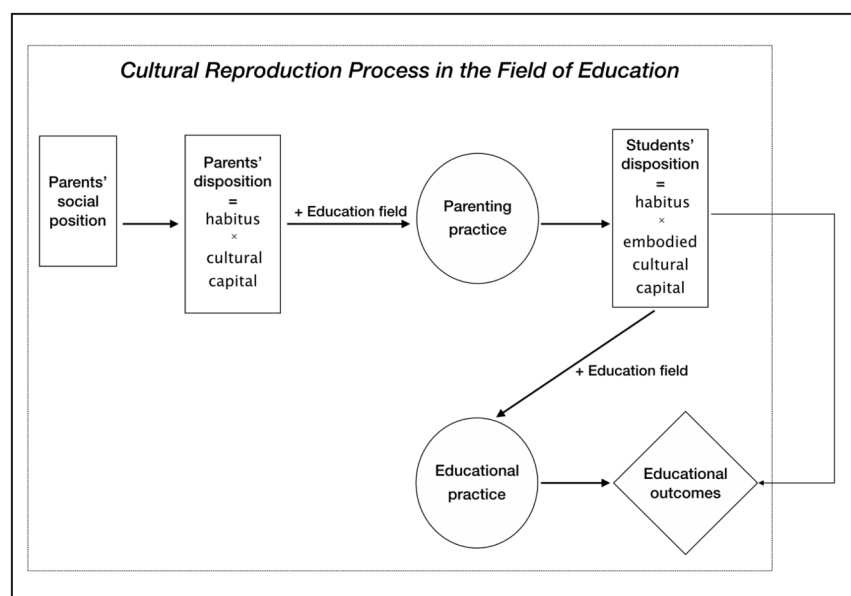
This study is structured as follows. The first section presents the SDP framework, discussing how Bourdieu's

reproduction framework could be presented through the SDP framework in the field of education. Then, it briefly reviews previous empirical research on cultural reproduction in education. The section is followed by an explanation of data, variables, and the adopted empirical strategy. We interpret the results of the structural model and discuss the implication of the results in the last two sections.

### **The SDP framework of the cultural reproduction process**

The cultural reproduction theory in the field of education states that the dominant social group has more knowledge and capability to enhance their offspring's cultural skills, which are rewarded by the education institution. Those family who relatively lack of such kind of knowledge and capability have their children negatively sanctioned in the education institution. Therefore, the dominant social group could maintain its social position and limit social mobility through the education system. Nash defines the capacity of behaving intelligently as the cognitive habitus (2005b). He argues that cognitive habitus is the tendency of an individual to act intelligently, cognitive skills such as reading, speech are the practices that constitute cognitive habitus. Under the SDP framework, the school values intelligent and cognitive abilities; however, the capability and capacity to help children developing cognitive abilities is affected by the classed family environment. Since habitus is cultivated through socialization, the parental practice of middle-class parents families addresses reasoning, self-discipline, positive self-concept, which produce the 'cognitive habitus' that contingent with the school values. Therefore, students from middle-class families could transfer the 'cognitive habitus' to practices which help them to accumulate more capital to enhance their social position. Nash defines the concept of cognitive habitus is a subset of the habitus which function the cognitive development and have an enduring effect on learning ability (2005b). The process of cultural reproduction could be elaborated in four levels of interrelations under the SDP framework: the stratified structure and individual dispositions, the individual dispositions and practices, the practices in the field, and reproduction of social structure. The individual dispositions exist beyond the field, constituted by embodied cultural capital and habitus. An individual's disposition could be considered as the capital only when the practices of dispositions are congruent with 'legitimate' action in a specific field. The cognitive habitus and the embodied cultural capital are essentially the same thing, but distinct in the socialization process, the cognitive habitus reflects the capacity of learning, and the embodied cultural capital is the capability of learning (Edgerton and Roberts, 2014; Costa, 2006). Specifically, the cognitive habitus is the preference and positive attitudes on schooling and related learning activities; the embodied cultural capital is the capability to understand the content of the curriculum, which could generate higher returns. Within this framework, the persistence of educational inequality is merely due to the arbitrary cultural imposition which Bourdieu has claimed. Instead, it is caused by the dominant class's disposition that they have more knowledge about the school rules and greater capability to inculcate relevant skills to their children (Edgerton, Peter and Roberts, 2014). Figure 1 elaborates on the conceptual SDP framework of cultural reproduction in the field of education. The structured disposition of parents leads to the different cultural logic of parenting, which results in different parenting practices; Meanwhile, students' disposition is inherited from parents, and affected by daily parenting practices, the difference of educational outcomes is the result of the integrated reproduction chains, which includes all four levels of interrelations we mentioned above .

