



# A study on cultural capital's impact on public senior secondary school students' academic achievement in Shanghai

Chang Shen

MSc in Education (Research Design and Methodology), 2024

# DECLARATION BY THE CANDIDATE AS AUTHOR OF THE DISSERTATION



1. I understand that I am the owner of this dissertation and that the copyright rests with me unless I specifically transfer it to another person.
2. I allow the Department to deposit on my behalf a copy of this dissertation in the Oxford University Research Archive ('ORA') where it shall be freely available online for use in accordance with ORA's Terms and Conditions of Use [[https://ora.ox.ac.uk/terms\\_of\\_use](https://ora.ox.ac.uk/terms_of_use)].
3. I understand that this dissertation should not contain material that can be used to personally identify individuals or specific groups of individuals (unless permission has been obtained from the individuals) and that such material should be removed before this dissertation is deposited in ORA.
4. I agree to be bound by the terms of the ORA Grant of Non-exclusive Licence [[https://ora.ox.ac.uk/deposit\\_agreements](https://ora.ox.ac.uk/deposit_agreements)] and I warrant that to the best of my knowledge, making my thesis available on the internet will not infringe copyright or any other rights of any other person or party, nor contain defamatory material.

5. I agree that my dissertation shall be available for download in ORA in accordance with paragraphs 2, 3 and 4 above.

Signed [an electronic signature is sufficient]:	沈畅
Date:	07.08.2024

# Acknowledgements

I would like to first acknowledge my supervisor, Dr Ariel Lindorff, who has been so caring and supportive along this dissertation journey, in which she has not only provided me with detailed and constructive feedback and suggestions on the writing and structuring of this dissertation but words of encouragement and chocolates every now and then. Without her, this dissertation would not have been possible.

I go on to acknowledge my debt and gratitude towards Dr Xin Xu, Prof Lars-Erik Malmberg, Dr Anna Llewellyn, Dr Rille Raaper, Dr Lingling Xu, Dr Laura Mazzoli-Smith, Dr Takahashi Motoko-Wilson and Prof Chris Brown, who have all been truly helpful in completing this dissertaton at one point or another.

Many thanks are also due to Matias Montero, Ghaith Alfakhry, Siyue Chen, Yile Tan, Zhifeng Chen, Canyu Cui, Chongyao Wang, Marios Charilaou, Tianyi Wang, Kunning Zhang, Chenhe Lei, Depeng Zhu, Shangqian Song, Zhihan Yang, Yuchen Shen, Xinrong Han, Jiahao Zhu, Nikita Ahluwalia, Lynlee Graham, Simon Gerblich, Angela Bang, Carolyn Fine and Veronica Jiang.

As always, my greatest debt is to my parents.

This dissertation is also in memory of my grandparents, who may not have understood any of it, but they would have been proud to put a copy on their bookshelf.

## Abstract

The academic achievement gap caused by socioeconomic status (SES) has drawn increasing attention in the field of education over the last few decades. Amongst the various theoretical frameworks used to investigate such SES achievement gap, Bourdieu's cultural capital as a conceptual tool is one of the most studied, whilst it still remains largely unclear as to how cultural capital may manifest and navigate itself in the Chinese context. This study adopted a quantitative approach and a survey design to explore the composition of cultural capital in China and examine the impact cultural capital may have on public senior secondary school students' academic achievement in Shanghai. The findings indicated that there was an association between cultural capital and academic achievement, and objectified cultural capital had a more significant effect on students' academic achievement compared to embodied cultural capital. Meanwhile, a significant interaction effect was identified between objectified cultural capital and SES, suggesting that higher SES students may reap more benefits from possessing objectified cultural capital than their low SES peers.

# Table of Contents

Chapter 1 Introduction.....	10
1.1 The Background for This Study.....	10
1.2 Education in Contemporary China .....	11
1.3 Overview of Shanghai and Its Education System.....	16
1.4 Study Rationale and Aims.....	17
Chapter 2 Literature Review .....	19
2.1 Introduction.....	19
2.2 An Overview of Bourdieu's Theory of Capital .....	19
2.3 The Conceptualisation of Cultural Capital .....	20
2.3.1 Bourdieu's Original Account .....	20
2.3.2 The Division of Conceptualising Cultural Capital in Contemporary Educational Research.....	23
2.4 Theoretical Perspectives on How Cultural Capital May Influence Students' Academic Achievement .....	25
2.4.1 The Signalling Mechanism .....	25
2.4.2 The Skills Mechanism .....	28
2.5 Moderators of Cultural Capital's Impact on Academic Achievement.....	29
2.5.1 Societal Contexts .....	29
2.5.2 School Types .....	31
2.5.3 SES .....	32
2.5.4 Gender.....	34
2.5.5 Academic Domains .....	35
2.5.6 Comments on the Moderators of Cultural Capital's Effect .....	36
2.6 Cultural Capital Research in China .....	37
2.7 Conclusion.....	39
Chapter 3 Methodology .....	42
3.1 Introduction.....	42
3.2 Research Questions .....	42
3.3 Research Design .....	43
3.4 Sample .....	44
3.5 Measures.....	47
3.6 Reliability and Validity .....	54
3.7 Data Collection .....	59
3.8 Analytic Strategies .....	59
3.9 Ethics .....	62
3.10 Limitations .....	63

3.11 Conclusion.....	64
Chapter 4 Findings.....	65
4.1 Introduction.....	65
4.2 Descriptive Findings .....	65
4.3 Correlation Findings.....	71
4.4 Regression Findings .....	78
4.5 Conclusion.....	88
Chapter 5 Discussion .....	89
5.1 Introduction.....	89
5.2 Interpretation of the Key Findings .....	89
5.2.1 Cultural Capital’s Positive Impact on Academic Achievement in the Chinese Context.....	89
5.2.2 Objectified Cultural Capital as the Dominant Predictor of Academic Achievement.....	90
5.2.3 Cultural Reproduction over Cultural Mobility .....	93
Chapter 6 Conclusion.....	95
6.1 Summary of Research Findings.....	95
6.2 Strengths and Limitations .....	96
6.3 Suggestions for Future Research .....	98
6.4 Practical Implications .....	99
References.....	101
Appendix.....	123

## List of Tables

Table 1. <i>Measurement of Embodied Cultural Capital</i> .....	50
Table 2. <i>Measurement of Objectified Cultural Capital</i> .....	51
Table 3. <i>Measurement of Parents' Occupation</i> .....	52
Table 4. <i>Measurement of Parents' Educational Attainment</i> .....	53
Table 5. <i>Results of the Exploratory Factor Analysis</i> .....	58
Table 6. <i>Descriptive Statistics of the Participants' Gender</i> .....	65
Table 7. <i>Descriptive Statistics of the Participants' Age</i> .....	66
Table 8. <i>Descriptive Statistics of the Participants' Parents' Educational Attainment</i> .....	67
Table 9. <i>Descriptive Statistics of the Participants' Parents' Occupation</i> .....	68
Table 10. <i>General Descriptive Statistics of Academic Achievement</i> .....	69
Table 11. <i>Descriptive Statistics of Academic Achievement by Parents' Educational Attainment</i> .....	69
Table 12. <i>Descriptive Statistics of Academic Achievement by Parents' Occupation</i> .....	70
Table 13. <i>Descriptive Statistics of The Participants' Stock of Cultural Capital</i> ...	71
Table 14. <i>Spearman Rank-Order Correlations of Cultural Capital and Chinese Exam Score</i> .....	73
Table 15. <i>Spearman Rank-Order Correlations of Cultural Capital and Maths Exam Score</i> .....	75
Table 16. <i>Spearman Rank-Order Correlations of Cultural Capital and English Exam Score</i> .....	77
Table 17. <i>Hierarchical Multiple Regression Predicting Chinese Exam Score</i> ....	80
Table 18. <i>Hierarchical Multiple Regression Predicting Maths Exam Score</i> .....	82
Table 19. <i>Hierarchical Multiple Regression Predicting English Exam Score</i> .....	84
Table 20. <i>Interaction between cultural and educational resources and SES on Chinese Exam Score</i> .....	85
Table 21. <i>Interaction between cultural and educational resources and SES on Maths Exam Score</i> .....	86
Table 22. <i>Interaction between cultural and educational resources and SES on English Exam Score</i> .....	87
Table 23. <i>Interaction between reading habits and SES on English Exam Score</i>	87

## List of Appendices

Appendix A. Blank Student Information Sheet .....	123
Appendix B. Blank Consent Form.....	125
Appendix C. Questionnaire in English.....	127
Appendix D. Result of the MAP Criteria .....	133
Appendix E. Result of the Parallel Analysis .....	134
Appendix F. The Scree Plot .....	135
Appendix G. Scatterplots of the Studentised Residuals for Exam Scores .....	136
Appendix H. Histograms and Normal P-P Plots of Regression Standardised Residual for Exam Scores .....	138
Appendix I. Ethics Approval .....	141

# Chapter 1 Introduction

## 1.1 The Background for This Study

Education has long been perceived as a crucial determining factor in an individual's socioeconomic status (SES) attainment as it is argued to be the primary channel that brings about social mobility whilst at the same time acting as a mediating mechanism for class reproduction (Xie & He, 2023). Interestingly, these two roles of education are all closely related to academic achievement. Indeed, the academic achievement gap between low and high SES students has long been a central theme in educational research (Reardon, 2018). Although educational systems in many societies are said to be based, to a great extent, on the meritocratic idea that downplays ascriptive factors such as family wealth and social origin and emphasises individual merit (Young, 1958; Bell, 1972; Jost et al., 2004), significant achievement differences can be found by students' background characteristics, such as race and gender (Lupart et al., 2004; Gordon & Cui, 2018). Although the most prominent factor may vary in different educational systems depending on the society's specific social and historical context (Broer et al., 2019), SES has been consistently reported to account for a large amount of variance in adolescents' school performance. Amongst the various theoretical frameworks that explain the mechanism of how SES may influence students' academic achievement, French sociologist Pierre Bourdieu's capital theory (Bourdieu, 1986) is one of the most studied and

applied in empirical research because of its utility as an explanatory heuristic (Andersen & Hansen, 2012). Bourdieu's capital theory posits that capital exists in three fundamental forms, namely economic, cultural and social (Bourdieu, 1986). Whilst economic capital is seen as the source of cultural and social capital, widespread scholarly attention has been particularly drawn to cultural capital, given its closer linkage to the school settings (Xie & He, 2023). Indeed, a growing body of research (e.g. Tan & Liu, 2018; Redford et al., 2009) has examined the extent to which cultural capital may impact students' academic achievement. However, the majority of the extant literature that looks at the role of cultural capital in determining students' academic achievement is based on Western contexts (Bodovski et al., 2017), whilst cultural capital may yield different rates of return across educational systems since different educational systems may have varied curricula content and measurement of school performance (Andersen & Jæger, 2015). In order to gain a more comprehensive understanding, it is, therefore, necessary to explore whether the complex and somewhat vague notion of cultural capital holds in non-western contexts such as China.

## **1.2 Education in Contemporary China**

Before the Opening-up policy, which generally refers to a series of economic reforms (De Freitas, 2019), was implemented in 1978, education was primarily perceived as an effective means for proletarian dictatorship in China,

and the primary function of education was to serve politics (Gu, 2013). Since China opened its doors in the late 1970s, the Chinese government has held that economic construction is determined by the productivity brought by science and technology, whilst education may serve as a solid foundation for the advancement of science and technology and the economic development thereafter (Ngok, 2007). Since then, education has started to be treated more as a crucial force for economic change and less as an instrument for political purposes (Ngok, 2007). One problem that gave rise at the same time was the increasing demand for education and the limited education resources available, and the Chinese government adopted the decentralisation policy in response to resource scarcity (Ministry of Education, 1993; Ngok, 2007). Decentralisation denotes that the central government loosens its control over education and assigns more responsibility for providing and managing education at the local levels (Ngok, 2007). The decentralisation policy implemented by the Chinese government mainly affects the financing of education. That is to say, the central government cut its funding for education and entitles local governments more freedom to provide education and the sources and amount of funding that is attributed to education (Ngok, 2007). Such a decentralisation policy has had a mixed influence so far. On the one hand, the policy diversified the financing of education as resources from non-governmental sources and even individuals can contribute to the provision of education. On the other hand, such policy has also led to, if not reinforced, a far-reaching and tremendous disparity of

educational development in contemporary China, or more precisely, the rural-urban disparity, as education is now highly dependent on the local economy and the economic situations vary significantly from province to province (Mok, 2002).

More importantly, the two recent remediation attempts in the Chinese education system failed to close the gap but even widened such rural-urban education disparity, namely the Suzhi Initiative and the New Curriculum Initiative (Ministry of Education, 1993; Ministry of Education, 2001; Wang, 2011). Although it is beyond the scope of this dissertation to provide a comprehensive evaluation of the two initiatives, it may still be worthwhile to give a brief summary of these initiatives and their impacts in order to better understand contemporary education in China and the role cultural capital may play in it.

The Suzhi Initiative was put into practice in 1990 in a top-down manner by the National Educational Committee, aiming to reform the long-criticised test-oriented education in China (Ministry of Education, 1993; Lou, 2011). The word "Suzhi" literally translates as "quality", which suggests that the central government attempts to ensure that students can have a more well-rounded development rather than solely focusing on preparing for and sitting exams. In practice, the initiative encourages schools to offer more lessons on liberal arts and physical education than the traditional 'big three' of Chinese, English, and Maths. However, again, the urban-rural disparity plays out in the practice of the initiative as rural schools fall far behind in terms of school facilities and teachers'

ability to teach the subjects promoted by the initiative (Ngok, 2007). Surprisingly, the promising initiative also faces significant resistance against it even in schools in urban cities that are not short of resources, which may largely be due to the fact that even with the Suzhi Initiative in place, students may still have to take the “Gaokao”, or the National Higher Education Entrance Exam, whilst students from schools that adopt the initiative were reported to obtain lower academic achievement on the Gaokao compared to those that do not endorse the new initiative (Yu et al., 2005).

The New Curriculum Initiative was launched officially in 2005, involving 474,000 schools and over 200 million students across the country (China Education and Research Network, 2011), and the initiative calls for updates in the course content and improvement in instructional methods for teaching that ultimately turn the mode of learning from teacher-centred into student-centred (Adams & Sargent, 2012). However, the New Curriculum also suffers from a low degree of endorsement at the school level, similar to the Suzhi Initiative, for the same reason: the contradiction between the quality-oriented ideology and exam-oriented reality (Yu et al., 2018). Indeed, given that exams, in particular, the "Gaokao", play such a crucial role in the Chinese education system, it is thus suggested by Yu et al. (2018) that no review can do full justice to contemporary Chinese education without discussing the "Gaokao", it may thus also be worthwhile to introduce the unique exam in the Chinese context.

The National Higher Education Entrance Exam, or the "Gaokao" in

Chinese, is an annual matriculation exam established in 1952, and the results of the "Gaokao" are argued to be high-stakes in that they largely determine individuals' higher education options and may have a significant impact on young people's later life outcomes (Edwards et al., 2012). Notably, the exam's admission cutoff scores for a given university varies from province to province, and provinces that have a higher proportion of rural students tend to have a higher cutoff score for the same university compared to provinces with more students living in the urban areas (Kipnis, 2001). Thus, the "Gaokao" has been criticised for decades as it may deteriorate the already sharp educational inequality in China (see for example Lin & Chen, 1995; Hamnett et al., 2019). Also noteworthy is that the "Gaokao" may have profound influences on parents regarding their parenting style, educational expectations and educational involvement. It was found that Chinese parents are more likely to adopt a controlling parenting style because Chinese education is primarily driven by the importance of exams, in particular, the "Gaokao", on their children's life trajectory (Chao & Tseng, 2002). Furthermore, the "Gaokao" may also lead Chinese parents to have higher educational expectations. Crystal et al. (1994) reported that Chinese parents had significantly higher standards for academic achievement and lower satisfaction with their children. In a similar vein, it was found from Chinese students' reports that their parents tend to be more concerned with their academic performance at school than themselves (Shen, 2011). Such high expectations from parents may then naturally result in a higher

level of involvement for Chinese parents in their children's education (Dong et al., 2020), which may be manifested in the unique culture and popularity of shadow education in the Chinese context (Liu & Bray, 2022). Indeed, a household survey in 2017 indicated that more than half of Chinese parents enrolled their children in some form of shadow education after school, and such shadow education participation may start as early as preschool age (Yang, 2018). Whilst given the failed attempts to transform the education system from exam-oriented to learning-oriented by the Chinese government in the last few decades and the significance of exams like "Gaokao" in the Chinese context, it may thus be particularly appealing to examine the extent to which cultural capital may impact students' academic achievement in a society with prevalent exam culture. However, it may not be practically feasible for this dissertation to examine the relationship between cultural capital and academic achievement on a national scale. This dissertation thus chose Shanghai specifically as it bears a number of unique characteristics compared to other cities in China.

### **1.3 Overview of Shanghai and Its Education System**

Located on the east coast of China, Shanghai has the largest population at the city level, with about 25 million people inhabited in the city as of 2020 and it is also the largest economic centre in China, with an annual GDP per capita nearing the World Bank's high-income threshold (Shanghai Municipal Bureau of Statistics, 2021). Basic education in Shanghai includes primary education,

which is from first to fifth grades, and junior secondary education, from sixth to ninth grades, which is slightly different to other provinces in China, which has six years of primary education and three years of secondary education (Liang et al., 2016). After finishing the nine years of compulsory education, students are tracked into two major senior secondary education programs based on the scores of the junior secondary examination (Zhong Kao), namely academic or vocational. Notably, the results from the cross-national Program for International Student Assessment (PISA) consistently ranked Shanghai as being in the first place in all three academic subjects that it examines, namely Maths, reading performance and science performance (Gurria, 2014), which may partially reflect the education quality in Shanghai.

## **1.4 Study Rationale and Aims**

The extant cultural capital literature in the Chinese context mainly looks at the impact of cultural capital on educational attainment, only a small number of studies have examined its effect on academic achievement (He & Xie, 2023). Therefore, the aims of this study are to explore the potential association between cultural capital and students' academic achievement and the degree of such association. The participants of this study were public senior secondary school students in Shanghai. This study contributes to the extant literature and fills the existing research gap in several ways. First, it used a primary dataset sampling senior secondary school students, which was a schooling stage that

little previous research has touched upon. Second, it adopted both international and local forms of cultural capital in an attempt to generate a more comprehensive understanding of cultural capital's effect on academic achievement. Also, the findings of this study may be able to shed some light on how cultural capital may come into play in Shanghai's education system, which is argued to be the most equal one in the country, with almost half of the students being migrant students whose parents are not Shanghai's long-term residents and the highest proportion of resilient students among PISA participants (Liang et al., 2016).

The remainder of this study is divided into five chapters. The next chapter critically engages with the related literature on the conceptualisation of cultural capital and its impact on academic achievement. Chapter 3 presents and discusses the justification of the study's research design, and it also delineates this study's methodology, including the sample, the measures involved in the study, the examination of the study's reliability and validity, the analytic strategies, ethical considerations and methodological limitations. Chapter 4 demonstrates the findings from the analyses that lay the foundation for the discussion in Chapter 5. The last chapter summarises the study and provides some practical implications and directions for future research, along with a reflection on some general limitations before presenting the references list and appendices.

# Chapter 2 Literature Review

## 2.1 Introduction

The literature review chapter is divided into several sections to discuss different aspects of the concept of cultural capital. It first presents an overview of Bourdieu's capital theory. It then moves on to discuss the myriad conceptualisation of cultural capital from Bourdieu's original account and the two widely adopted approaches in contemporary educational research. Following is a demonstration of the two mechanisms by which cultural capital may influence students' academic achievement and how various student and contextual factors may influence the extent to which cultural capital may impact students' academic achievement. A discussion of existing research conducted in the Chinese context and their prominent limitations will also be provided before concluding.

## 2.2 An Overview of Bourdieu's Theory of Capital

In his work, *The Forms of Capital* (Bourdieu, 1986), Pierre Bourdieu criticises the long-held focus on 'capital' as straightforward monetary exchange and emphasises the nature of capital as containing "a tendency to persist in its being as a potential capacity to produce profits and to reproduce itself in identical or expanded form" (p.46). Notably, Bourdieu contends that there are three forms of capital that may determine individuals' position in social space due to the varied amount and composition of this capital that each individual

possesses (Bourdieu, 1986), namely economic, social and cultural capital. Economic capital refers to resources that are “immediately and directly convertible into money and may be institutionalised in the form of property rights” (Bourdieu, 1986, p.242). Social capital denotes “the aggregate of the actual or potential resources which are linked to the possession of a durable network of more or less institutionalised relationships of mutual acquaintance and recognition” (Bourdieu, 1986, p. 247). Cultural capital, according to Bourdieu, may be generally defined as cultural knowledge and competence that may be present in the objectified, embodied or institutionalised state (Bourdieu, 1986). Additionally, Bourdieu (1986) holds that each type of capital may be converted from one form to another, although the process may be complicated and there may be some loss in the amount of the original form of capital in such process. Also, capital may be subject to accumulation, which suggests that the acquired capital need not be deployed immediately but may be kept for later utilisation (Bourdieu, 1986; Cebula, 2019).

## **2.3 The Conceptualisation of Cultural Capital**

### **2.3.1 Bourdieu’s Original Account**

According to Bourdieu, cultural capital may manifest itself in three forms: objectified, embodied and institutionalised (Bourdieu, 1986). The objectified state of cultural capital represents tangible cultural goods such as books, instruments and pictures as opposed to the intangible aspects of the other two

forms of cultural capital (Bourdieu, 1986; Tierney, 1999). Notably, however, the acquisition of objectified cultural capital does not merely entail obtaining material goods, as these cultural goods contain symbolic power that is culturally and socially distinct (Sablan & Tierney, 2013). For example, Shakespeare's novels may be perceived as objectified cultural capital not just because they are cultural goods but due to the distinguished value attributed to these novels by society and the conventional curriculum. Therefore, in order for objectified cultural capital to play out effectively in the social arena rather than only reflecting an individual's economic capital, the symbolic appropriation of cultural goods may be necessary (Bourdieu, 1986). Indeed, Bourdieu believes that possessing the knowledge and ability required to decode the distinct values placed upon these objectified cultural goods may be a more crucial aspect that reflects an individual's stock of cultural capital (Bourdieu, 1973). It is in this sense that the embodied state of cultural capital comes into play.

The embodied cultural capital denotes the cultivation and inculcation of competencies and dispositions that carry a cultural value, which, in Bourdieu's view, analogises the build-up of muscles as both are done first-hand and over time in a more implicit and hereditary manner (Bourdieu, 1986). Again, the interplay between objectified and embodied cultural capital is evident here, in that objectified cultural capital may not fully release its potential without the utilisation of embodied cultural capital, whilst the acquisition of embodied cultural capital may be boosted with the presence of enough objectified cultural

capital (Sablan & Tierney, 2013). It is noteworthy that embodied cultural capital is often used interchangeably in the extant literature, along with another key concept in Bourdieu's theoretical framework, habitus (Edgerton & Roberts, 2014). Although a number of scholars criticise such interchangeable use (see for example, Reay, 2004; Fogle & Theiner, 2018) for the potential variation in the explanatory power of the two terms, it needs to be noted that in Bourdieu's original account, the two terms are given a similar definition and the accumulation of embodied cultural capital is, to a large degree, argued to be identical to the formation of habitus (Bourdieu, 1986).

The institutionalised cultural capital may be seen in the form of academic qualifications that serve as certificates of individuals' cultural competence (Bourdieu, 1986). Notable here is that institutionalised cultural capital is believed to be the most efficient form to be converted into economic capital among the three states as it confers institutional recognition on the cultural capital possessed by individuals that may be deemed valuable in the labour market (Bourdieu, 1986).

Furthermore, it may be worthwhile here to also demonstrate Bourdieu's idea of the field in order to do full justice to Bourdieu's account of the three types of cultural capital, given cultural capital is context-dependent and relational in nature (Edgerton & Roberts, 2014). The field may be generally defined as the context of the social space in which cultural resources are formed and given a price (Winkle-Wagner, 2010), and a helpful approach to better illustrate the

interrelation of cultural capital and field is to use the analogy of a card game (Bourdieu & Wacquant, 1992). In a card game equivalent to the notion of field, the players' approach to playing their cards is influenced by their habitus or embodied cultural capital. The value of certain cards, i.e. cultural capital and the most advantageous way to use these cards, may vary depending on the specific rules of the particular card game or the norms and expectations in a given field. The final position you may get in the game, which may result in institutionalised cultural capital, is then determined by how well you played the cards and also relative to how well other players played the game and the values of their cards. Although this analogy may be, to some extent, simplistic under scrutiny, it, however, provides the basic idea of how field and cultural capital may be interrelated in practice and how the value of cultural capital may be dynamic rather than static across different fields.

### **2.3.2 The Division of Conceptualising Cultural Capital in Contemporary Educational Research**

Almost fifty years after Bourdieu invented the concept of cultural capital, there has now been a main line of division as to how scholars conceptualise cultural capital, and the two most cited conceptualisations can be categorised as “narrow” and “broad” (Andersen & Hansen, 2012, p.607).

The narrow conceptualisation is mainly endorsed by scholars who received the initial English-language translations of Bourdieu's writings in the 1980s and

1990s such as DiMaggio (1982) and Sullivan (2001) and who see objectified cultural capital as mainly highbrow cultural products such as objects of arts and embodied cultural capital as highbrow cultural activity participation such as playing the piano or visiting art museums (Andersen & Hansen, 2012). However, this overfocus on highbrow culture is flawed as highbrow cultural products and activities may be crucial aspects of cultural capital, whilst there may be other dimensions of cultural capital that are equally critical (Lareau & Weininger, 2003). More importantly, the significance of highbrow culture may have diminished over time, which may be particularly true in the Chinese context as a status order may hardly be discernible in present-day Chinese society (Chan & Goldthorpe, 2007), thereby resulting in a blurred boundary between highbrow and lowbrow cultures.

The broad conceptualisation of cultural capital was developed in the early 2000s and is more closely leaned towards Bourdieu's initial account of cultural capital (Andersen & Hansen, 2012). This broad fashion is more favoured in educational research, with Lareau and Weininger (2003) proposing the probably most widely cited definition of cultural capital in the field as "institutionalised, i.e., widely shared, high-status cultural signals (attitudes, preferences, formal knowledge, behaviours, goods and credentials) used for social and cultural exclusion" (p. 587). However, this broad conceptualisation is not flawless and it bears the same shortcoming as Bourdieu's initial account, which is ambiguity (Devine-Eller, 2005). Indeed, this branch is criticised for

excessively expanding the definition of cultural capital to be meaningless, as the term seems to encompass a wide array of things ranging from signals and knowledge to preferences (Kingston, 2001; Devine-Eller, 2005). Nevertheless, it is valid that this shortcoming may, in part, be owing to the fact that cultural capital is “one of the more complex theoretical notions at work with regard to inequality, yet also a deceptively simple term that appears in the everyday lexicon” (Sablan & Tierney, 2013, p.153). The broad conceptualisation of cultural capital, however, challenges the taken-for-granted notion of cultural capital as suggested by the narrow conceptualisation and emphasises the importance of cultural capital's dynamic nature. More importantly, it sheds light on how researchers should operationalise cultural capital in their research and imply how the operationalisation of cultural capital may vary in different fields or contexts.

## **2.4 Theoretical Perspectives on How Cultural Capital May Influence Students' Academic Achievement**

### **2.4.1 The Signalling Mechanism**

According to Bourdieu (1977), cultural capital is fundamentally unproductive in the educational arena, given that it does not encompass any actual academic skills and that highbrow culture is arbitrary in nature and merely captures the idiosyncratic tastes of the group that holds power in society. However, Bourdieu suggests that schools or formal educational settings are

essential playing fields that recognise and reward the possession of cultural capital and turn cultural capital into advantages or profits for students who possess it (Bourdieu, 1977). Whilst in order for cultural capital to release its symbolic power in school settings, it requires a 'catalyst', in this case, key figures in formal educational settings such as teachers. This forms the foundation of one of the two most often used mechanisms used to explain cultural capital's impact on academic achievement, namely the signalling mechanism (Breinholt & Jaeger, 2020). The signalling mechanism holds that cultural capital may act as a signalling device that induces the teachers to misinterpret students' cultural capital covered under their attitudes and behaviours as indications of actual academic potential (Breinholt & Jaeger, 2020). The consequence of teachers' misconception is that they may develop positively biased perceptions of those students (Jaeger, 2011). These positively biased perceptions may then generate beneficial and accumulative returns in the form of better academic achievement for students as teachers may have preferential treatment, and they may pay more attention to those students' academic development than their disadvantaged counterparts throughout their schooling (DiMaggio, 1982; Jaeger, 2011). Notably, Bourdieu contends that the instruments of cultural capital such as the attitudes, beliefs or behaviours that may be deemed as legitimate and valuable in formal education settings, can only be acquired "from the family upbringing, which is the mode of acquisition of the instruments of appropriation of the dominant culture of which the

dominant classes hold the monopoly” (Bourdieu, 1977, p.494). In other words, Bourdieu holds that the cultural capital that is valid and useful in schools may be exclusive only to students from higher socioeconomic status (SES) families since students from lower SES backgrounds may not be able to access those cultural instruments at home and they are not taught to students in schools (Lareau, 2015). Whilst Bourdieu’s perception of the signalling mechanism of cultural capital may seem a bit too abstract, his later follower, Annette Lareau, offers a more subtle approach to the signalling mechanism.

Lareau posits that students may be able to access cultural capital regardless of their SES, and she is careful to suggest that all parenting practices may bear benefits and drawbacks (Lareau, 2003). However, she does hold that the parenting practice often adopted by high SES, or what she termed “concerted cultivation” (Lareau, 2003, p.4), may more effectively enhance students’ educational success. According to Lareau (2003), the logic of concerted cultivation is in line with the knowledge base that informs the educational system’s pedagogical approach, and thus, parents who adopt such parenting practice are able to transfer the “right” cultural skill sets that are useful in schools to students. Students who have the appropriate cultural capital may then obtain “a sense of entitlement” (Redford et al., 2009, p.28) that may enable them to negotiate with schools’ rules in their favour and navigate through educational settings. In contrast, students who do not possess such cultural skill sets may acquire “a sense of constraint” (Redford et al., 2009, p.28) that

may hinder their engagement in educational settings, which may then result in the variation in academic achievement (Redford et al., 2009; Lareau, 2003).

Nonetheless, both Bourdieu (1977) and Lareau's conceptions (2003) of the signalling mechanism rest on the postulation that the cultural capital higher SES students possess is well received and valued by key figures in formal educational settings such as their teachers, whilst this may not always be the case. For example, Hu (2017) argues that if a given educational system uses standardised evaluation, such as high-stakes exams, as the means to assess students' academic achievement, then teachers may have to follow objective criteria, and there is little space for subjective assessment. Indeed, given that standardised evaluations focus more on how well students can master the required curricular content that is more closely associated with students' cognitive abilities and effort (Sullivan, 2001), the signalling mechanism may have little, if any, leeway to play out in such context. It is in this sense that another major mechanism comes into play, namely the skills mechanism.

#### **2.4.2 The Skills Mechanism**

The skills mechanism suggests that cultural capital benefits students' academic achievement by directly enhancing students' cognitive and non-cognitive abilities or skills that may boost their academic performance (Brieholt & Jaeger, 2020). For instance, participation in extracurricular activities may allow students to develop better intellectual creativity and critical thinking skills

that may be useful in their studies (Kisida et al., 2014; Lareau, 2011). In a similar vein, reading for pleasure as a form of cultural capital may enhance students' linguistic and reading comprehension abilities and may also be beneficial for their academic achievement (Sullivan, 2001).

Notably, a number of scholars (e.g. Brienholt & Jaeger, 2020; Leopold & Shavit, 2013) have also suggested that the same type of cultural capital may benefit different students' academic achievement differently, as there are several critical factors that may affect the extent to which cultural capital may influence students' academic achievement, namely societal contexts, school types, SES, gender and achievement domains.

## **2.5 Moderators of Cultural Capital's Impact on Academic Achievement**

### **2.5.1 Societal Contexts**

Societal contexts are a critical component in the cultural capital framework as they serve as the macro environment in which cultural capital navigates throughout schooling. Cultural capital may contribute to academic achievement differently across different societal contexts, as societies may have varied mean levels of student achievement due to the relevant sociocultural values given to education and learning (Tan & Liu, 2018). One significant example of a comparison may be Confucian heritage cultures and non-Confucian heritage cultures. In Confucian heritage cultures such as China and Japan, there are

many embedded cultural values that foster students' academic achievement (Ker, 2016). For instance, a common sociocultural belief in Confucian heritage cultures is that hard work and effort are more crucial than innate intelligence in learning (Wang et al., 2012). Also, learning is often perceived as an endeavour that may produce long-term benefits such as greater social mobility and better earnings and obtaining high academic achievement is seen as a filial responsibility to honour one's parents (French et al., 2015). It may thus be plausible that the impact of cultural capital in Confucian heritage cultures may not be as significant as that in non-Confucian heritage cultures because its significance may, to some extent, be moderated by the pro-learning cultural values and the product of such cultural values, that is, a learning-oriented climate in schools and at home (e.g. Lee, 2014; Tan & Liu, 2018).

In a similar vein, societies may also vary in terms of economic development and related educational development (Byun et al., 2012). That is, more economically developed societies may be able to assign more resources to education such as better educational materials and more advanced infrastructures in schools (Little & Rolleston, 2014). The provision of higher quality educational resources may therefore enhance students' academic achievement, thereby reducing the effects of cultural capital on achievement (Tan & Liu, 2018).

## 2.5.2 School Types

The schooling environment may also play a key role in the cultural capital framework as it acts as a meso-level playing field in which cultural capital is converted into superior academic achievement. Although it is often assumed that the rate of return to cultural capital regarding academic achievement is equal across different school contexts (Tan et al., 2019), it needs to be noted that students may attend different school types. The effect of cultural capital may thus vary in schooling environments that are characterised by different teachers and peers (Tan et al., 2019). Indeed, if cultural capital manifests itself in signals, then a higher return may be yielded in high-SES schools that have a large concentration of high SES students since teachers and peer students are more likely to be more familiar with cultural capital and are thus more likely to recognise and reward the signals that students send out rather than the actual skills they possess (Andersen & Jæger, 2015).