Figure 1. Cultural reproduction process in the field of education



## Literature review

Since Bourdieu has developed the concept of cultural capital and reproduction theory, numerous studies have tried to quantify this theory over the past decades. But the application of cultural reproduction theory varies depends on the different understandings of the reproduction process. DiMaggio is the pioneer in applying it with a quantitative method. He uses the students' self-reports of involvement in art, music, and literature as proxies of cultural capital and found that these high-brow cultural activities have a limited impact on educational attainment. He concludes that cultural capital refers to personal experience rather than the family's social-economic status in the US; also, the role of cultural capital plays in the US as cultural mobility rather than reproduction (1980). Later Aschaffenburg and Maas use longitudinal data to test the effect of high-brow cultural activities on educational transition. They found that participating in high-cultural classes outside the school and before 12 years old has the greatest impact on the transition to higher education than in older age or in school cultural class. Their study also uses parents' participation in the high-brow cultural activity as a proxy to measure parents' cultural capital and found it has a significant impact on children's educational transition (1997). However, whether high-brow cultural activities could be regarded as cultural capital is arguable. According to Bourdieu, cultural capital should be able to accumulate, and it has three forms: Objectified cultural capital, embodied cultural capital, and institutionalized cultural capital (1986). In their original book, Bourdieu and Passeron have argued that the cultural reproduction process in the French educational system is mainly through the linguistic capital. They note that the bourgeois language is similar to the language used in the educational institution to inculcate the knowledge. Therefore, the students from the bourgeois family profit from their linguistic capital in the educational system; while, working-class students were negatively sanctioned due to a relative lack of the linguistic capital (1977: pp.116-136 ). We can find the logic behind cultural capital in the field: the school appreciates the linguistic skill, thus, mastering such kind of linguistic skill could gain extra advantages compared to those who do not have it. However, participate in high-brow culture such as playing an instrument or performing art, do not directly connect to school performance except art or music lessons, so with relational thinking, playing an instrument can not be considered as cultural capital.

Meanwhile, as Bourdieu explained conceptually, acquiring cultural capital is time-restricted, the earlier a child exposed to the cultural activities, the higher possibility it could be accumulated as cultural capital (1986). Thus, participating in high-brow cultural activities at different ages may not be comparable. Varies measurements of cultural capital have been adopted in previous researches (see a review by Lareau and

Weininger, 2003). The concept of cultural capital is too vagueness to be quantified; the only certainty is cultural capital and habitus should be an integral part and link the demands of the field.

Extensive qualitative studies have focused on the impact of habitus on educational outcomes (i.e., Lareau, 2003; Reay, 2004). Nevertheless, quantitative studies are reluctant to include the concept of habitus. Dumais analyses habitus with the regression model and uses students' habitus and parents' habitus separately in different studies. She found that students' habitus has larger impact academic achievement than cultural capital, and teachers' perception of students' academic skills is affected by their parents' habitus (2002; 2006). Others also found the effectiveness of habitus on higher education transition, but fewer quantitative support the efficacy of the cultural capital on higher education transition (Roksa and Robinson, 2016). Considerable progress for recent studies is that they address both cultural capital and habitus in quantitative studies, and compare to the various measurements of cultural capital, scholars have reached a consensus that uses occupational inspiration or educational expectation of students as the measurement of habitus. Most studies use the regression model to estimate the correlations between social background, cultural capital, habitus, and academic outcomes, but the regression model could not reflect the interrelation between them. Edgerton, Roberts, and Peter apply the structural model and use the SDP framework to examine the cultural reproduction theory, present the causal relationship and links between habitus and cultural capital (2012; 2014). Based on their model, we modified the reproduction process by including the parents' habitus and parenting practices and providing an integrated image of reproduction—the procedure of transmission of cultural advantage form one generation to another in this study.