Whilst if cultural capital operates via skills, then students in low SES schools, which are often occupied disproportionately by low SES students, may benefit more than their high SES schooling peers since teachers and peers in low SES schools may more likely to be less familiar with cultural capital and are therefore less inclined to appreciate the cultural capital signals (Breinholt & Jaeger, 2020). In this case, then, the actual skills associated with cultural capital such as critical thinking skills may be more useful as they are more easily recognised in schools than the more abstract signals.

### 2.5.3 SES

Furthermore, SES may also, to some extent, mediate the effects of cultural capital on students' academic achievement, and there are two major schools of thought, namely cultural reproduction theory (Bourdieu & Patterson, 1977; Lamont & Lareau, 1988) and cultural mobility theory (DiMaggio, 1982; De Graaf et al., 2000). Cultural reproduction theory denotes that cultural capital may be particularly beneficial for students from high SES families. The fundamental logic is that students from higher SES backgrounds may acquire a greater amount of cultural capital from primary and early socialisation at home than their less privileged peers who may not have the appropriate socialisation (Lareau & Weininger, 2003). The advantage on the stock of cultural capital may then be accumulated over time, which may eventually lead to better academic achievement in the school settings. A large volume of research (e.g. Dumais, 2002; Roksa & Potter, 2011) has gained support for the cultural reproduction theory. For example, Dumais (2002), using a longitudinal dataset of a nationally representative sample in America, reported that students from higher SES families had higher grades than their low SES counterparts, regardless of gender. Similarly, Roksa and Potter's study (2011) generated consistent findings with Dumais's (2002) study using data from another longitudinal panel study in America. Nevertheless, some scholars (Coleman, 1988; Kalmijn & Kraaykamp, 1996) have questioned the taken-for-granted premise that high SES students would generally possess a higher level of cultural capital, given

that not all high SES families would have a cultural capital-rich home environment as not all high SES parents may invest in cultural objects or enrol their children in cultural activities (De Graaf et al., 2000; Zhu, 2020). Following this line of inquiry, it seems to suggest that high SES is not necessarily related to a greater amount of cultural capital. However, what this critique overlooks is that another crucial tenet of cultural reproduction theory is that high SES students have more channels to obtain cultural capital, and they may have more adept use of the acquired cultural capital. Indeed, high SES parents may offer their children the social resources brought by their high educational attainment and occupational privileges that may enhance their children's grasp on cultural capital (De Graaf et al., 2000). For example, high SES families are more likely to be involved in social circles in which children of friends and relatives have a high level of cultural capital, and they may be able to acquire some forms of cultural capital from the frequent interactions between members within these social circles (De Graaf et al., 2000). Also, by observing and communicating with their peers who possess a great stock of cultural capital, they may learn how to better decode cultural capital and how to more effectively utilise it in school settings (Zhu, 2020). For low SES children, following the same logic, they are more likely to socialise with children who are also from less advantaged backgrounds with limited cultural capital, and thus the interactions between them may not produce cultural capital nor improve their use of cultural capital.

Cultural reproduction theory assumes that family and its related social space are the primary settings in which cultural capital is acquired, and the skills to use it are learnt. However, if cultural capital may also be obtained from interactions with others, then it may be argued that schools may not only serve as an unlevel playing field for cultural capital to impose its power but also a crucial context in which cultural capital may also be obtained. Given the extended social networks in the school setting, students may gradually acquire cultural capital in the education process, and such acquisition may then benefit students regardless of their SES (DiMaggio, 1982; Zhu, 2020); herein lies the root of cultural mobility theory. More importantly, cultural mobility theory holds that cultural capital may, instead, have a higher return to low SES students. Given that low SES students may have limited forms of other capital, they may thus have a stronger incentive to utilise cultural capital in order to make up for their disadvantages in other domains, and therefore the possession of cultural capital may be particularly useful and valuable to them (Andersen & Jaeger, 2015).

#### **2.5.4 Gender**

Moreover, gender may also be an influential factor that may determine cultural capital's impact on students' academic achievement. This is likely due to the fact that male and female students may have different socialisation experiences (Tan, 2017). According to Mickelson (2003), males and females

may socialise into the varied expectations and opportunities associated with their respective gender and gradually interiorise the specific habitus that may eventually influence their schooling trajectories. It needs to be noted, however, that although some consensus has been reached on cultural capital's different effects on academic achievement based on gender, it remains contested as to which gender may benefit more from cultural capital (Tan, 2017). For example, in Dumai's study (2002) of Year 8 students in America, it was found that female students reaped higher returns from getting involved in cultural activity participation than males, whilst Zadeh et al.' study (2010) of Year 1 students in America reported that the availability of learning resources at home benefited more on males than female students.

### **2.5.5 Academic Domains**

Cultural capital's influence may also vary by the characteristics of educational fields. According to Bourdieu (1996), there are predominantly two types of fields in learning, namely 'talent' fields in which talent is assumed to be necessary for understanding relevant knowledge, and 'hard work' fields where hard work and effort are prioritised in achieving success. Bourdieu posits that subjects such as Maths are the 'talent' fields, whereas languages - such as French - belong to the 'hard work' fields. This is because Maths is related more closely to abstract and diffuse concepts and knowledge (Macknight, 2021), whilst language learning is more time-consuming if students are to be fluent

orally and flawless in written tasks (Finn et al., 2014). Bourdieu (1996) believes that cultural capital's impact will be greater in the 'talent' fields than in the 'hard work' fields since the acquisition of knowledge is more implicit in the 'talent' fields, which may allow a greater leeway for cultural capital to navigate through (Bourdieu, 1996). Nonetheless, Bourdieu's thoughts on academic domains in the 1990s have been challenged by a number of scholars (Tan, 2017; Espinosa et al., 2006). For instance, Tan (2017) argues that reading achievement may be more likely to be affected by cultural capital than achievement in Maths, as reading involves subjective understanding and appreciation of specific contextual knowledge that may be well nurtured by cultural capital. Empirical research has generally endorsed the later perception of cultural capital's effect on different academic domains. For instance, Espinosa et al.'s study (2006), using a longitudinal dataset on kindergarteners, found that the number of books at home and reading habits were more positively associated with students' reading scores than Maths achievement. Similarly, in their study of Norwegian Year 8 minority students, Hvistendahl and Roe (2004) revealed that objectified cultural capital, such as the possession of highbrow cultural objects was correlated with reading achievement but not Maths achievement.

### **2.5.6 Comments on the Moderators of Cultural Capital's Effect**

From previous discussions on the moderated relationship between cultural capital and academic achievement, it is valid to suggest that cultural capital

does not impact students' academic achievement in a simple manner. Rather, the effect of cultural capital is likely to be shaped by different student and contextual factors such as society contexts, school types, gender, SES and academic domains. Therefore, caution needs to be taken when interpreting the findings from the extant literature. For the same reason, it may be worthwhile to specifically review the research conducted in the Chinese context.

## **2.6 Cultural Capital Research in China**

Research on cultural capital in the Chinese context remained scarce until the early 2000s, after which cultural capital seemed to receive its due attention in China, with a burgeoning amount of literature being published on cultural capital and academic achievement. Among the existing literature, a large body of it (e.g. Luo et al., 2022; Ma & Wu, 2020; Xu & Hampden-Thompson, 2012) has found supporting evidence for cultural capital's effect on academic achievement. However, it may be worth noting that a few features may be prominent in these studies. First, the majority of the research conducted in the Chinese context used either the OECD's Programme for International Student Assessment (PISA) (e.g. Luo et al., 2022; Zhang & Huang, 2016; Tan & Liu, 2018) or China Education Panel Survey (CEPS) datasets (e.g. Ma & Wu, 2020; Zhao & Wang, 2023). Whilst these large-scale datasets may enjoy better representativeness of the Chinese student population, both PISA and CEPS sampled junior secondary school students who were aged 16 years or younger,

and thus, it remains unclear as to how cultural capital may play its role in other schooling stages such as senior secondary schools. Also, due to the use of secondary data, researchers were limited on what cultural capital to include in their studies (Luo et al., 2022). For example, studies using the PISA dataset could only gauge cultural capital in its objectified state as PISA did not measure any embodied cultural capital, but objectified cultural capital and such incomplete measurement of cultural capital may generate findings that underestimate cultural capital's impact on academic achievement (Luo et al., 2022). The CEPS dataset included measures for both embodied and objectified cultural capital. However, these studies using the CEPS dataset tend to measure embodied cultural capital based on Bourdieu's conception that only consisted of highbrow cultural participation (e.g. Ma & Wu, 2020). Also, the CPES studies often capture objectified cultural capital by solely looking at the number of books at home (e.g. Ma & Wu, 2020; Xie & He, 2023) whilst neglecting other potential forms of objectified cultural capital. Given the flawed measurement of cultural capital in both PISA and CEPS datasets, it may naturally lead one to question how, then, cultural capital may be more appropriately operationalised in the Chinese context.

Although little effort has been paid to studying how to operationalise cultural capital in the Chinese context, there are some suggestions provided by researchers that examine cultural capital in other Eastern Asian contexts such as Korea and Japan (e.g. Yamamoto & Brinton, 2010; Choi et al., 2019; Byun

et al., 2012). Research in Korea and Japan has found that cultural capital related to Western highbrow culture does not act as a strong influencing factor in academic achievement (Yamamoto & Brinton, 2010), and it has been advised that both international and local operationalisations of cultural capital may be needed in Eastern Asian contexts (Hu & Yin, 2021). International operationalisation of cultural capital, or the more classic operationalisation, refers to the engagement with highbrow cultural activities such as visiting museums or going to plays and extracurricular activities such as various interest classes, which Yu et al. (2023) termed “quality-oriented cultural capital” (p.1192). The local operationalisation of cultural capital needs to reflect the specific legitimate culture in a specific context (Yu et al., 2023). In the context of China, local cultural capital may be more exam-oriented rather than quality-oriented, given the popularity of the meritocratic discourse and the emphasis on the College Entrance Examination, Gaokao, throughout schooling. It is therefore suggested that exam-based cultural capital, such as reading habits and participation in shadow education, may need to be included in the Chinese context (Yu et al., 2023; Choi et al., 2019).

## **2.7 Conclusion**

Bourdieu posits that there are three forms of capital: economic, cultural, and social capital (Bourdieu, 1986). Cultural capital may manifest itself in the states of embodied, objectified and institutionalised (Bourdieu, 1986).

Bourdieu's conception of cultural capital inclines more towards the highbrow culture, which is evident back in the 1970s in France (Bourdieu, 1986). Later cultural capital researchers have, however, criticised Bourdieu's narrow perception of cultural capital and suggested that a broader conceptualisation of cultural capital may be more useful in contemporary societies (Lareau & Weininger, 2003). When it comes to the mechanisms in which cultural capital may influence academic achievement, the signalling mechanism and the skills mechanism are the two primary mechanisms that are often discussed in the literature, whilst context plays a crucial role in determining which mechanism is more likely to be present in a given context (Hu, 2017). Interestingly, cultural capital's dynamic nature is not only evident in the varied mechanisms but also its interaction with other micro, meso and macro factors in the interplay of academic achievement, such as society contexts, school types, gender, SES and academic domains. When it comes to the existing research on cultural capital and academic achievement in China, two significant limitations related to the data source are identified. First, many studies applied secondary datasets such as PISA and CEFEP that only included junior secondary school students, thereby leaving cultural capital's impact on academic achievement in other educational stages untouched. Second, the use of secondary datasets limits the researchers' choice as to operationalising cultural capital, as many only partially gauged cultural capital, which may thus influence the reliability of the findings, and it has been advised that both international and local forms of

cultural capital may be necessary in the Chinese context.

# Chapter 3 Methodology

## 3.1 Introduction

This chapter will first state the proposed research question of this study. Following is the demonstration of this study's design and the rationales for using the specific design. It then moves on to discuss the sample of the study and the variables examined in the study. Next is the illustration of the data collection procedures and the analytic strategies adopted to produce research findings. Relevant ethical considerations and the limitations of the study design will also be delineated at the end of this chapter.

## 3.2 Research Questions

Given the extant studies' limitations and gaps, as demonstrated in the literature review chapter, this study sought to fill the identified gap by investigating the potential impact cultural capital may have on students' academic achievement in urban China. The research questions that guided this study were:

1. What may embodied and objectified cultural capital denote in the Chinese context?
2. What are the effects of different dimensions of cultural capital on students' academic achievement?

### 3.3 Research Design

This study opted for a quantitative approach to answer the research question. Quantitative research is a type of research that aims at “explaining phenomena by collecting numerical data that are analysed using mathematically based methods” (Creswell, 1994, as cited in Sukamolson, 2007, p.2). It needs to be noted, however, that the use of numbers in this study does not imply any paradigmatic or epistemological assumptions but because numerical data is an effective type of data that may indicate how robust the research finding is and may present a pattern or relationship between the variables of interest (Gorard, 2021). Whilst given that this study wanted to examine whether there existed a potential association between cultural capital and students' academic achievement and the degree of such association, a quantitative study that collects numerical data on students' stock of cultural capital and their academic achievement may thus be appropriate and helpful to fulfil that objective.

Furthermore, this study adopted a survey design using self-administered questionnaires among the various quantitative designs available (Artino et al., 2014). Numerous scholars (e.g. Artino et al., 2014; Johnson & Christensen, 2017; Coe et al., 2021) have suggested that questionnaires are a valuable instrument for gathering data on concepts that are difficult to quantify or observe directly. Thus, using questionnaires may be an appropriate and practical method to collect data on students' cultural capital. More importantly, given that

cultural capital is abstract and dynamic in nature (Vryonides & Lamprianou, 2013), it is therefore advised that the use of multiple scales rather than a single item is necessary to more comprehensively and precisely assess the underlying construct (McIver & Carmines, 1981, as cited in Artino et al., 2014). This study thus also chose to capture cultural capital in different dimensions in the questionnaire, which will be delineated later in the measures section. The questionnaire was initially designed in English and was later translated into Chinese for easier interpretation and answering by the study participants. The Chinese questionnaire was checked and proofread by several Chinese teachers in Shanghai to ensure translation accuracy before distributing to the participants.

### **3.4 Sample**

Given the limited time frame, this study used a convenience sample as it is arguably the most accessible and time-efficient approach to collect data for small-scale quantitative studies (Acharya et al., 2013; Etikan et al., 2016), which may thus well suit this study. The study had 827 responses in total, whilst 217 of which did not answer any question in the questionnaire and were thus deleted manually. Among the remaining 610 responses, 38 responses did not fill in any parents' occupational information and were therefore also deleted. Another 27 responses did not fill in any information about their academic achievement and thus were also not included in the final sample. The final

sample consisted of 545 senior secondary school students, including 249 males, 290 females and 6 non-binary students. Whilst acknowledging the presence of 6 non-binary students, their data were dropped in the analyses as a group of 6 was too small to generate useful findings from, and therefore, the actual sample in the analyses was 539. The students were from 4 public senior secondary schools in Shanghai, namely school A, B, C and D. School A is a school in Xuhui District established in the early 1990s that enrolls around 600 students. School B is also in Xuhui District, established in the early 1900s, and is a city-level key target school that has about 800 students. School C is a school situated in Minhang District, established in the 1950s, and is one of the district-level key target schools that has slightly over 1200 students. School D was established in the late 1990s in Xuhui District and has around 1500 students. The initial population of interest was all public school students in Shanghai. However, due to the adoption of non-random sampling, the actual population of this study was the students of the participating schools. There were no specific exclusion criteria when recruiting the participants, whilst the only inclusion criteria were that participants must be currently enrolled students in a public senior secondary school in Shanghai whose ages ranged between 16 and 18 years old and ranged from Year 10 to Year 12.

With regard to the recruitment of the sample, the student participants were sent information sheets (see Appendix A) before they decided if they would like to participate in the study to ensure they fully understood the purpose and the

process of the study. The head teachers signed and returned the consent form (see Appendix B) to the researcher before the survey phase commenced. The students who decided to partake in this study were asked to give their consent and acknowledge the study's aims and its voluntary nature before they got to see the questionnaire content by ticking the relevant boxes on the webpage on Qualtrics (see Appendix C for the full questionnaire).

There are various ways to determine the sample size suggested in the extant social science research literature (Walliman & Buckler, 2008). One common approach is to use the margin of error (E), the level of confidence (Z) and the estimation of the population's variation (P) (Taherdoost, 2017). In empirical research, E, Z and P are often set at 5%, 95% and 50%, respectively (Bartlett et al., 2001). In the case of this study, then, given a population of 4100, a sample size of 350 would be sufficient to represent the targeted population. However, such a rule-of-thumb approach may be overly too general and may not well indicate the actual sample size needed for the multiple linear regression that this study intended to perform. It is in this sense that this study opted for the power approach, which depends on the value of power, the expected effect size, and the level of confidence. Power is the probability of rejecting a false null hypothesis, and the ideal power of an empirical study is believed to be 0.8 (JL Hintze, 2008, as cited in Serdar et al., 2021). In terms of effect size, although a large volume of previous research has reported a medium effect of cultural capital on students' academic achievement, it is crucial to acknowledge that

many studies sampled students from junior secondary school students, whilst the effect size of independent variables on achievement-related dependent variables may decrease with the increase in year levels (Cheung & Slavin, 2016). Therefore, it is believed that a small effect size may be more likely to present in empirical studies sampling more mature students (Cheung & Slavin, 2016), which might be the case in this study. Given that the value of small effect size for multiple regression is 0.02 (Serdar et al., 2021) and a power of 0.8 with the level of confidence being 0.05, the required minimum sample size for this study was thus calculated using Gpower, and the result was 688 (actual power equalled to 0.8). Although this study's sample was fewer than 688 due to the limited timeframe and resources, it was relatively close to the required figure.