The empirical research of the cultural reproduction process under the Chinese context is increasing in recent years, especially in exploring the relationship between cultural capital and students' choice of university subject. Sheng uses both quantitative and qualitative methods to investigate this relationship: Through the quantitative methods, he finds that social-class has no significant influence on students' choice of university subjects but has an impact on the type of university students' enter in, and family's cultural activities and owned of non-reference books is significantly correlated to students' educational expectation; by using the qualitative analysis, he shows that middle-class parents have a higher level of involvement and expectation in their children's education, working-class parents also have a higher expectation in their children's education, but less involvement (2012; 2016). Also, he finds that the university's major choosing is gendered due to the gendered habitus, and the middle-class parents have more gender-oriented expectations compare to working-class parents (2011; 2014). Hu and Wu using mediation analysis to exam the mediation effects of cultural capital and habitus on choosing the university's major. They use 15 different objects, such as the number of books, the place for studying to access the internet, owning a computer, and adding up all of the objects as the measurement of objectified cultural capital. Then they use the frequency of participating in cultural activities such as watching the movie, watching opera, visiting museums as embodied cultural capital, and they find that cultural capital, in general, has mediated the effect between family background and college major. Nevertheless, the embodied cultural capital negatively correlates to the national college entrance examination scores in Chinese, mathematics, and English (2019). Similar to previous research conducted in western developed countries, research under the Chinese context also has measurement problems, failed to link the concept of field to the cultural capital theory, and missed the integrated reproduction picture. We intend to provide the full picture of the cultural reproduction process and use a more rigorous measurement of cultural capital and habitus and examine it under the Chinese context.

## **Data, variables, and methods**

### *Data*

The data used for this study mainly comes from the follow-up wave of CEPS conducted during the academic year of 2014-2015. Some variables were acquired from the baseline wave during the academic year of 2013-2014. The CEPS is a nationwide, large-scale follow-up survey designed and implemented by the China Investigation and Data Center at Renmin University. It aims to unveil home, school, community, and macro-social structure on the impact of individual educational output and further explore the process by which educational output plays a role in the personal life course. The project tracks students when they enter

middle school (at 7 grade), and will last for 30 years. Taking the average educational level of the population and the proportion of the floating population as stratified variables randomly selected 28 county-level units (counties, districts, and cities) from the entire country as survey points. The survey was conducted on a school-based basis. It consists five different questionnaires: (1) the sample students, (2) their parents, (3) their homeroom teachers, (4) their main subject teachers, and (5) their principals. A total of 10279 students in grade 7 in 112 schools and 221 classes were randomly selected from the selected county-level units to conduct the baseline survey. The follow-up survey includes 9449 students in the baseline survey, who are in grade 8 in the 2014-2015 academic year, with a response rate of 91.9%. The CEPS survey contains wave-specific weights to account for nonresponse, which makes the sample is representative on a cross-sectional basis. We only take data from the follow-up survey, because some questions are not consistent in two waves that involve the key variables in our model. After excluding 7.8% of observations with missing cases in the follow-up survey, we finally included 8714 students. *Variables*

The dependent variable in the first analysis is the scores of students' cognitive ability in the follow-up survey. The cognitive test is a standardized test that aims to assess one's cognitive capability, including language, graphic, calculation, and logic abilities, and not relates to any of the contexts which have been taught in school. The cognitive test in the baseline survey only has one type and includes 20 questions, requiring students to finish it within 15 minutes. In the follow-up survey, it has three types, and students receive the level of test based on their scores of the cognitive tests in the baseline survey. It includes 35 cognitive questions and required to finish it within 30 minutes. According to the follow-up survey manual, by applying the three parameters item response theory (IRT) model, the cognitive scores are standardized between -4 to 4. One of the merits of using data from follow-up questions is that the cognitive scores are more stable and reasonable; the value of cognitive scores in the baseline survey varies hugely and have more missing data. The academic achievement outcomes are included in the final analysis. We focus on Chinese, mathematics, and English, which are the main subjects for all students and have the highest weights in both graduation examination and high school entering examination. The middle-term test scores of the three subjects are collected in the survey, but they are graded differently per school(from the upgrade of 100 to 150), we standardize the score and normalize it to make them comparable to the cognitive score. Also, the academic achievement outcomes are frequently used as the dependent variable in previous cultural capital research. Using them in the last analysis could make our results comparable to previous research.

The family's social location is measured by the social class. We construct the social location based on the parents' occupation, family income, father, and mother's highest educational level. Father and mother's occupation have seven categories: Other, unemployed, farmer, laboring work, self-employed, intelligentsia(intellectuals and professionals), and government officials. Parents' educational qualification has eight levels from 1= none to 8= master, and above. In addition, we also consider the family's economic condition. The survey has classed the financial condition into three categories: Poor, moderate, and rich. In the end, middle-class families are those at least one of parents has a professional or managerial position, has a college degree (Horvat et al., 2003), and at least the economic condition is moderate, 28.1% of students belong to middle-class families in the sample.

The intervening variables include parents' habitus, parenting style, parents, and student joint cultural activities, student's habitus, student's embodied cultural capital, student's practice. Parent's habitus is the indicator of parents' disposition; parents' expectations of student's future are frequently used as parents' habitus in previous research (i.e., Dumais, 2006; Bodovski, 2010). There are three questions related to this expectation in the questionnaires: Parents expect the highest education this child could receive and scores from 1=drop out now, 2= graduate from junior high school... 9= get a Doctor degree; parents expect the job this child to do in future and categories thirteen different occupations; parents confident in the future of this child and scores 1= not confident at all, 2= not so confident, 3= somewhat confident, 4= very confident. Because these answers were scaled differently, we construct parents' habitus through confirmatory factor analysis (CFA), a detailed result of CFA is included in Table 1.

Both parenting styles and joint cultural activities are indicators of parenting practices. Parents attempt

to achieve their expectations on children by cultivating their children through those practices. Baumrind's prototypical description of parenting styles base on the level of parents' control and responsiveness. It classes four types of parenting style: Negative, permissive, authoritative, and authoritarian (1966). The four types of parenting styles are widely used in the psychological and education literature (i.e., Maccoby, 1992; Aye, Lau and Nie, 2008; Masud, et al., 2016; Lersch et al., 2017). Therefore, to construct the parenting style, we first construct two latent variables to represent the level of parents' control and responsiveness. Eight questions relate to the responsive attitude of parents were asked and scores (1=don't care; 2= do care but not strict; 3=very strict about it): (1) child's homework and examination, (2) child's behavior at school, (3) attendances at school everyday, (4) time to arrive at home, (5) whom they make friends with, (6) their dress style, (7) time they spend on internet, (8) time spend on watching TV. And seven questions relate to parents' control on students: "What do you usually do when you and this child have different opinions?", "Do you know friends who often play together with this child?", "Do you know the parents of friends who often play together with this child?", "How often do you discuss these things (things happened at school, relationship with their friends, relationship with teachers, their worries and troubles) with this child?". CFA is performed to construct parents' control and responsive, then based on the score, four types of parenting style is generated as the parenting style which used in later analysis: 1= the neglect type(control<0 and responsive<0), 2= the permissive type(control<0, responsive >0), 3= authoritative type(control>0, responsive>0), 4= authoritarian type(control>0, responsive<0). The cultural activities of parents and students doing together are the sum of the frequencies of parents and children go to museums together, watch movie or show together in the past year.

The student's disposition consists of student's habitus and embodied cultural capital in the field of education. Student's habitus in the field of education could be measured by the preference and attitude of students towards school and learning. In the previous, research only student's expectation of future education and occupation were used to be an indicator as student's habitus (Dumais, 2013), based on the concept, we also add student's confidence for future and attitude toward learning as part of student's habitus. In the questionnaire, student's future education expectation, occupation aspiration, confidence for future are questions similar to the composition of parent's habitus, have straightforward answers, but student's attitude towards schooling is composed by eight items and scores in 4 degrees (1= totally disagree, 2= somewhat disagree, 3= somewhat agree, 4= totally agree):(1) "I would try my best to go to school even if I had any reasons to stay at home," (2) "I would try my best to finish even the homework I dislike" (3) "I would try my best to finish my homework, even if it would take me quite a long" (4) "I would persist in my interests and hobbies." (5) "I was able to express myself clearly." (6) "I was able to give quick responses." (7) "I was a fast learner." (8) "I was curious about new stuff." Therefore, to construct a student's habitus, we first perform Exploratory Factor Analysis (EFA) to build the attitude towards learning and schooling, then we use CFA to get student's habitus. The total Kaiser-Meyer-Olkin (KMO) value of EFA is 0.7525, which indicates that the variables are sufficiently correlated. By performing CFA on student's future education expectations, occupation aspiration, confidence for future, and attitudes towards learning, we get the latent variable of student's habitus, which present in Table 1. As mentioned before, the embodied cultural capital is the capacity of people to understand or appreciate the specific cultural product. Despite the clarity of the concept, there is no consistent measurement for student's embodied cultural capital in previous research. Here we use student's hobbies and things like to do besides hobbies to compose the embodied cultural capital. There are four types of hobbies and likes respectively in student's questionnaires, which are recorded as binary (0=No, 1=Yes): Hobbies include music, art, sports, and others; things want to do include read, craft, video games, and others. The CFA is performed to construct the embodied cultural capital based on these eight answers.