## 3.5 Measures

### Dependent Variables

*Academic achievement.* Data on students' academic achievement was obtained by asking students the question, "What score did you get for your end-of-term Chinese exam?", "What score did you get for your end-of-term Maths exam?" and "What score did you get for your end-of-term English exam?". Noteworthy is that the scale of exam scores in China is somewhat different to other national contexts, as it ranges from 0-150 instead of 0-100 (Ma & Wu, 2020), and the scores are teacher-marked.

### Independent Variables

*Cultural capital.* The measure of cultural capital was divided into two

dimensions, namely embodied and objectified. Although cultural capital consists of three forms as suggested in the literature, given that this study's participants were still in senior secondary school, the institutionalised state was thus unfeasible to capture.

*Embodied cultural capital.* Embodied cultural capital consisted of questions asking about students' highbrow cultural activity participation, reading habits and extracurricular activity involvement, which were in line with previous cultural capital research conducted in the Chinese context (e.g. Hu & Wu, 2021; Ma & Wu, 2020). These three forms of embodied cultural capital were widely used in previous quantitative studies in the Chinese context to serve as a somewhat standard composition of embodied cultural capital (Hu & Wu, 2021). However, they may only capture general aspects of embodied cultural capital, which may not be ideal for more effectively gauging some more implicit dimensions of embodied cultural capital (Hu & Wu, 2019). Therefore, this study built on the simple gaugement and included a few novel forms of embodied cultural capital. Shadow education and the use of dialect were added in the hope of doing full justice to embodied cultural capital's potential impact on students' academic achievement. Notably, these two types of embodied cultural capital were brought into being by scholars conducting quantitative cultural capital research in East Asian contexts, in particular South Korea, which shares somewhat similar educational systems with China. Shadow education enrollment was included, given its prominent role in the East Asian educational systems (Byun

et al., 2012; Li, 2020). The use of dialect at home was also found to be a crucial yet often overlooked dimension of embodied cultural capital (e.g. Tan & Fang, 2023), thus may also be worth including.

The frequency of visits to museums or art galleries and concerts or plays in the past 12 months was asked to indicate students' participation in highbrow cultural activities. To measure students' reading habits, they were asked how long they tend to read for pleasure on weekdays and weekends and students were also asked to report the frequency of borrowing books from the library in the past 12 months. Extracurricular activity involvement and shadow education enrollment were examined by asking about the frequency of attending extracurricular activities and shadow education. The use of dialect was measured by asking whether students would use a dialect for communication at home.

**Table 1. Measurement of Embodied Cultural Capital**

Item	Scale
The frequency of visits to museums or art galleries in the past 12 months	1=never; 2=once; 3=twice; 4=three to five times; 5=more than five times
The frequency of going to concerts or plays in the past 12 months	
Reading for pleasure on weekdays	1=never or almost never; 2=half an hour; 3=half an hour to one hour; 4=one hour to two hours; 5=more than two hours
Reading for pleasure on weekends	
The frequency of borrowing books from the library in the past 12 months	1=never or almost never; 2=once a year; 3=once half a year; 4=every month; 5=every week
The frequency of attending extracurricular activities	1=never or almost never; 2=a few times a year; 3=a few times a month; 4=a few times a week; 5=everyday
The frequency of attending shadow education	
The frequency of dialect speaking at home	1=never or almost never; 2=sometimes; 3=often; 4=very often; 5=always

*Objectified cultural capital.* The objectified state of cultural capital was investigated by enquiring about students' home educational resources, including the number of books they have at home and the ownership of academic-related objects, which aligns with previous studies (e.g. Hu & Wu, 2020; Bodovski et al., 2019). The number of books at home was measured using a five-point scale modified from previous research (Heppt et al., 2022),. The ownership of academic-related objects was examined by asking students whether they had their own bookcase, study space, computer or laptop.

**Table 2. Measurement of Objectified Cultural Capital**

Item	Scale
The number of books at home	1=0-10 books; 2=10-30 books; 3=30-50 books; 4=50-100 books; 5=more than 100 books
The possession of own bookcase	
The possession of own study space	0=no; 1=yes
The possession of own computer or laptop	

### Control Variables

Given that there may be other confounding variables that may influence students' academic achievement, in particular their demographic characteristics (Strayhorn, 2010), it may thus be necessary to include these variables when investigating cultural capital's impact on students' academic achievement. Therefore, this study also included students' background characteristics as control variables.

*Age.* The information on students' age was obtained by asking them to indicate their birthdate at the beginning of the questionnaire, which was then converted into a rounded-up number of years.

*Gender.* Gender was measured by asking students to indicate if they were male, female or non-binary at the beginning of the questionnaire, with male, female and non-binary being coded as 1, 2 and 3, respectively. The variable was later dummy coded with male serving as the reference group.

*Socioeconomic status.* Students' SES is often comprised of parents' occupation, parents' educational attainment and family income (Sirin, 2005).

However, capturing SES using all three factors has been found to reduce information accuracy as students may not be able to accurately report parental information (Saha, 1992; Cirino et al., 2002). Therefore, this study chose to drop family income when gauging SES since it is believed to be the most complicated factor out of the three for students to report (Cirino et al., 2002). The reported occupation of parents was assigned a value according to the International Socioeconomic Index (ISEI) developed by Ganzeboom (2010). The ISEI is a widely-used standardised SES measure taking into account the income and necessary education level of a given occupation that ranges from 10 to 90, with low values indicating low SES occupations and high values indicating high SES occupations (Heppt et al., 2022). For calculation purposes, the scores for ISEI were standardised to a scale of 1 to 9 instead of the original scale of 10-90.

**Table 3. Measurement of Parents' Occupation**

Category	Score
Unemployed	0
Heavy manual workers such as farmers and vehicle cleaners	1
Semi-skilled workers such as truck drivers and plant workers	2
Skilled agricultural, forestry and fishery workers such as gardeners and livestock producers	3
Craft and related trade employees such as house builders and tailors	4
Service and sales employees such as hairdressers and travel guides	5
Clerical support employees such as office clerks and bank tellers	6
Technicians and associate professionals such as computer programmers and finance dealers	7
Professionals such as lawyers and professors	8
Managers and administrative staff such as chief executives and commercial managers	9

Parental education level was measured according to students' reports of the formal education qualifications their parents hold (Ganzeboom et al., 1992). Some scholars (e.g. Heppt et al., 2022; Avvisati, 2020) hold that educational attainment may need to be transformed into years of schooling, whilst such approach may be problematic in practice since there may well be cases in which two individuals receive the same years of schooling whilst obtaining entirely different qualifications (Ganzeboom et al., 1992). Thus, this study chose to gauge parental education by solely asking for information about the educational qualifications that the parents have, aligning with national surveys conducted in the Chinese context such as the China Family Panel Studies (CFPS) (Peking University, 2010). Different educational qualifications were then given a score based on a simplified version of the International Standard Classification of Education (ISCED) (UNESCO, 2012).

**Table 4. Measurement of Parents' Educational Attainment**

Category	Score
Junior secondary education or below	1
Senior secondary education	2
Bachelor's or equivalent	3
Master's or equivalent	4
Doctoral or equivalent	5

An SES index was then calculated by multiplying the highest scale value for parents' occupation by a weight of 5 and the highest scale value for parents' educational attainment by a weight of 3 (Hollingshead, 1975), which ranged between 3 and 57.

### 3.6 Reliability and Validity

Given that the instrument of this study was created by the researcher and informed by Bourdieu's cultural capital theory and the extant literature, an exploratory factor analysis (EFA) may be necessary to inspect construct validity for the 12 cultural capital items. Before running the actual factor analysis, the number of factors that need to be retained from the analysis was decided by conducting the Minimum Average Partial (MAP) criteria. The MAP criteria were chosen as it is argued to be superior to the classic but problematic Kaiser criterion that asks for factors with an eigenvalue greater than 1, which often generates too many factors (Costello & Osborne, 2019). The result indicated that the number of factors that should be retained was 1 (see Appendix D). In this study's case, then, the result seemed to suggest that all the cultural capital items should be loaded on a single factor, which did not seem to be a sound model as it was severely underfactored and may thus omit the construct complexity of cultural capital (Watkins, 2018). Indeed, MAP tends to generate the minimum number of factors needed in the analysis (Costello & Osborne, 2019), and it is suggested that multiple methods may need to be applied, and each sensible solution may need to be carefully judged to eventually identify the most appropriate factor solution (Watkins, 2018). Therefore, a parallel analysis (PA), which was believed to be equally reliable and accurate as the MAP criteria (Costello & Osborne, 2019; Gaskin & Happell, 2014), was also conducted. The PA result showed that two factors should be retained (see

Appendix E). However, an Unweighted Least Square factor analysis with factors extracted to 2 indicated that most items of embodied cultural capital and objectified cultural capital loaded on the same factor, with only two reading habits items loaded on another factor, which did not effectively reflect the complexity of the structure underlying cultural capital. Given that the basic function of EFA is to make meaning of data and “the result of an EFA must be a sensible factor structure that is easily understood” (Costello & Osborne, 2019, p.18), a third attempt that consisted of both the Kaiser criterion and the scree plot was performed (see Appendix F). The combination of the two methods is believed to be more accurate and reliable than using the Kaiser criterion alone, albeit being less accurate than the MAP and PA (Gaskin & Happell, 2014; Costello & Osborne, 2019). Nevertheless, it needs to be borne in mind that no method has been found to be correct in all situations (Costello & Osborne, 2019), and thus, adopting a theoretically less desirable approach may still serve as a valuable alternative in practice. The inspection of the scree plot and the eigenvalues using the Kaiser criterion suggest that the optimal model would involve three factors. A factor analysis with factors extracted to 3 was conducted, and the result is presented in Table 5. It is valid that a more solid theoretical rationale existed for the third model compared to the two previous ones, since a clearer conceptual structure can be seen from the third model in which two factors may be treated as embodied cultural capital and another be treated as objectified cultural capital (more detail will be provided in the paragraph to

come). Thus, the third model was chosen as the final solution for the 12 cultural capital items. It needs to be noted that this study chose to apply an oblique rotation method, and it was chosen because there might well exist some correlations among factors, which may be particularly true for constructs in the social sciences (Osborne, 2015). Even if the factors were truly uncorrelated, they would be allowed to assume a correlation of 0 in an oblique rotation, thereby generating results identical to those of orthogonal methods (Osborne, 2015). More specifically, this study adopted the Promax rotation, which is argued to be a more desirable oblique choice than the more complex Direct Oblimin rotation, especially when the dataset is relatively large (Thompson, 2004, as cited in Costello & Osborne, 2019). Also noteworthy is that the extraction method used here was Unweighted Least Square, for it was suggested to be the most appropriate one to handle ordinal data (Gaskin & Happell, 2014).

The Kaiser-Meyer-Olkin measure verified the sampling adequacy, KMO = .78, as a KMO value between .7 and .9 is argued to be middling (Shrestha, 2021). Bartlett's test of sphericity  $X^2(55) = 978.671$ ,  $p < .001$ , suggested that correlation structure is sufficient for factor analysis. The three-factor solution with a coefficient cutoff point of .3 (Yong & Pearce, 2013) as the best fit for the data accounted for 52.80 % of the variance. From Table 5, it is evident that the possession of one's own study space did not load on any of the three factors, which might be the reason why most of the empirical research conducted in the

Chinese context did not include the item as a form of cultural capital (e.g. Li, 2021; Zhao, 2019; Gao, 2021). The possession of one's own study space was therefore dropped from this study. The other three items of objectified cultural capital loaded on factor 1, along with shadow education and dialect speaking at home. Although shadow education and dialect speaking at home may not, on the surface, be related to objectified cultural capital, they may implicitly embody the amount of educational and cultural resources available to students that may reflect their stock of objectified cultural capital. Indeed, it is suggested that whether or not students were involved in shadow education might be treated as a form of embodied cultural capital, whilst the frequency of attending shadow education may be better seen as objectified cultural capital (Li, 2018). The same may apply to dialect speaking at home. Thus, factor 1 may be called cultural and educational resources that represent objectified cultural capital. Reading habits or factor 2 had the same factor structure as suggested in the existing literature. Highbrow cultural participation and extracurricular activity participation were loaded on the same factor, i.e. factor 3, which may be because they represent different dimensions of embodied cultural capital, and the third factor may be named cultural activity participation.

**Table 5. Results of the Exploratory Factor Analysis**

Items	Factor 1	Factor 2	Factor 3
Number of books at home	0.58		
Possession of a bookcase	0.53		
Possession of own computer or laptop	0.53		
Shadow education	0.52		
Speaking dialect at home	0.31		
Possession of own study space			
Reading for pleasure on weekdays		0.75	
Reading for pleasure on weekends		0.72	
Borrowing books from the library		0.45	
Visits to museums or art galleries			0.71
Going to concerts or plays			0.58
Extracurricular activity participation			0.31

Extraction Method: Unweighted Least Squares.

Rotation Method: Promax with Kaiser Normalization.

Notably, Factor scores generated using the regression method were used as a cultural capital index for the three identified factors in the later regression models. Regression scores were chosen for two reasons. First, it is a refined method that is believed to carry greater reliability than non-refined methods of producing index scores, such as the commonly used ‘sum scores by factor’ approach, and the produced values are standardised (Distefano et al., 2009). Second, the regression method maximises validity and offers the highest correlations between a specific factor score and the corresponding factor (Distefano et al., 2009; Gignac, 2023). Although factor scores obtained using the regression method may not have high generalisability as compared to

Bartlett's scores, this may not be a concern for this study as it is unlikely that a researcher would wish to adopt the same factor estimation solution to another sample (Gignac, 2023).

This study also examined the internal consistency of the instrument items by running a reliability test. Cronbach's alpha is often treated as a default indicator of questionnaire items' internal consistency. However, its coefficient may be significantly influenced by the number of items and the sample size (Akhkand et al., 2021). Therefore, this study used McDonald's omega ( $\omega$ ) instead, given this study's relatively small sample and that the omega is argued to be a more accurate metric for small-scale studies (Goodboy & Martin, 2020). The whole scale of the study had a  $\omega$  of 0.86, which shows good scale reliability (Price et al., 2015). The three individual factors had a  $\omega$  of 0.59, 0.70, and 0.63, respectively, which all indicate acceptable or very close to acceptable scale reliability (Ursachi et al., 2015).

### **3.7 Data Collection**

To collect the data needed for this study, students who agreed to participate in the study were asked to fill out an online questionnaire on Qualtrics that took about 20 minutes in their own time, and the responses were then exported to an Excel document on the researcher's laptop and OneDrive.

### **3.8 Analytic Strategies**

Preliminary descriptive analysis was first performed before examining the

potential influence cultural capital may have on students' academic achievement. Moreover, given that this study was interested in finding out what forms of cultural capital may be associated with academic achievement, a correlation test may, therefore, be the most useful statistical test to perform (Hauke & Kossowski, 2011). Given that the cultural capital items were all measured on Likert scales and from which ordinal data was gathered (Sullivan & Artino, 2013), the Spearman rank correlation test may thus be the most appropriate one to adopt (Hauke & Kossowski, 2011). Before running the Spearman correlation rank test, three assumptions were checked, namely continuous or ordinal variables, paired observations and a monotonic relationship between the variables (Sedgwick, 2014). Whilst the first two were thus far met by the study design, the existence of a monotonic relationship was also found from the inspection of the scatter plots (Helton & Davis, 2002). Noteworthy is that for the interpretation of the correlation coefficients, this study deemed a correlation coefficient between +/- .1 and +/- .3 as weak, between +/- .3 and +/- .6 as moderate and above + .6 or below - .6 as strong, which is a commonly used criterion in the social sciences (Akoglu, 2018; Dancey & Reidy, 2007).

Given that this study was also interested in distinguishing the variation in academic achievement that may be explained by cultural capital from the variation that may be accounted for by the control variables, three hierarchical multiple regressions were also conducted (Jeong & Jung, 2016; Tranmer &

Elliot., 2008). The assumptions for a hierarchical multiple regression were checked before performing the regression tests. There was a linear relationship between the independent variables and the dependent variable as per the scatterplots in all three models (see Appendix G). There was homoscedasticity in all three models, as assessed by visual inspection of the scatterplots (see Appendix G). No multicollinearity was observed by examining the Tolerance values, of which no Tolerance value was less than .1 (Zainodin & Yap, 2013). Several outliers were identified by inspecting the values of studentised deleted residuals (Paul & Fung, 1991). However, an inspection of the ordered values of Cook's Distance suggested that the identified outliers were not influential points since no value was above 1 (Bowerman et al., 2005; Dhakal, 2017), and thus they were kept in the analyses. No high leverage points were observed by checking the ordered leverage values, as no case exceeded the cutoff of .2 (Hoaglin, 1988). Residuals were also approximately normally distributed in all three models, as suggested by the histograms and P-P Plots (see Appendix H). After the regression tests, the potential interaction effect between cultural capital and SES was examined by conducting interaction effect tests using the centred values of cultural capital factor scores and SES index and the interaction terms (Shieh, 2009). Identifying the potential interaction effects may be helpful as the results may suggest whether cultural reproduction or cultural mobility theory holds merit in the Chinese context. To better account for the potential interaction effects, only the types of cultural capital that were found to

be significantly related to academic achievement were put into the models, and no other control variables were placed in the models for the same reason.

### **3.9 Ethics**

A number of ethical considerations were taken into account throughout this study. Given that the questionnaire did not ask for any identifiable personal data, confidentiality may thus not be a particular matter of concern. Also, the data recorded in electronic form was stored securely on a password-protected laptop and OneDrive, which was only accessible to the researcher and his supervisor to ensure the data was stored safely.

Moreover, given that students were asked to report their stock of cultural capital that may be closely related to SES factors, there might be a risk of causing shame and inferiority to some disadvantaged students (Bosma et al., 2015). Therefore, when translating the questionnaire from English to Chinese, the wording of the questions was structured with extra caution. For example, rather than asking students, "How often did your parents take you to a concert or play in the last 12 months?" which carries a presumption that their parents did take them to a concert or a play and that it is something that their parents should do, it instead asked students "Have you been to a concert or play in the past 12 months?". Despite that both questions may produce the same answer, the latter question's tone was much more softened as it asks the students to indicate their highbrow cultural activity participation in a much less presumptive

manner, which may thus reduce the potential of causing mental harm to the participants after completing the questionnaire.

### **3.10 Limitations**

Although this study made a number of alterations in its design compared to previous cultural capital research, it still faced several limitations. Due to this study's cross-sectional design, it was unable to establish time order as the occurring changes in students' academic achievement caused by cultural capital were impossible to capture (Johnson & Christensen, 2017). Whilst given that time order is one of the required conditions of causality (Johnson & Christensen, 2017), this study was thus only able to draw associations rather than a causal relationship between cultural capital and students' academic achievement. Similarly, it was not feasible for any empirical study to comprehensively include all the relevant family and individual characteristics that may be related to cultural capital and also students' academic achievement (Jæger, 2011), thereby causing omitted variable bias (Angrist & Pischke, 2009). Also, the use of convenience sampling may, to some extent, compromise the study findings' generalisability as the sample may be prone to self-selection bias (Taber, 2013). Whilst given that this study's generalisability may be limited, the findings generated from this study may need to be treated with caution since the estimates derived from the sample may not reflect true effects among the target population due to poor representativeness of the target population

(Elston, 2021; Jager et al., 2017). Furthermore, the self-report nature of the questionnaire instrument may cause self-report bias that may also affect how reliable the research findings may be (Paulhus & Vazire, 2007).

### **3.11 Conclusion**

This chapter has justified the use of a quantitative survey design for answering the two proposed research questions, which comprised a sample of 519 public senior secondary school students from four schools in Shanghai. The study data was gathered through online questionnaires. The descriptive analyses and Spearman correlation analyses set the data into context to better understand the results of the later main analyses, i.e., hierarchical regression models. Although this study was prone to a number of limitations, it may still be useful to shed some light on cultural capital's impact on students' academic achievement in the Chinese context.

# Chapter 4 Findings

## 4.1 Introduction

Before presenting the results of the three hierarchical multiple regression analyses, this chapter first shows the results of the descriptive analysis of all the variables involved in this study. It then presents the results of the three correlation analyses of cultural capital and Chinese, Maths and English exam scores. Following is the demonstration of the results of the three hierarchical multiple regression analyses of cultural capital and academic achievement. The results of the tests on the potential interaction effect between cultural capital and SES will also be discussed before concluding.

## 4.2 Descriptive Findings

Preliminary descriptive analyses were first run to set the context for the later correlation and regression analyses. Table 6 presents the summary statistics of the study participants' gender. It is evident that the number of female students ( $N=290$ ) was slightly higher than male students ( $N=249$ ).

**Table 6.** *Descriptive Statistics of the Participants' Gender*

	Frequency	Percent
Male	249	46.2
Female	290	53.8

$N=539$ .

Table 7 illustrates the summary statistics of the study participants' age. From Table 7, it can be seen that the participants' age ranged from 15 to 19

years old, and they were 17 years old on average, with a mean of 16.79 ( $SD=0.61$ ).

**Table 7. Descriptive Statistics of the Participants' Age**

	Minimum	Maximum	M	SD
Age	15	19	16.79	0.61

N=539.

Table 8 shows the summary statistics of the study participants' parents' educational attainment. The statistics indicate that only about 6% of the participants' fathers had a Master's degree or a doctoral degree, and nearly 65% of the participants' fathers received a senior secondary education or below. Notably, the distribution in this sample largely aligned with the data from the latest Population Census of Shanghai conducted in 2020 (Shanghai Municipal Bureau of Statistics, 2021), which reported that 42% of Shanghai's long-term residents held a junior secondary education qualification or below, 19% had a senior secondary education and 34% received higher education. Similar to that of the father's, the majority of mothers had a senior secondary education or below, and slightly over 30% received higher education. Again, the distribution was, to a large extent, in line with the 2020 Population Census of Shanghai (Shanghai Municipal Bureau of Statistics, 2021).

**Table 8. Descriptive Statistics of the Participants' Parents' Educational Attainment**

	Father		Mother		Census Percent
	Frequency	Sample Percent	Frequency	Sample Percent	
1	207	40.3	224	41.6	41
2	136	26.5	121	22.4	19
3	142	27.6	173	32.0	
4	22	4.3	14	2.6	34
5	7	1.4	7	1.3	

N=539.

1=junior secondary education or below, 2=senior secondary education, 3=Bachelor's or equivalent, 4=Master's or equivalent and 5=Doctoral or equivalent.

Table 9 shows the summary statistics of the participants' parents' occupations. From Table 9, it can be found that about 4% of the fathers were unemployed, which was close to the 2.7% reported by the 2020 Population Census of Shanghai (Shanghai Municipal Bureau of Statistics, 2021). Almost 50% of the fathers were heavy manual workers or semi-skilled workers, whilst the percentage from the census was only about 21% (Shanghai Municipal Bureau of Statistics, 2021). This significant variation might be due to the fact that many occupations classified as semi-skilled workers in this study, for example, truck drivers, fell under the umbrella category of social production service employees in the census. About 1% of the fathers were skilled agricultural workers, which was close to the 0.7% recorded in the census (Shanghai Municipal Bureau of Statistics, 2021). Around 22% of the fathers' occupations were employees in the field of service or equivalent, whilst the percentage from the census was 44% (Shanghai Municipal Bureau of Statistics,

2021). Again, this might be because of the varied classification of occupations. About 15% of the fathers were technicians or professionals, which was close to the 21% reported by the census (Shanghai Municipal Bureau of Statistics, 2021). Lastly, about 10% of the fathers were managers or administrative staff, similar to the 4% recorded in the census. It is also evident from Table 8 that the distribution was, to a large extent, similar to that of the father's. One noticeable difference is that significantly more mothers were unemployed than fathers, which may be owing to the fact that a large proportion of the mothers who were recorded as unemployed were actually housewives in the Chinese context.

**Table 9. Descriptive Statistics of the Participants' Parents' Occupation**

	Father		Mother		Census Percent
	Frequency	Percent	Frequency	Percent	
0	21	4.1	80	14.8	2.7
1	94	18.3	137	25.4	21
2	161	31.3	74	13.7	
3	6	1.2	3	0.6	0.7
4	19	3.7	8	1.5	
5	38	7.4	48	8.9	44
6	50	9.7	93	17.2	
7	76	14.8	73	13.5	21
8	3	0.6	3	0.6	
9	46	8.9	20	3.7	4

N=539.

1=Heavy manual workers; 2=Semi-skilled workers; 3=skilled agricultural, forestry and fishery workers; 4=craft and related trade employees; 5= service and sales employees; 6=clerical support employees; 7=technicians and associate professionals; 8=professionals; 9=managers and administrative staff.

Table 10 shows the general summary statistics of the participants' academic achievement. It is evident that the participants, on average, had the

best performance in Chinese, with an average score of 96.91 ( $SD=16.35$ ), and they had similar performance in Maths and English, with a mean of 87.70 ( $SD=30.80$ ) and 88.03 ( $SD=28.40$ ), respectively. Additionally, it can also be seen from Table 9 that the spread of the scores in all three subjects was rather large, with a range of 150 in Chinese and 140 and 126 for Maths and English.

**Table 10.** *General Descriptive Statistics of Academic Achievement*

	Range	Minimum	Maximum	M	SD
Chinese	150	0	150	96.26	16.30
Maths	140	10	150	86.11	30.42
English	126	25	150	86.40	27.84

N=539.

Table 11 illustrates the summary statistics of the participants' academic achievement by parents' educational attainment. It can be seen that exam scores in all three academic domains increased steadily when parents' educational attainment increased.

**Table 11.** *Descriptive Statistics of Academic Achievement by Parents' Educational Attainment*

	Father			Mother		
	Chinese	Maths	English	Chinese	Maths	English
1	90.46(12.53)	72.02(23.99)	72.72(21.09)	90.28(13.43)	74.80(25.01)	73.20(21.89)
2	95.37(15.87)	84.84(28.22)	81.54(26.08)	94.41(16.68)	81.36(30.22)	80.92(26.49)
3	103.98(17.12)	104.15(29.78)	107.17(24.32)	105.69(14.57)	104.62(27.47)	108.08(22.01)
4	108.18(14.78)	117.16(20.44)	117.01(16.51)	107.21(17.00)	118.89(27.67)	118.71(24.23)
5	116.64(17.56)	127.00(18.94)	129.50(14.00)	114.64(19.66)	129.14(26.16)	128.68(20.16)

N=539.

1=junior secondary education or below; 2=senior secondary education; 3=Bachelor's or equivalent; 4=Master's or equivalent and 5=Doctoral or equivalent.

Means are reported before the parentheses that have standard deviations in them.

Table 12 presents the summary statistics of the participants' academic

achievement by parents' occupations. From Table 12, it can be found that the exam scores for the three subjects fluctuated, to some extent, for students who had low and middle SES parents, whilst high SES students' exam scores in all three domains were consistently higher than their lower SES counterparts.

**Table 12.** *Descriptive Statistics of Academic Achievement by Parents' Occupation*

	Father			Mother		
	Chinese	Maths	English	Chinese	Maths	English
0	91.80(26.23)	92.95(28.60)	88.13(28.80)	92.09(14.89)	81.03(27.42)	80.09(27.29)
1	94.18(15.29)	82.23(26.13)	79.12(26.62)	94.34(13.82)	79.68(26.28)	76.97(24.84)
2	90.47(12.15)	69.75(23.95)	70.87(20.90)	91.04(11.69)	70.66(23.50)	72.00(22.13)
3	101.75(17.59)	78.92(28.30)	90.42(28.60)	79.00(15.59)	64.67(23.44)	82.17(2.02)
4	92.79(10.88)	81.84(22.41)	90.74(20.05)	94.00(12.31)	79.75(32.40)	84.63(23.51)
5	98.97(12.01)	87.60(32.46)	87.74(24.95)	94.56(15.08)	84.46(29.88)	84.38(28.47)
6	102.53(16.51)	102.28(26.29)	97.14(24.17)	103.40(17.58)	99.43(31.23)	102.83(22.95)
7	104.84(13.45)	105.51(30.47)	107.67(25.51)	104.86(15.12)	106.92(30.03)	109.49(22.36)
8	100.88(13.71)	126.75(20.98)	121.56(13.02)	116.00(22.54)	130.00(16.46)	139.33(12.50)
9	104.65(22.14)	107.86(29.89)	113.68(23.76)	102.95(28.37)	115.65(26.89)	111.00(27.81)

N=539.

0=unemployed; 1=Heavy manual workers; 2=Semi-skilled workers; 3=skilled agricultural, forestry and fishery workers; 4=craft and related trade employees; 5= service and sales employees; 6=clerical support employees; 7=technicians and associate professionals; 8=professionals; 9=managers and administrative staff.

Means are reported before the parentheses that have standard deviations in them.

Table 13 presents the summary statistics of the study participants' stock of cultural capital. From Table 13, it can be found that the participants were not involved much in highbrow cultural activities as they, on average, did not visit museums or art galleries over the past 12 months, and they also did not go to concerts or plays on average. When it comes to reading habits, the participants, on average, read half an hour on both weekdays and weekends. The

participants were also likely to not borrow books from the library in the past 12 months. Furthermore, the participants had 30-50 books at home on average, and they were likely to have a bookcase and their own computer or laptop. Also, the participants, on average, were not enrolled in any extracurricular activity over the last year, whilst they were likely to have been involved in shadow education a few times throughout the year. Lastly, the participants, on average, often used dialect for communication at home.

**Table 13.** *Descriptive Statistics of The Participants' Stock of Cultural Capital*

	Range	Minimum	Maximum	Median
Visits to museums or art galleries	4	1	5	1.00
Going to concerts or plays	4	1	5	1.00
Reading for pleasure on weekdays	4	1	5	2.00
Reading for pleasure on weekends	4	1	5	2.00
Borrowing books from the library	4	1	5	1.00
Number of books at home	4	1	5	3.00
Possession of a bookcase	1	0	1	1.00
Possession of own computer or laptop	1	0	1	1.00
Extracurricular activity participation	4	1	5	1.00
Shadow education	4	1	5	2.00
Speaking dialect at home	4	1	5	3.00

N=539.

### 4.3 Correlation Findings

Table 14 presents the results of the correlation analysis of cultural capital and Chinese exam score. From Table 14, it is evident that almost all the cultural capital items were statistically significantly related to Chinese exam score

except reading for pleasure on weekdays. In terms of cultural and educational resources, the number of books at home, the possession of own computer or laptop and shadow education were all moderately positively related to Chinese exam score. The possession of a bookcase and speaking dialect at home were weakly positively associated with Chinese exam score. When it comes to reading habits, there was a weak positive association between reading for pleasure on weekends and borrowing books from the library and Chinese exam score. With regard to cultural activity participation, visits to museums or art galleries, going to concerts or plays and extracurricular activity participation were all found to be weakly positively related to Chinese exam score.

**Table 14. Spearman Rank-Order Correlations of Cultural Capital and Chinese Exam Score**

Variable	1	2	3	4	5	6	7	8	9	10	11	12
<b>Cultural and Educational Resources</b>												
1. Number of books at home												
2. Possession of a bookcase	.30**											
3. Possession of own computer or laptop	.23**	.25**										
4. Shadow education	.32**	.26**	.29**									
5. Speaking dialect at home	.27**	.26**	.29**	.28**								
<b>Reading Habits</b>												
6. Reading for pleasure on weekdays	.19**	-.01	-1.00 <sup>†</sup>	.01	-.03							
7. Reading for pleasure on weekends	.25**	.09**	.07	.10 <sup>†</sup>	.11 <sup>†</sup>	.54**						
8. Borrowing books from the library	.23**	.13**	.07	.11 <sup>†</sup>	.10 <sup>†</sup>	.37**	.42**					
<b>Cultural Activity Participation</b>												
9. Visits to museums or art galleries	.35**	.23**	.32**	.28**	.25**	.08	.20**	.21**				
10. Going to concerts or plays	.18**	.14**	.23**	.17**	.20**	.11 <sup>†</sup>	.16**	.24**	.44**			
11. Extracurricular activity participation	.27**	.20**	.28**	.29**	.12**	.05	.11**	.20**	.33**	.28**		
12. Chinese exam score	.30**	.24**	.32**	.36**	.26**	-.01	.17**	.14**	.28**	.15**	.29**	

N=539.

\*  $p < .05$ . \*\*  $p < .01$ .

Table 15 shows the results of the correlation analysis of cultural capital and

Maths exam score. It can be found from Table 15 that all the items of the reading habits factor were not statistically significantly related to Maths exam score. For cultural and educational resources, there was a weak positive association between the number of books at home and the possession of a bookcase and Maths exam score. The possession of own computer or laptop, shadow education and speaking dialect at home were moderately positively related to Maths exam score. In terms of cultural activity participation, there was a weak positive association found between all the items under this dimension of cultural capital and Maths exam score.

**Table 15. Spearman Rank-Order Correlations of Cultural Capital and Maths Exam Score**

Variable	1	2	3	4	5	6	7	8	9	10	11	12
<b>Cultural and Educational Resources</b>												
1. Number of books at home												
2. Possession of a bookcase	.30**											
3. Possession of own computer or laptop	.23**	.25**										
4. Shadow education	.32**	.26**	.29**									
5. Speaking dialect at home	.27**	.26**	.29**	.28**								
<b>Reading Habits</b>												
6. Reading for pleasure on weekdays	.19**	-.01	-1.00 <sup>†</sup>	.01	-.03							
7. Reading for pleasure on weekends	.25**	.09**	.07	.10 <sup>†</sup>	.11 <sup>†</sup>	.54**						
8. Borrowing books from the library	.23**	.13**	.07	.11 <sup>†</sup>	.10 <sup>†</sup>	.37**	.42**					
<b>Cultural Activity Participation</b>												
9. Visits to museums or art galleries	.35**	.23**	.32**	.28**	.25**	.08	.20**	.21**				
10. Going to concerts or plays	.18**	.14**	.23**	.17**	.20**	.11 <sup>†</sup>	.16**	.24**	.44**			
11. Extracurricular activity participation	.27**	.20**	.28**	.29**	.12**	.05	.11**	.20**	.33**	.28**		
12. Maths exam score	.27**	.21**	.34**	.37**	.31**	-.08	.06	.02	.26**	.11 <sup>†</sup>	.22**	

N=539.