Student cultural practice is the number of extracurricular courses students have attended. There are eleven different extracurricular courses include math Olympics, math, Chinese, English, painting, Chinese graphics, music, dancing, cheese, sports, and others. Table 1 present the details of all the variables we use in the following analysis.

[ Table 1 ]

## Results

### *The result of the cultural reproduction process*

The middle-class background has a strong and positive effect on parents' habitus (0.102), parenting style (0.084), joint activities (1.509), student habitus (0.012), and student's practices (0.547); it also has the modest impact in student's habitus, but not important for student's embodied cultural capital. Among all intervening variables, the middle-class background has a greater impact on joint activities and student's activities. Students with middle-class background have 150.9% higher joint activities and 54.7% higher student's practice. This result suggests that the family's social position has a greater impact on cultural activities, and it is evident that the middle-class has a higher consumption of cultural goods. Parents' habitus strongly affects all intervening variables: parenting style (0.714), joint activities (1.007), student's habitus (0.488), student's practice (0.547) and student's embodied cultural capital (0.061). A one standard deviation increase in parents' habitus results in 71.4% standard deviation changes in parenting style, 100.7% a standard deviation increases in joint activities, 48.8% a standard deviation increase in student's habitus, and 54.7% a standard deviation increase in student's practice. Despite the small value of the coefficient of parent's habitus on student's embodied cultural capital, it is the largest one among other factors, a one standard deviation increases in parents' habitus result in 6.1% a standard deviation increase of student's embodied cultural capital. The indirect effect of middle-class background is almost eight times larger than the direct effect. It implies that although the effect of middle-class background on parents' habitus is only moderate, parents' habitus still plays an important mediation role that transmits the family's social advantage into student's dispositions (including student's habitus and embodied cultural capital). Comparing to parents' habitus, parenting style, and joint activities are much less influential. As mentioned before, parenting style and joint activities together constitute the parent's practices in the field of education. The impact of parenting style and joint activities on student's habitus is significant, but with a small scale (0.031 and 0.015 respectively). The parenting style also has a significant impact on student's embodied cultural capital (0.006), but the joint activities only have a moderate impact on student's embodied cultural capital (0.002). On the other side, joint activities have a significant impact on a student's practice (0.130). Parenting style only has a modest impact on student's practice (0.035). Student's habitus only has a moderate effect on the student's practice (0.286). Still, student's embodied cultural capital has a significant and large impact on student's practice (1.238). One standard deviation increases the student's embodied cultural capital resulting in 123.8% a standard deviation increase in student practice. These results show the relationship between family background, and dispositions and practices; also reflect the interrelationship among each intervening variables. In the next step, we show the result of the reproduction procedure on students' cognitive ability.

The major influential factor on student's cognitive scores is parents' habitus (0.482), students' embodied cultural capital (0.426), and student's habitus (0.344). One standard deviation increases in parents' habitus result in 48.2% a standard deviation increases in cognitive scores, with the indirect impact through student's dispositions and practice, the total impact reaches 70.9% a standard deviation increase. The middle-class background also has a significant effect on cognitive scores (0.064), the indirect effects are almost two times of direct effects (0.111), the total effect of middle-class on cognitive scores is still small (0.175). Contract with our expectation student's practice only have modest effect on cognitive scores, the parenting style and joint activities has few effects on cognitive scores.