\*  $p < .05$ . \*\*  $p < .01$ .

Table 16 illustrates the results of the correlation analysis of cultural capital and English exam score. All items under cultural and educational resources and cultural activity participation were statistically significantly associated with English exam score. There was a weak positive association between the possession of a bookcase and English exam score, whilst the number of books at home, the possession of own computer or laptop, shadow education and speaking dialect at home were all moderately positively related to English exam score. For reading habits, there was a weak negative correlation between reading for pleasure on weekdays and English exam score, whilst reading for pleasure on weekends and borrowing books from the library were not detected to have any association with English exam score. Moreover, all the items of cultural activity participation were found to have a statistically weak but significant association with English exam score.

**Table 16. Spearman Rank-Order Correlations of Cultural Capital and English Exam Score**

Variable	1	2	3	4	5	6	7	8	9	10	11	12
<b>Cultural and Educational Resources</b>												
1. Number of books at home												
2. Possession of a bookcase	.30**											
3. Possession of own computer or laptop	.23**	.25**										
4. Shadow education	.32**	.26**	.29**									
5. Speaking dialect at home	.27**	.26**	.29**	.28**								
<b>Reading Habits</b>												
6. Reading for pleasure on weekdays	.19**	-.01	-1.00 <sup>†</sup>	.01	-.03							
7. Reading for pleasure on weekends	.25**	.09**	.07	.10 <sup>†</sup>	.11 <sup>†</sup>	.54**						
8. Borrowing books from the library	.23**	.13**	.07	.11 <sup>†</sup>	.10 <sup>†</sup>	.37**	.42**					
<b>Cultural Activity Participation</b>												
9. Visits to museums or art galleries	.35**	.23**	.32**	.28**	.25**	.08	.20**	.21**				
10. Going to concerts or plays	.18**	.14**	.23**	.17**	.20**	.11 <sup>†</sup>	.16**	.24**	.44**			
11. Extracurricular activity participation	.27**	.20**	.28**	.29**	.12**	.05	.11**	.20**	.33**	.28**		
12. English exam score	.32**	.22**	.38**	.41**	.35**	-.11 <sup>†</sup>	.07	.04	.23**	.12 <sup>†</sup>	.28**	

N=539.

\*  $p < .05$ . \*\*  $p < .01$ .

Overall, it is evident from the three correlation analyses that all the items of cultural and educational resources consistently significantly related to academic achievement in all three subjects, which seems to imply that even within an exam-oriented educational system like China, objectified cultural capital still found its way to navigate through the senior secondary schooling stage. Noteworthy is that shadow education was the item that had the greatest positive relation with academic achievement, which might well be due to the fact that shadow education may directly benefit students' studies. Embodied cultural capital manifested in the three items of reading habits was only found to be positively related to Chinese exam score, which might be because that students were likely to read books in Chinese in their spare time, and reading might therefore only affect their Chinese performance. The items that belong to another dimension of embodied cultural capital, cultural activity participation, were also positively related to all three subject areas, which appears to indicate that the often overlooked highbrow culture still held a place in the Chinese context.

#### **4.4 Regression Findings**

Table 17 presents the results of the hierarchical multiple regression analysis of cultural capital and Chinese exam score. The first model that only included three dimensions of cultural capital was statistically significant,  $R^2 = .16$ ,  $F(3, 535) = 32.73$ ,  $p < .001$ , indicating that cultural capital accounts

for 16% of the variance in Chinese exam score. Adding age, gender and SES in the model (Model 2) led to a statistically significant yet very small increase in  $\Delta R^2 = .02$ ,  $F(3, 532) = 18.89$ ,  $p < .001$ , which means that including the controls explains 2% more variance in Chinese exam score than cultural capital alone (Model 1). More precisely, cultural and educational resources ( $\beta = .38$ ,  $p < .001$ ) positively predicted Chinese exam score in Model 1, whereas reading habits and cultural activity participation did not predict Chinese exam score. Cultural and educational resources ( $\beta = .26$ ,  $p < .001$ ) remained a significant predictor of Chinese exam score in Model 2 when the control variables were factored in. Additionally, SES ( $\beta = .17$ ,  $p < .05$ ) was also a significant positive predictor of Chinese exam score.

**Table 17. Hierarchical Multiple Regression Predicting Chinese Exam Score**

Variable	Chinese exam score			
	Model 1		Model 2	
	B	$\beta$	B	$\beta$
Constant	96.91*** (0.65)		75.53*** (18.09)	
Cultural and educational resources	7.36*** (1.27)	.38	4.98*** (1.47)	.26
Reading habits	1.39 (0.81)	.07	1.33 (0.81)	.07
Cultural activity participation	-.23 (1.35)	-.01	0.06 (1.35)	.01
Age			0.91 (1.07)	.03
Gender: Female			2.25 (1.30)	.07
SES			0.17** (0.05)	.17
R <sup>2</sup>	.16		.18	
F	32.73***		18.89***	
$\Delta R^2$	.16		.02	
$\Delta F$	32.73***		4.42**	

N=539.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Standard errors are reported in parentheses.

Table 18 shows the results of the hierarchical multiple regression analysis of cultural capital and Maths exam score. The first model that only included three dimensions of cultural capital was statistically significant,  $R^2 = .24$ ,  $F(3, 535) = 56.96$ ,  $p < .001$ , suggesting that cultural capital explains 24% of the variance in Maths exam scores. The addition of the control variables (Model 2) led to a statistically significant but very small increase in  $\Delta R^2 = .06$ ,  $F(3, 532) =$

38.37,  $p < .001$ , indicating that the inclusion of age, gender and SES explains 6% more variance in Maths exam score than the original model (Model 1). The individual cultural capital factors were examined further, and the test revealed that cultural and educational resources ( $\beta = .56$ ,  $p < .001$ ) were significant predictors of Maths exam score in Model 1, whilst reading habits and cultural activity participation were ineffective predictors of Maths exam score. After all the control variables were accounted for in Model 2, cultural and educational resources ( $\beta = .37$ ,  $p < .001$ ) was still a significant predictor. In addition, it can be seen from Model 2 that gender ( $\beta = -.15$ ,  $p < .001$ ) and SES ( $\beta = .26$ ,  $p < .001$ ) were also two significant predictors of Maths exam score, as being female negatively predicted Maths exam score and coming from a high SES family background positively predicted Maths exam score.

**Table 18. Hierarchical Multiple Regression Predicting Maths Exam Score**

Variable	Maths exam score			
	Model 1		Model 2	
	B	$\beta$	B	$\beta$
Constant	87.70*** (1.16)		103.66** (31.35)	
Educational resources	20.45*** (2.27)	.56	13.69*** (2.54)	.38
Reading habits	-2.68 (1.45)	-.08	-2.08 (1.40)	-.06
Cultural activity participation	-2.86 (2.42)	-.08	-2.03 (2.34)	-.06
Age			-1.51 (1.85)	-.03
Gender: Female			-9.06*** (2.25)	-.15
SES			0.49*** (0.09)	.26
R <sup>2</sup>	.24		.30	
F	56.96***		38.37***	
$\Delta R^2$	.24		.06	
$\Delta F$	56.96***		15.24***	

N=539.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Standard errors are reported in parentheses.

Table 19 illustrates the results of the hierarchical multiple regression analysis of cultural capital and English exam score. The first model that only included cultural and educational resources, reading habits and cultural activity participation was statistically significant,  $R^2 = .30$ ,  $F(3, 535) = 75.84$ ,  $p < .001$ , suggesting that 30% of the variance in English exam score may be explained by cultural capital. The inclusion of age, gender and SES (Model 2) led to a

statistically significant yet still relatively small increase in  $\Delta R^2 = .08$ ,  $F(3, 532) = 53.16$ ,  $p < .001$ , suggesting that the inclusion of the control variables account for 8% extra variance in English exam score than the original model (Model 1). It is also valid that cultural and educational resources ( $\beta = .63$ ,  $p < .001$ ) positively predicted English exam score in Model 1, while reading habits ( $\beta = -.10$ ,  $p < .05$ ) negatively predicted English exam score. Cultural activity participation, again, did not serve as a significant predictor in this academic domain. When it comes to Model 2, cultural and educational resources ( $\beta = .36$ ,  $p < .001$ ) and reading habits ( $\beta = -.10$ ,  $p < .05$ ) still acted as a positive predictor and a negative predictor, respectively. SES ( $\beta = .37$ ,  $p < .001$ ) also positively predicted English exam score.

**Table 19. Hierarchical Multiple Regression Predicting English Exam Score**

Variable	English exam score			
	Model 1		Model 2	
	B	$\beta$	B	$\beta$
Constant	88.03*** (1.03)		58.11** (27.37)	
Cultural and educational resources	21.23*** (2.02)	.63	12.21*** (2.22)	.36
Reading habits	-3.25** (1.28)	-.10	-3.14** (1.22)	-.10
Cultural activity participation	-3.33 (2.14)	.10	-2.32 (2.04)	-.07
Age			0.62 (1.61)	.01
Gender: Female			2.52 (1.96)	.04
SES			0.65** (0.08)	.37
R <sup>2</sup>	.30		.38	
F	75.84***		53.16***	
$\Delta R^2$	.30		.08	
$\Delta F$	75.84***		21.68***	

N=539.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Standard errors are reported in parentheses.

Overall, the regression results were similar to the correlation results in that objectified cultural capital consistently predicted students' academic achievement in all three academic domains, whilst embodied cultural capital seems to play a much less important role in Chinese students' studies.

Table 20 presents the results of the interaction test between cultural and educational resources and SES. It can be seen from Table 20 that there was

no significant interaction between the two variables ( $p = .67$ ), which indicates that the degree of cultural and educational resources' positive impact on Chinese exam score did not differ by SES.

**Table 20.** *Interaction between cultural and educational resources and SES on Chinese Exam Score*

Variable	Chinese exam score	
	B	$\beta$
Constant	96.72*** (0.81)	
Cultural and educational resources	5.51*** (1.02)	.28
SES	0.16** (0.05)	.16
Cultural and educational resources x SES	0.02 (0.06)	.02

N=539.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Standard errors are reported in parentheses.

Table 21 shows the results of the interaction test between cultural and educational resources and SES. It is evident from Table 21 that there was a significant interaction between the two variables ( $p < .05$ ), which indicates that the degree of cultural and educational resources' positive impact on Maths exam score may differ by SES and that higher SES students may reap a higher return from having cultural and educational resources.

**Table 21.** *Interaction between cultural and educational resources and SES on Maths Exam Score*

Variable	Maths exam score	
	B	$\beta$
Constant	84.88*** (1.42)	
Cultural and educational resources	11.51*** (1.78)	.32
SES	0.47*** (0.09)	.25
Cultural and educational resources x SES	0.31** (0.10)	.12

N=539.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Standard errors are reported in parentheses.

Table 22 illustrates the results of the interaction test between cultural and educational resources and SES. It can be seen from Table 22 that a significant interaction effect was found between the two variables ( $p < .05$ ), which indicates that the extent to which cultural and educational resources may influence students' English exam score may differ by SES and that higher SES students may benefit more from the possession of cultural and educational resources.

**Table 22.** *Interaction between cultural and educational resources and SES on English Exam Score*

Variable	English exam score	
	B	$\beta$
Constant	85.81*** (1.23)	
Cultural and educational resources	9.84*** (1.54)	.29
SES	0.63*** (0.08)	.36
Cultural and educational resources x SES	0.25** (0.08)	.10

N=539.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Standard errors are reported in parentheses.

Table 23 presents the results of the interaction test between reading habits and SES. It is evident that no significant interaction effect was found between the two variables ( $p = .32$ ), which indicates that the negative effect of reading habits on English exam score was uniform across different SES groups.

**Table 23.** *Interaction between reading habits and SES on English Exam Score*

Variable	English exam score	
	B	$\beta$
Constant	87.91*** (1.02)	
Reading habits	-1.98 (1.18)	-.06
SES	1.00*** (0.06)	.57
Reading habits x SES	0.07 (0.07)	.04

N=539.

\*\*\*  $p < .001$ .

Standard errors are reported in parentheses.

## 4.5 Conclusion

The descriptive analysis showed that the sampled students were aged 17 years old on average, and the number of female students was slightly more than that of males. Notably, the distribution of parents' educational attainment and occupation in this study's sample seemed to echo with the data gathered from the 2020 Population Census of Shanghai.

The correlation analyses revealed that all the items under cultural and educational resources and cultural activity participation were positively associated with all three exam scores, whilst the items loaded on the factor, reading habits, did not appear to correlate much with the three exam scores. The regression analyses suggested that cultural and educational resources acted as a positive predictor of academic achievement across all three academic domains, and their predictive power was the strongest in English. Also notable is that cultural and educational resources' effect was uniform across different SES on Chinese exam score, whilst it did vary for students from different SES backgrounds on Maths and English exam scores and higher SES students may benefit more academically by possessing cultural and educational resources. Cultural activity participation was not related to any of the three exam scores, as per the results of the regression analyses. Reading habits, however, acted as a negative predictor of English exam score, while the negative impact did not seem to vary between high and low SES students.

# Chapter 5 Discussion

## 5.1 Introduction

This chapter starts with a summary of the study's major findings. It then compares the key findings with previous research in the cultural capital field and provides some interpretations based on the existing literature to answer the research questions about cultural capital's impact on students' academic achievement.

## 5.2 Interpretation of the Key Findings

### 5.2.1 Cultural Capital's Positive Impact on Academic

#### Achievement in the Chinese Context

First, this study found that cultural capital appeared to have a positive impact on students' academic achievement, which aligns with the many studies conducted in the Chinese context (e.g. Li, 2021; Lin, 2020). Notably, this study found that cultural capital had the most significant impact on English, which contradicted Bourdieu's original notion of the 'talent field' and the 'hard work' field that cultural capital may hold the strongest predictive power on subjects like Maths or Science rather than languages (Bourdieu, 1996). Nonetheless, it needs to be noted that Bourdieu's perception that cultural capital may have a less positive impact on languages than on Maths and Science is based on the assumption that the languages are the languages spoken at home. However, in this study's context, English is not the participants' mother tongue, and thus

the mechanism in which cultural capital works might be different. This finding is indeed in line with the later perception of cultural capital's varied effect on different academic domains (Tan, 2017). One plausible reason for cultural capital's superior influence on English than on Maths may be that possessing cultural capital may allow students to understand the cultural context of the language encountered (Sultana, 2018). This deep understanding may then enable students to learn relevant grammar and vocabulary more easily and better understand the texts they read in the exam, which may ultimately enhance their English exam score. In contrast, Maths requires the acquisition of objective mathematical problem-solving skills and students are assessed primarily based on their success in producing correct answers to the questions listed in the exams, and also given that Maths may be less likely to be reinforced at home or through cultural activities (DiMaggio, 1982), which may therefore leave less space for cultural capital to play out in the process compared to English.

### **5.2.2 Objectified Cultural Capital as the Dominant Predictor of Academic Achievement**

Furthermore, this study has also identified that objectified cultural capital in the form of cultural and educational resources was the dominant predictor of academic achievement across all three domains, while embodied cultural capital in the form of cultural activity participation did not predict students'

academic achievement, only reading habits negatively predicted students' English exam score. The finding that objectified cultural capital may be more influential than embodied cultural capital is consistent with previous research conducted in East Asian contexts (e.g. Tan & Liu, 2018; Byun et al., 2012; Yamamoto & Brinton, 2010). This finding also consolidates the argument that a broader conceptualisation of cultural capital that includes more than just highbrow cultural activity participation may be necessary in the Chinese context.

There may be two reasons that account for objectified cultural capital's significant predictive power in academic achievement. First, students' possession of different cultural and educational resources may reflect parents' appreciation of the importance of their children's learning and the support the children may receive from their parents (Tan, 2017), and objectified cultural capital is believed to be a form of exam-oriented cultural capital by nature given its closer association with exam-oriented education as compared to embodied cultural capital (Yu et al., 2023), which may thus better fit the educational context of China. The second and temporarily more relevant reason is that the sampled students in this study experienced at least one year of learning from home due to the COVID-19 pandemic in their senior secondary school. After the COVID-19 outbreak in early 2020, China's central government implemented a number of policies to contain the spread of the virus, such as quarantine and school closure (Miao et al., 2021), which resulted in students spending most of their time at home and the requirement to learn at home. Given that most

students were not familiar with the mode of online learning (Yu et al., 2023), cultural and educational resources might be more crucial than ever as they may act as an additional source for home learning, and thus the effect of objectified cultural capital on academic achievement may be enlarged after the pandemic. This is also reflected in the fact that after the outbreak of COVID-19, it was found that low SES students in China suffered more from learning from home than their higher SES counterparts (Zhang et al., 2021), which might be due to the limited cultural and educational resources they have to assist their studies at home.