[Table 2]

### *The result for academic achievements:*

Student's academic achievement variables are used as an alternative, independent variable to examine the result of cultural reproduction. The results are presented in Table 3. The middle-class background has strong effects on all three subjects. Specifically, middle-class background results in 1.8% a standard deviation increase in Chinese, 7.7% a standard deviation in English, and 4.9% a standard deviation increase in math. This finding is consistent with previous research; foreign language skill is considered a high-brow culture, which is more sensitive to students' SES. Parents' habitus has smaller size effects in Chinese (0.298), and



considerably large size in English (0.530) and Math (0.620). Both students' habitus and embodied cultural capital are important for academic achievements. A one standard deviation change in students' habitus result in 25.7% a standard deviation change in Chinese, 53.6 % a standard deviation change in English, and 57.4% a standard deviation change in Math. Student's embodied cultural capital has greater effects in Chinese (0.531), in English (0.876), in Math (0.595) compare to cognitive scores(0.438). Also, students' cultural practices have a greater impact on academic achievement compare to cognitive scores. One standard deviation change in student's cultural practices results in a 1.6% of a standard deviation change in Chinese, 5.4% of a standard deviation change in English, and 4.3% of a standard deviation change in math scores.

The indirect effects of the middle-class on academic achievement variables are higher than direct effects, which suggest that intervening variables mediate a large size of middle-class effects on academic achievement. This finding is consistent with Bourdieu's suggestion that cultural capital and habitus mediate the family's social-economic position (1990, p. 130). Meanwhile, the indirect effects of parents' habitus are smaller than direct effects; still, the indirect effects of parents' habitus account for more than one-third of the total causal impact on academic achievement. On the other hand, the impact of parenting style on academic achievement is negligible, but the influence of parenting style transmit via intervening variables. The indirect effects are moderate, albeit the size is small (0.009-0.020).

[Table 3]

## Discussion

This study uses the SDP framework to reflect the cultural reproduction procedure and try to portraint a clear picture of Bourdieu's theory of cultural capital and habitus. It addresses the basic question of how cultural reproduction procedure translates the social structure to student's educational outcomes. To achieve this goal, we examine the relationship between social structure, parents' habitus, parents' practice, student's habitus, student's practice, and the academic outcomes. Finally, we compare two different outcomes, the cognitive scores, and academic achievement, to show the different reproduction results.

Regarding the social structure, we focus on the difference between the middle-class and the working-class. Results indicate that the middle-class family background has a strong and sufficient direct impact on both parents' and students' cultural practices; it also has a modest and small direct effect on parents' and student's habitus. The direct impact of the middle-class on students' embodied cultural capital is insignificant; only small-sized effects are mediated via parents' disposition and parents' practices. It is the same as students' embodied cultural capital, more effects of middle-class translated to students' habitus via parents' habitus and practices. This result is consistent with the expectation that the advantage family background directly transfers to the consumption of cultural activities. On the other hand, family background affects student's habitus and embodied cultural capital directly and mediated by parents' habitus and practices that transmit to the student's dispositions.

Parents' habitus has strong direct effects for all intervening variables, especially for parents' and students' joint cultural activities, the student's habitus, and the student's practice. The indirect effects of parents' habitus on students' habitus are relatively small due to parents' practices has a small impact on students' habitus. Similar to parents' habitus, the indirect effect of the student's habitus on both cognitive scores and academic achievement is quite small, which means the practices we used in our analysis could not activate the habitus. This result does not follow Bourdieu's theory, claiming that the practice plays a central role in the reproduction procedure (Bourdieu 1990: pp.48-81). But it consistent with Nash's suggestion that only disposition could be located; any specific skill or activities does not have a structured feature (Nash, 2005b). Plenty of quantitative studies show a similar result that cultural activities have a smaller impact on educational outcomes (Dumais, 2005; Edgerton, Roberts, and Peter, 2013). A reasonable explanation is that the measurement of cultural practices is problematic; it is empirically difficult to capture everyday activities and identify the relevant ones for a large sample.

In the final step, we compare two kinds of results: Cognitive score and academic achievement for Chinese, English, and math, respectively. In general, we find that parents' habitus, student's habitus, and embodied

cultural capital have a significant and positive effect on both outcomes. For the cognitive score, parents' habitus has the greatest effects, followed by students' embodied cultural capital, and students' habitus. The middle-class background also has a strong but relatively small-sized effect, and students' practice has a modest and small-sized effect. The result of academic achievements is more complicated. Middle-class background only has a direct impact on English score, but not on Chinese or math; middle-class background does have a strong causal effect on all three subjects, mainly through the cultural reproduction process.