When it comes to the ineffectiveness of cultural activity participation, the reasons may also be twofold. First, given that the main, if not exclusive, focus is on the Gaokao (the National Higher Education Entrance Exam) during the senior secondary schooling stage, dimensions of cultural capital that are not academic-oriented, such as cultural activity participation, may be made less relevant (Choi et al., 2019). Second, the emphasis on exams in the Chinese education system is coupled with the often teacher-centred instruction (Cheng & Ding, 2021). Teacher-centred instruction may give little space for teacher-student interactions in class in which students' embodied cultural capital gathered from partaking in various cultural activities may send signals of academic potential to teachers, which may further diminish the importance of cultural activity participation in the Chinese context (Byun et al., 2012). The negative impact of reading habits on English exam score may be due to the

heavy pressure imposed by exams throughout senior secondary school, and students' reading habits such as reading for pleasure after school may reduce their study time (Xie & He, 2023), which may ultimately affect their exam performance. Nevertheless, it remains doubted as to why reading habits only seemed to affect English but not Chinese and Maths. One reasonable inference may be that due to the COVID-19 lockdowns, students spent the majority of their time studying at home. Whilst students may still be able to learn some Chinese-related knowledge such as vocabulary and some Maths skills in their interactions and communications with their parents and family, they may not have sufficient opportunities to learn English at home. Thus, the drawback of reading for pleasure on weekdays in specific and reading habits, in general, may have a particularly significant effect on their English exam score.

### **5.2.3 Cultural Reproduction over Cultural Mobility**

Moreover, this study's findings seemed to lend support to the cultural reproduction model that high SES students may benefit more from cultural capital rather than the cultural mobility model, which is in line with many studies (e.g. Dumais, 2002; Lareau & Lamont, 1988). This may be because when a government plays a limited role in redistributing educational resources, as in the case of China against the backdrop of the decentralisation policy, the influence of educational institutions tends to wane due to a low level of standardisation, whereas the influence of SES may be contained, if not

amplified, through the lens of cultural capital (Xu & Hampden-Thompson, 2012).

# Chapter 6 Conclusion

## 6.1 Summary of Research Findings

The purpose of this study was to investigate the potential effect that cultural capital may impose on senior secondary school students' academic achievement and the extent to which such effect may be in the Chinese context. From Chapter 4, it is evident that cultural capital was positively related to senior secondary school students' academic achievement in all three academic domains examined in this study. More precisely, cultural capital explained 16% of the variance in the Chinese exam score, 24% of the variance in the Maths exam score and 30% of the variance in the English exam score. However, not all cultural capital factors effectively predicted academic achievement. The cultural and educational resources factor was found to be a positive predictor of all three exam scores, reading habits only negatively predicted English exam score, and cultural activity participation had no predictive power on academic achievement. Notably, there was a significant interaction effect between cultural and educational resources and SES, which indicates that higher SES students may benefit more from possessing the relevant resources than their low SES peers, thereby seeming to provide supporting evidence for the cultural reproduction theory. No significant interaction was, however, found between reading habits and SES.

## 6.2 Strengths and Limitations

This study has made a number of advancements as compared to previous cultural capital research conducted in the Chinese context. The study was able to investigate the potential interaction effect between cultural capital and SES on academic achievement, which many previous studies have not tested. Moreover, this study tapped cultural capital in both the objectified and embodied forms, which may produce a more comprehensive picture of cultural capital's impact on students' academic achievement than measuring the objectified or the embodied state alone. Also, by including shadow education and dialect speaking in the dimension of objectified cultural capital in addition to the often used items such as the number of books at home and the possession of study-related objects, this study presented a more well-rounded operationalisation of cultural capital.

Notwithstanding the aforementioned strengths, this study also bears several limitations, as with any study. First, due to the use of a cross-sectional design, this study was not able to determine any cause-and-effect relationship between cultural capital and academic achievement but draw associations between the two. Also, the cross-sectional design made the investigation of cultural capital's effect on students' academic achievement over time unfeasible. This may be particularly valuable as little research has been conducted on whether and how cultural capital may play out after students are further into higher education institutions. Second, this study used convenience sampling,

given the constraints on time and resources. The easy access to convenience sampling comes at the price of reduced generalisability, as this study only sampled students from 4 public senior secondary schools, whilst there are a few hundred public senior secondary schools in Shanghai. Non-random sampling may also suffer from self-selection bias as the participants were involved in this study on a voluntary basis. Ideally, a random and larger sample would have been more valuable for the purpose of the study. Third, this study did not control prior academic achievement as students may not be able to accurately provide the required information. It needs to be acknowledged, however, that prior academic achievement may be a particularly crucial control variable as it might well be that students who were high achievers are more likely to cultivate their stock of cultural capital, which then feeds back to their academic achievement. In a similar vein, this study used students' self-reported end-of-year exam results as the measure of academic achievement, which may be prone to self-report bias. It would have been helpful to use official data on academic achievement such as the Gaokao results, although some ethical considerations might need to be taken into account in doing so and that such official data might not be accessible to individual researchers. Additionally, this study adopted a purely quantitative design instead of a mixed methods design owing to the time constraints. It would have also been beneficial to have a qualitative component after the quantitative phase, i.e., an explanatory sequential design. For example, one benefit may be that a qualitative

component may offer some possible mechanisms to explain the identified relationships. Also, the inclusion of a qualitative component may allow the illustration of how certain types of cultural capital may have influenced the participants' academic achievement in their experiences of education.

### **6.3 Suggestions for Future Research**

Although this study has several limitations, as mentioned above, it also sheds some light on how cultural capital research, in particular research on cultural capital and academic achievement, may be conducted in the future. First, given the relatively mediocre reliability of the three factors of cultural capital measured in this study, researchers could attempt to hone the questionnaire used in this study when they are conducting research in the same field. Second, this study used parents' educational attainment as one of the control variables, whilst future research may also consider treating it as another dimension of cultural capital, that is, institutionalised cultural capital, which has not received its due attention in the extant literature. Third, habitus is a critical construct in Bourdieu's cultural reproduction theory that is believed to mediate the relationship between cultural capital and students' academic achievement, which this study did not include. Future research may thus also benefit from examining the potential moderating role habitus may play alongside cultural capital and academic achievement to extend the current knowledge base on Bourdieu's theory. Fourth, this study only gauged students' stock of cultural

capital, and the majority of the existing literature focuses on either students or parents' stock of cultural capital, researchers in the future may also wish to examine the level of cultural capital from both parties given that the accumulation of cultural capital, to a large extent, is an intergenerational process. Whilst the suggestions for future research may not be exhaustive, the four provided here might be the most relevant generated from this research.

## **6.4 Practical Implications**

Other than providing directions for future research, this study also has implications for both schools and parents. On the one hand, as the research findings suggest that cultural and educational resources in specific and objectified cultural capital, in general, may impose the most significant impact on students' academic achievement, head teachers may wish to encourage parents to acquire the relevant cultural and educational resources such as books and laptops or computers. Whilst the acquisition of valuable cultural and educational resources may be dependent upon economic capital, schools may consider lending low SES students, who might not have the economic means, some of the aforementioned cultural and educational resources if possible. Alternatively, schools may consider structuring free academic-oriented extracurricular activities after school for low SES students to imitate the pay-to-play shadow education. On the other hand, parents may wish to purchase the books students like to read or to buy their children a laptop or computer if they

have the required economic capital, and it may also be beneficial to encourage students to speak dialects at home for communication whenever possible. In a nutshell, it is valid to suggest that both schools and parents may be able to play a part in effectively utilising cultural capital as a tool to enhance students' academic achievement.

## References

- Acharya, A. S., Prakash, A., Saxena, P., & Nigam, A. (2013). Sampling: Why and how of it. *Indian journal of medical specialties*, 4(2), 330-333.
- Adams, J., & Sargent, T. C. (2012). Curriculum transformation in China: Trends in student perceptions of classroom practice and engagement. *Gansu Survey of Children and Families*, 34.
- Akhkand, S. S., Seidi, J., Ebadi, A., & Gheshlagh, R. G. (2021). Examination of the psychometric properties of the Persian version of the attitude towards pressure ulcer prevention instrument in nurses. *Journal of tissue viability*, 30(1), 116-120  
<https://doi.org/10.1016/j.jtv.2020.11.001>
- Akoglu, H. (2018). User's guide to correlation coefficients. *Turkish journal of emergency medicine*, 18(3), 91-93.  
<https://doi.org/10.1016/j.tjem.2018.08.001>
- Andersen, P. L., & Hansen, M. N. (2012). Class and cultural capital—The case of class inequality in educational performance. *European sociological review*, 28(5), 607-621.  
<https://doi.org/10.1093/esr/jcr029>
- Artino Jr, A. R., La Rochelle, J. S., Dezee, K. J., & Gehlbach, H. (2014). Developing questionnaires for educational research: AMEE Guide No. 87. *Medical teacher*, 36(6), 463-474.  
<https://doi.org/10.3109/0142159X.2014.889814>

Avvisati, F. (2020). The measure of socio-economic status in PISA: A review and some suggested improvements. *Large-Scale Assessments in Education*, 8(1), 8.

<https://doi.org/10.1186/s40536-020-00086-x>

Bell, D., 1972. The cultural contradictions of capitalism. *Journal of Aesthetic Education*, 6(1/2), pp.11-38.

<https://doi.org/3331409>

Bodovski, K., Chykina, V., & Khavenson, T. (2019). Do human and cultural capital lenses contribute to our understanding of academic success in Russia. *British Journal of Sociology of Education*, 40(3), 393-409.

<https://doi.org/10.1080/01425692.2018.1552844>

Bosma, H., Jansen, M., Schefman, S., Hajema, K. J., & Feron, F. (2015). Lonely at the bottom: a cross-sectional study on being ill, poor, and lonely. *Public Health*, 129(2), 185-187.

Bourdieu, P. (1973). Cultural Reproduction and Social Reproduction. In Knowledge, Education, and Cultural Change, edited by RK Brown. *Tavistock*.

Bourdieu, P. (1986). The force of law: Toward a sociology of the juridical field. *Hastings LJ*, 38, 805.

Bourdieu, P. (1996). *The rules of art: Genesis and structure of the literary field*. Stanford University Press.

Bourdieu, P., & Wacquant, L. J. (1992). *An invitation to reflexive sociology*.

University of Chicago press.

Bowerman, B. L., O'Connell, R. T., & Koehler, A. B. (2005). Forecasting, time series, and regression: an applied approach. (4th ed.), pp. 258-260. *Thomson Brooks/Cole*.

Breinholt, A., & Jæger, M. M. (2020). How does cultural capital affect educational performance: Signals or skills?. *The British journal of sociology*, 71(1), 28-46.

<https://doi.org/10.1111/1468-4446.12711>

Broer, M., Bai, Y., Fonseca, F., Broer, M., Bai, Y., & Fonseca, F. (2019). A review of the literature on socioeconomic status and educational achievement. *Socioeconomic inequality and educational outcomes: Evidence from twenty years of TIMSS*, 7-17.

[https://doi.org/10.1007/978-3-030-11991-1\\_2](https://doi.org/10.1007/978-3-030-11991-1_2)

Byun, S. Y., Schofer, E., & Kim, K. K. (2012). Revisiting the role of cultural capital in East Asian educational systems: The case of South Korea. *Sociology of education*, 85(3), 219-239.

<https://doi.org/10.1177/0038040712447180>

Cebula, C. R. (2019). *Effects of economic, social and cultural capital at home and in the neighbourhood on young people's educational attainment*.  
Edinburgh Research Archive.

Chan, T. W., & Goldthorpe, J. H. (2007). Social stratification and cultural consumption: The visual arts in England. *Poetics*, 35(2-3), 168-190.

<https://doi.org/10.1016/j.poetic.2007.05.002>

Chao, R., & Tseng, V. (2002). Parenting of asians. *Handbook of parenting*, 4, 59-93.

Chen, J. (2011). *Suzhi Jiaoyu Jiben Lilun Yanjiu*. Zhongguo Kexue Jishu Chubanshe.

Cheng, H. Y., & Ding, Q. T. (2021). Examining the behavioral features of Chinese teachers and students in the learner-centered instruction. *European Journal of Psychology of Education*, 36(1), 169-186.

<https://doi.org/10.1007/s10212-020-00469-2>

Cheung, A. C., & Slavin, R. E. (2016). How methodological features affect effect sizes in education. *Educational Researcher*, 45(5), 283-292.

<https://doi.org/10.3102/0013189X16656615>

China Education and Research Network. (2011). *Chinese education, China education and research network*.

Choi, Y., Kim, S. W., & Hong, W. P. (2019). Is the role of cultural capital in student achievement in South Korea different? A systematic review. *British Journal of Sociology of Education*, 40(6), 776-794.

<https://doi.org/10.1080/01425692.2019.1592662>

Coe, R., Waring, M., Hedges, L. V., & Ashley, L. D. (Eds.). (2021). *Research methods and methodologies in education*. Sage.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American journal of sociology*, 94, S95-S120.

- Costello, A. B., & Osborne, J. (2019). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical assessment, research, and evaluation*, 10(1), 7.
- Creswell, J. W. (1994). Mixed-method research: Introduction and application. In *Handbook of educational policy* (pp. 455-472). Academic press.  
<https://doi.org/10.1016/B978-012174698-8/50045-X>
- Crystal, D. S., Chen, C., Fuligni, A. J., Stevenson, H. W., Hsu, C. C., Ko, H. J., Kitamura, S., & Kimura, S. (1994). Psychological maladjustment and academic achievement: a cross-cultural study of Japanese, Chinese, and American high school students. *Child development*, 65(3), 738–753.
- Dancey, C. P., & Reidy, J. (2007). *Statistics without maths for psychology*. Pearson education.
- De Freitas, M. V. (2019). Reform and opening-up: Chinese lessons to the world. *Policy Center for the New South*.
- De Graaf, N. D., De Graaf, P. M., & Kraaykamp, G. (2000). Parental cultural capital and educational attainment in the Netherlands: A refinement of the cultural capital perspective. *Sociology of education*, 92-111.  
<https://doi.org/10.2307/2673239>
- Devine-Eller, A. (2005). Rethinking Bourdieu on race: A critical review of cultural capital and habitus in the sociology of education qualitative literature. *Rutgers University*, 28, 1-26.
- Dhakar, C. P. (2017). Dealing with outliers and influential points while fitting

regression. *Journal of Institute of Science and Technology*, 22(1), 61-65.

DiMaggio, P. (1982). Cultural capital and school success: The impact of status culture participation on the grades of US high school students. *American sociological review*, 189-201.

<https://doi.org/10.2307/2094962>

DiStefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical assessment, research, and evaluation*, 14(1), 20.

Dong, C., Cao, S., & Li, H. (2020). Young children's online learning during COVID-19 pandemic: Chinese parents' beliefs and attitudes. *Children and youth services review*, 118, 105440.

<https://doi.org/10.1016/j.chilyouth.2020.105440>

Dumais, S. A. (2002). Cultural capital, gender, and school success: The role of habitus. *Sociology of education*, 44-68.

<https://doi.org/10.2307/3090253>

Edgerton, J. D., & Roberts, L. W. (2014). Cultural capital or habitus? Bourdieu and beyond in the explanation of enduring educational inequality. *Theory and research in education*, 12(2), 193-220.

Edwards, D., Coates, H., & Friedman, T. (2012). A survey of international practice in university admissions testing. *Higher Education Management and Policy*, 24(1), 1-18.

Elston, D. M. (2021). Participation bias, self-selection bias, and response

bias. *Journal of the American Academy of Dermatology*.

<https://doi.org/10.1016/j.jaad.2021.06.025>

Ensminger, M. E., & Fothergill, K. E. (2014). A decade of measuring SES:

What it tells us and where to go from here. In *Socioeconomic status, parenting, and child development* (pp. 13-27). Routledge.

Espinosa, L. M. (2006). *Perspectives on Assessment of DLLs Development & Learning, PreK-Third Grade*. McKnight Foundation.

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1-4.

Fogle, N., & Theiner, G. (2018). The “ontological complicity” of habitus and field: Bourdieu as an externalist. *Socially extended epistemology*, Oxford University Press, Oxford, 220-252.

French, J. J., French, A., & Li, W. X. (2015). The relationship among cultural dimensions, education expenditure, and PISA performance. *International Journal of Educational Development*, 42, 25-34.

Ganzeboom, H. B., De Graaf, P. M., & Treiman, D. J. (1992). A standard international socio-economic index of occupational status. *Social science research*, 21(1), 1-56.

[https://doi.org/10.1016/0049-089X\(92\)90017-B](https://doi.org/10.1016/0049-089X(92)90017-B)

Gao, K. G. (2021). *The influence of family cultural capital on academic achievement of rural junior middle school students*. Northeast Normal

University.

Gaskin, C. J., & Happell, B. (2014). On exploratory factor analysis: A review of recent evidence, an assessment of current practice, and recommendations for future use. *International journal of nursing studies*, 51(3), 511-521.

<https://doi.org/10.1016/j.ijnurstu.2013.10.005>

Gignac, G. E. (2023). *How2statsbook (Online Edition 2)*. University of Western Australia.