Students' practice also has a strong but small effect on all three subjects. Students' embodied cultural capital has the highest coefficient on both Chinese and English; parents' habitus has the highest coefficient on math. Albeit cognitive scores and academic achievement are the proxies of one's intelligence, the cognitive score is a more stable outcome, which may give more intentions to the family environment. Meanwhile, academic achievement may vary due to teachers' attitudes and other uncontrollable factors, such as personal preference on one subject, etc. Thus, students' attitudes, personal characteristics, and actions are more relevant to academic achievement (Farkas et al., 1990). A more significant and slightly larger sized effect of middle-class background may indicate that teachers do have a biased attitude toward the family background. Interestingly, among other subjects, English is more sensitive to the middle-class background, which consists of previous studies that affluent family background has advantages in mastering foreign language skills.

The results present that the middle-class background has a small impact on parents' and students' disposition; and has a large impact on parents' and students' practices. However, in terms of the size of the effects on educational outcomes, both parents' and students' disposition have the largest size, and the practices have the smallest size of effects. At the same time, the SDP framework clearly shows that students' disposition is mainly affected by parents' habitus. We find that parents' disposition is more important to students' educational outcomes than the middle-class background for Chinese students. Many of our results are consistent with previous research, such as strong and positive effects of the student's habitus on the educational outcomes; the family background is more important to foreign language. We also point out that family background only has modest direct effects on students' habitus; a large portion of students' disposition is inherent from parents' habitus, not the family background. Because of the small-sized effects of the middle-class background on educational outcomes, we challenge the idea proposed by Lareau (2010) that there is a distinct cultivation strategy between middle-class and working-class, which result in unequal educational outcomes. One of the possible explanations is the Confucian culture addresses self-efforts and advocates education, which is a traditional belief of Chinese people and other East Asian countries. This kind of belief results in the different tendencies in western countries; even parents from bottom SES quantile hold a high educational expectation for their children (Stevenson and Stigler, 1994; Davis-Kean, 2005; Li and Xie, 2019).

Our study contributes to a growing literature on cultural capital in two ways. First, it provides an integrated SDP model to present the cultural reproduction process. Previous research barely considers parents' disposition separately and neglect the interconnection between social-economic background and the habitus. By applying eighth-grade Chinese students' data to the SDP model, our findings suggest that quantifying cultural capital concept should not only emphasize the effects of cultural goods and ignore other important aspects of cultural capital. In this study, we found the students' embodied cultural capital is more important for educational outcomes than cultural goods, which is less affected by social-economic background compared to cultural goods. Second, by comparing the cultural reproduction process for different educational outcomes, our study brings cognitive scores as a comprehensive educational outcome to exclude the potential effects of teachers' attitudes on students' academic achievement. However, the larger sized effects of family background on cognitive scores challenged irreconcilable with Bourdieu's idea that school as a social institution positive sanction students from privilege class.

The overall findings suggest that the parents' and students' habitus are the most important factor to affect both students' cognitive development and academic outcomes. Costa suggests the habitus is limited by objective condition, but at the same time, it is modifiable, moreover instead of modified by changes of material condition, it also could be altered through new knowledge that generates new dispositions and

practices (2005). Therefore, future research on educational inequality due to cultural capital could have their analysis beyond the family's socioeconomic background. Instead, a detailed investigation of the determinants of parents' habitus is a valuable research direction. Meanwhile, since the cultural capital has three forms, whether purchasing a specific cultural good could be accounted as the practice is ambiguous, future research may put more attention on other forms of cultural capital.

Despite the important findings, our study has three limitations. First, this study failed to capture the practices which may have a great impact on educational outcomes. Not only due to the limitation of the data, we argue that it is empirically difficult to identify the practices which are generated by one's social disposition and benefit for the educational outcomes for a large sample, due to the variety of practices and its durability. Second, habitus is a durable disposition (Bourdieu,1990, pp.52-65), use cross-sectional data to create the measurement of habitus may not precisely present the real habitus. For example, the parents' educational expectations may vary due to the student's previous educational performance. Nonetheless, we use a score that includes educational expectation, occupational aspiration, and confidence for the future to reduce the possibility of reverse causality.

Table 1: Description Variables variables Mean/Pct(Sd) Constructed use CFA  $\chi^2$  CFI RMSEA SRMR

Parents' habitus	0	10	1.000	0	0
	(0.237)				
Parenting style	2.431 (0.904)	445.165***	0.981	0.031	0.031
Student's habitus	0 (0.227)	5.988**	0.997	0.015	0.006
Student's embodied cultural capital	0 (0.089)	763.331***	0.619	0.065	0.039

Other method	Min	Max
Middle-class 0.281 (0.450)	0	1
Max Joint activities 4.471 (2.045)	2	12
Student's practice 1.015 (1.290)	0	10
Cognitive scores 3.068 (0.497)	-3.951	3.681
Math scores 0.051 (0.975)	-2.424	2.803
Chinese scores 0.061 (0.925)	-4.402	1.932
English scores 0.052 (0.978)	-2.527	1.822

Table 2: The direct and indirect effects of parents and student variables on each steps of cultural reproduction procedure Variables Direct Indirect Total causal *Parents' habitus* Middle class 0.102\*\*\* - *Parenting style*

Middle class	0.084***	0.073***	0.157***
Parents' habitus	0.714***	-	0.714***

### Joint activities

Middle class	1.509***	0.103***	1.612***
Parents' habitus	1.007***	-	1.007***

### Student's habitus

Middle class	0.016*	0.078***	0.095***
Parents' habitus	0.488***	0.037***	0.525***
Parenting style	0.031***	-	0.031***
Joint activities	0.015***	-	0.015***

### Student's embodied cultural capital

Middle class	-0.003	0.010***	0.007***
Parents' habitus	0.061***	0.006***	0.067***
Parenting style	0.006***	-	0.006***
Joint activities	0.002**	-	0.002***

Student's practice Middle class 0.547\*\*\* 0.286\*\*\* 0.833\*\*\* Parents' habitus 0.337\*\*\* 0.391\*\*\* 0.728\*\*\* Parenting style 0.035\* 0.016\*\*\* 0.051\*\* Joint activities 0.130\*\*\* 0.007\*\*\* 0.137\*\*\* Student's habitus 0.286\*\* - 0.286\*\* Student's embodied cultural capital 1.238\*\*\* - 1.238\*\*\*

cognitive scores Middle class 0.064\*\*\* 0.111\*\*\* 0.175\*\*\* Parents' habitus 0.482\*\*\* 0.227\*\*\* 0.709\*\*\* Parenting style -0.004 0.014\*\*\* 0.010 Joint activities 0.008 0.008\*\*\* 0.016\*\*\* Student's habitus 0.344\*\*\* 0.004\*\* 0.348\*\*\* Student's embodied cultural capital 0.426\*\*\* 0.020\*\*\* 0.446\*\*\*

Student's practices 0.016\* - 0.016\* *t* statistics in parentheses \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$  Table 3: The direct and indirect effects of the parents and student variables on the academic achievement variables

Variables	Direct	Indirect	Total causal
<i>Chinese</i>			
Middle class	0.018***	0.091***	0.109***
Parents' habitus	0.298***	0.199***	0.496***
Parenting style	0.010***	0.009***	0.019**
Joint activities	0.010***	0.003***	0.013***
Student's habitus	0.257***	0.004**	0.261***
Student's embodied cultural capital	0.531***	0.019***	0.550***
Student's practices	0.016***	-	0.016***
<i>English</i>			
Middle class	0.077***	0.178***	0.255***
Parents' habitus	0.530***	0.395***	0.925***
Parenting style	0.008***	0.019***	0.027***
Joint activities	0.011***	0.008***	0.019***

Variables	Direct	Indirect	Total causal
Student's habitus	0.536***	0.015***	0.551***
Student's embodied cultural capital	0.871***	0.064***	0.936***
Student's practices	0.054***	-	0.054***
	<i>Math</i>		
Middle class	0.049***	0.161***	0.210***
Parents' habitus	0.620***	0.377***	0.997***
Parenting style	0.002***	0.020***	0.021***
Joint activities	0.000**	0.006***	0.006***
Student's habitus	0.574***	0.012***	0.587***
Student's embodied cultural capital	0.613***	0.052***	0.665***
Student's practices	0.043***	-	0.0434***
<i>t</i> statistics in parentheses			
$p < 0.05$ , ** $p < 0.01$ , *** $p < 0.001$			