Gogtay, N. J., & Thatte, U. M. (2017). Principles of correlation analysis. *Journal of the Association of Physicians of India*, 65(3), 78-81.

Goodboy, A. K., & Martin, M. M. (2020). Omega over alpha for reliability estimation of unidimensional communication measures. *Annals of the International Communication Association*, 44(4), 422-439.

<https://doi.org/10.1080/23808985.2020.1846135>

Gorard, S. (2021). Statistical and Correlational Techniques. In Coe, R., Waring, M., Hedges, L. V., & Ashley, L. D. (Eds.). (2021). *Research methods and methodologies in education*. Sage.

Gordon, M. S., & Cui, M. (2018). The intersection of race and community poverty and its effects on adolescents' academic achievement. *Youth & Society*, 50(7), 947-965.

<https://doi.org/10.1177/0044118X16646590>

Gu, M.D. (2013). *Cultural Foundations of Chinese Education*. Brill.

<https://doi.org/10.1163/9789004263161>

Guo, S., Guo, Y., Beckett, G., Li, Q., & Guo, L. (2013). Changes in Chinese education under globalisation and market economy: Emerging issues and debates. *Compare: A Journal of Comparative and International Education*, 43(2), 244-264.

<https://doi.org/10.1080/03057925.2012.721524>

Hamnett, C., Hua, S., & Bingjie, L. (2019). The reproduction of regional inequality through university access: The Gaokao in China. *Area Development and Policy*, 4(3), 252-270.

<https://doi.org/10.1080/23792949.2018.1559703>

Heppt, B., Olczyk, M., & Volodina, A. (2022). Number of books at home as an indicator of socioeconomic status: Examining its extensions and their incremental validity for academic achievement. *Social Psychology of Education*, 25(4), 903-928.

<https://doi.org/10.1007/s11218-022-09704-8>

Hintze, J. L. (2008). Quick start manual. *PASS power analysis and sample size system*. Safarkhani and Moerbeek.

Hoaglin, D. C. (1988). Using leverage and influence to introduce regression diagnostics. *The College Mathematics Journal*, 19(5), 387-416.

<https://doi.org/10.1080/07468342.1988.11973146>

Hu, A., & Wu, X. (2019). Science or liberal arts? Cultural capital and college major choice in China. *The British Journal of Sociology*, 70(1), 190-213.

<https://doi.org/10.1111/1468-4446.12342>

Hu, A., & Wu, X. (2021). Cultural capital and elite university attendance in China. *British Journal of Sociology of Education*, 42(8), 1265-1293.

<https://doi.org/10.1080/01425692.2021.1993788>

Hvistendahl, R., & Roe, A. (2004). The literacy achievement of Norwegian minority students. *Scandinavian Journal of Educational Research*, 48(3), 307-324.

<https://doi.org/10.1080/00313830410001695754>

Jæger, M. M. (2011). Does cultural capital really affect academic achievement? New evidence from combined sibling and panel data. *Sociology of education*, 84(4), 281-298.

<https://doi.org/10.1177/0038040711417010>

Johnson, R. B., & Christensen, L. (2017). *Educational Research: Quantitative, Qualitative, and Mixed Approaches*. Sage.

Jost, J. T., Banaji, M. R., & Nosek, B. A. (2004). A decade of system justification theory: Accumulated evidence of conscious and unconscious bolstering of the status quo. *Political psychology*, 25(6), 881-919.

<https://doi.org/10.1111/j.1467-9221.2004.00402.x>

Kalmijn, M., & Kraaykamp, G. (1996). Race, cultural capital, and schooling: An analysis of trends in the United States. *Sociology of education*, 22-34.

<https://doi.org/10.2307/2112721>

Kingston, P. W. (2001). The unfulfilled promise of cultural capital theory. *Sociology of education*, 88-99.

Kipnis, A. (2001). The disturbing educational discipline of "peasants". *The China Journal*, (46), 1-24.

<https://doi.org/10.2307/3182305>

Kirkpatrick, R., & Zang, Y. (2011). The negative influences of exam-oriented education on Chinese high school students: Backwash from classroom to child. *Language testing in Asia*, 1(3), 36.

<https://doi.org/10.1186/2229-0443-1-3-36>

Kisida, B., Greene, J. P., & Bowen, D. H. (2014). Creating cultural consumers: The dynamics of cultural capital acquisition. *Sociology of Education*, 87(4), 281-295.

Lamont, M., & Lareau, A. (1988). Cultural capital: Allusions, gaps and glissandos in recent theoretical developments. *Sociological theory*, 153-168.

Lareau, A. (2003). Unequal childhoods: Class, race, and family life.

Lareau, A. (2015). Cultural knowledge and social inequality. *American sociological review*, 80(1), 1-27.

<https://doi.org/10.1177/0003122414565814>

Lareau, A. (2018). Unequal childhoods: Class, race, and family life.

In *Inequality in the 21st Century* (pp. 444-451). Routledge.

Lareau, A., & Weininger, E. B. (2003). Cultural capital in educational research: A critical assessment. *Theory and society*, 32, 567-

606.<https://doi.org/10.1023/B:RYSO.0000004951.04408.b0>

Lee, K., Scandura, T. A., & Sharif, M. M. (2014). Cultures have consequences: A configural approach to leadership across two cultures. *The Leadership Quarterly*, 25(4), 692-710.

Leopold, L., & Shavit, Y. (2013). Cultural capital does not travel well: Immigrants, natives and achievement in Israeli schools. *European sociological review*, 29(3), 450-463.

Li, H. (2020). Changing status, entrenched inequality: How English language becomes a Chinese form of cultural capital. *Educational Philosophy and Theory*, 52(12), 1302-1313.

<https://doi.org/10.1080/00131857.2020.1738922>

Li, S. S. (2018). *A study on the intergenerational transmission of cultural capital*. East China Normal University.

Li, X. (2021). *The Research on the influence of family cultural capital on college student's academic achievement*. Changsha University of Science & Technology.

Liang, X., Kidwai, H., Zhang, M., & Zhang, Y. (2016). *How Shanghai does it: Insights and lessons from the highest-ranking education system in the world*. World Bank Publications.

Lin, H.F. (2020). *Research on the Mediating Role of Teenagers' Cognitive Ability in the Relationship between Family Cultural Capital and Academic Achievement*. Hebei University.

Little, A. W., & Rolleston, C. (2014). School quality counts: Evidence from

developing countries. Editorial. *Oxford Review of Education*, 40(1), 1-9.

<https://doi.org/10.1080/03054985.2013.874799>

Liu, J., & Bray, M. (2022). Responsibilised parents and shadow education: Managing the precarious environment in China. *British Journal of Sociology of Education*, 43(6), 878-897.

<https://doi.org/10.1080/01425692.2022.2072810>

Lou, J. (2011). Suzhi, relevance, and the new curriculum: A case study of one rural middle school in northwest China. *Chinese Education & Society*, 44(6), 73-86.

Lupart\*, J. L., Cannon, E., & Telfer, J. A. (2004). Gender differences in adolescent academic achievement, interests, values and life-role expectations. *High ability studies*, 15(1), 25-42.

<https://doi.org/10.1080/1359813042000225320>

Ma, G., & Wu, Q. (2020). Cultural capital in migration: Academic achievements of Chinese migrant children in urban public schools. *Children and Youth Services Review*, 116, 105196.

<https://doi.org/10.1016/j.chilyouth.2020.105196>

Macknight, E. C. (2021). Introduction: Cultural Heritages and Their Transmission. *Historical Reflections/Réflexions Historiques*, 47(1), 1-13.

Mclver, J., & Carmines, E. G. (1981). *Unidimensional scaling*. Sage.

Miao, Q., Schwarz, S., & Schwarz, G. (2021). Responding to COVID-19: Community volunteerism and coproduction in China. *World*

*development*, 137, 105128.

<https://doi.org/10.1016/j.worlddev.2020.105128>

Mickelson, R. A. (2003). Gender, Bourdieu, and the anomaly of women's achievement redux. *Sociology of Education*, 76(4), 373-375.

<https://doi.org/10.2307/1519873>

Ministry of Education of the People's Republic of China. (1993). *China's Education Reform and Development Brief*. Ministry of Education of the People's Republic of China.

Ministry of Education of the People's Republic of China. (2001). *Elementary Education Curriculum Reform Brief*. Ministry of Education of the People's Republic of China.

Mok, K. H. (2002). Policy of decentralization and changing governance of higher education in post-Mao China. *Public Administration and Development: The International Journal of Management Research and Practice*, 22(3), 261-273.

<https://doi.org/10.1002/pad.222>

National Bureau of Statistics. (2020). China Statistical Yearbook. *National Bureau of Statistic*.

Ngok, K. (2007). Chinese education policy in the context of decentralization and marketization: Evolution and implications. *Asia Pacific Education Review*, 8, 142-157.

<https://doi.org/10.1007/BF03025840>

- Oakes, J. M., & Andrade, K. E. (2017). The measurement of socioeconomic status. *Methods in social epidemiology*, 18, 23-42.
- Osborne, J. W. (2015). What is rotating in exploratory factor analysis?. *Practical Assessment, Research, and Evaluation*, 20(1).  
<https://doi.org/10.7275/hb2g-m060>
- Paul, S. R., & Fung, K. Y. (1991). A generalized extreme studentized residual multiple-outlier-detection procedure in linear regression. *Technometrics*, 33(3), 339-348.
- Paulhus, D. L., & Vazire, S. (2007). The self-report method. *Handbook of research methods in personality psychology*, 1(2007), 224-239.
- Reay, D. (2004). Education and cultural capital: The implications of changing trends in education policies. *Cultural trends*, 13(2), 73-86.
- Redford, J., Johnson, J. A., & Honnold, J. (2009). Parenting practices, cultural capital and educational outcomes: The effects of concerted cultivation on academic achievement. *Race, Gender & Class*, 25-44. Routledge.
- Roksa, J., & Potter, D. (2011). Parenting and academic achievement: Intergenerational transmission of educational advantage. *Sociology of education*, 84(4), 299-321.  
<https://doi.org/10.1177/0038040711417013>
- Rong, X. L., & Shi, T. (2001). Inequality in Chinese education. *Journal of Contemporary China*, 10(26), 107-124.  
<https://doi.org/10.1080/10670560124330>

- Sablan, J. R., & Tierney, W. G. (2013). The changing nature of cultural capital. *Higher Education: Handbook of Theory and Research: Volume 29*, 153-188.
- Serdar, C. C., Cihan, M., Yücel, D., & Serdar, M. A. (2021). Sample size, power and effect size revisited: simplified and practical approaches in pre-clinical, clinical and laboratory studies. *Biochemia medica*, 31(1), 27-53.  
<https://doi.org/10.11613/BM.2021.010502>
- Shanghai Municipal Bureau of Statistics. (2021). The 7<sup>th</sup> Population Census of Shanghai. *Shanghai Municipal Bureau of Statistics*.
- Shen, Y. L. (2011). Effects of Chinese parental practices on adolescent school outcomes mediated by conformity to parents, self-esteem, and self-efficacy. *International Journal of Educational Research*, 50(5-6), 282-290.
- Shieh, G. (2009). Detecting interaction effects in moderated multiple regression with continuous variables power and sample size considerations. *Organizational Research Methods*, 12(3), 510-528.  
<https://doi.org/10.1177/1094428108320370>
- Shrestha, N. (2020). Detecting multicollinearity in regression analysis. *American Journal of Applied Mathematics and Statistics*, 8(2), 39-42.
- Shrestha, N. (2021). Factor analysis as a tool for survey analysis. *American journal of Applied Mathematics and statistics*, 9(1), 4-11.
- Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-

analytic review of research. *Review of educational research*, 75(3), 417-453.

<https://doi.org/10.3102/00346543075003417>

State Bureau of Statistics and Ministry of Finance of The Ministry of Education. (2006). National Educational Expenditure Statistical Bulletin 2005. *China Education News*, 2.

Strayhorn, T. L. (2010). When race and gender collide: Social and cultural capital's influence on the academic achievement of African American and Latino males. *The Review of Higher Education*, 33(3), 307-332.

Sukamolson, S. (2007). Fundamentals of quantitative research. *Language Institute Chulalongkorn University*, 1(3), 1-20.

Sullivan, A. (2001). Cultural capital and educational attainment. *Sociology*, 35(4), 893-912.

<https://doi.org/10.1177/0038038501035004006>

Sullivan, G. M., & Artino Jr, A. R. (2013). Analyzing and interpreting data from Likert-type scales. *Journal of graduate medical education*, 5(4), 541-542.

<https://doi.org/10.4300/JGME-5-4-18>

Sultana, Z. (2018). The Influence of Culture on Language Learning. *International Journal of Novel Research and Development*, 8(3), 39-46.

Taber, K. S. (2013). Non-random thoughts about research. *Chemistry Education Research and Practice*, 14(4), 359-362.

Taherdoost, H. (2017). Determining sample size; how to calculate survey

sample size. *International Journal of Economics and Management Systems*, 2.

Tan, C. Y. (2015). The contribution of cultural capital to students' mathematics achievement in medium and high socioeconomic gradient economies. *British Educational Research Journal*, 41(6), 1050-1067.

<https://doi.org/10.1002/berj.3187>

Tan, C. Y. (2017). Conceptual diversity, moderators, and theoretical issues in quantitative studies of cultural capital theory. *Educational Review*, 69(5), 600-619.

<https://doi.org/10.1080/00131911.2017.1288085>

Tan, C. Y., & Liu, D. (2018). What is the influence of cultural capital on student reading achievement in Confucian as compared to non-Confucian heritage societies?. *Compare: A Journal of Comparative and International Education*, 48(6), 896-914.

<https://doi.org/10.1080/03057925.2017.1369392>

Tan, C. Y., Peng, B., & Lyu, M. (2019). What types of cultural capital benefit students' academic achievement at different educational stages? Interrogating the meta-analytic evidence. *Educational Research Review*, 28, 100289. <https://doi.org/10.1016/j.edurev.2019.100289>

Tan, G. L. C., & Fang, Z. (2023). Family social and cultural capital: an analysis of effects on adolescents' educational outcomes in China. *The Journal of Chinese Sociology*, 10(1), 21.

<https://doi.org/10.1186/s40711-023-00200-w>

Tierney, W. G. (1999). Models of minority college-going and retention: Cultural integrity versus cultural suicide. *Journal of Negro education*, 80-91.

Tranmer, M., & Elliot, M. (2008). Multiple linear regression. *The Cathie Marsh Centre for Census and Survey Research (CCSR)*, 5(5), 1-5.

UNESCO. (2012). *International Standard Classification of Education*.

UNESCO Institute for Statistics.

Ursachi, G., Horodnic, I. A., & Zait, A. (2015). How reliable are measurement scales? External factors with indirect influence on reliability estimators. *Procedia Economics and Finance*, 20, 679-686.

VanVoorhis, C. W., & Morgan, B. L. (2007). Understanding power and rules of thumb for determining sample sizes. *Tutorials in quantitative methods for psychology*, 3(2), 43-50.

Vryonides, M., & Lampranou, I. (2013). Education and social stratification across Europe. *International journal of sociology and social policy*, 33(1/2), 77-97.

Walliman, N., & Buckler, S. (2008). *Your dissertation in education*. Sage.

Wang, D. (2011). The new curriculum and the urban-rural literacy gap: The case of one county in western China. *Chinese Education & Society*, 44(6), 87-101.

<https://doi.org/10.2753/CED1061-1932440606>

Wang, L. (2011). Social exclusion and inequality in higher education in China:

A capability perspective. *International Journal of Educational Development*, 31(3), 277-286.

<https://doi.org/10.1016/j.ijedudev.2010.08.002>

Watkins, M. W. (2018). Exploratory factor analysis: A guide to best practice. *Journal of black psychology*, 44(3), 219-246.

<https://doi.org/10.1177/0095798418771807>

Winkle-Wagner, R. (2010). *Cultural capital: The promises and pitfalls in education research: AEHE, Volume 36, Number 1*. John Wiley & Sons.

Xie, Y., & He, J. (2023). Re-examining cultural reproduction theory: cultural capital and adolescent academic achievement in China. *Asia Pacific Education Review*, 1-15.

<https://doi.org/10.1007/s12564-022-09820-2>

Xu, J., & Hampden-Thompson, G. (2012). Cultural reproduction, cultural mobility, cultural resources, or trivial effect? A comparative approach to cultural capital and educational performance. *Comparative Education Review*, 56(1), 98-124.

Yamamoto, Y., & Brinton, M. C. (2010). Cultural capital in East Asian educational systems: The case of Japan. *Sociology of Education*, 83(1), 67-83.

<https://doi.org/10.1177/0038040709356567>

Yang, K. 2018. "Motherhood as Educational Agent: Changes in Motherhood in Motherhood in the Context of Market-Oriented

Education." *Journal of Chinese Women's Studies*, (2), 79-80.

Yang, R. (2003). Progress and paradoxes: New developments in China's higher education. In *Centralization and decentralization: Educational reforms and changing governance in Chinese societies* (pp. 173-200). Springer Netherlands.

Yong, A. G., & Pearce, S. (2013). A beginner's guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in quantitative methods for psychology*, 9(2), 79-94.

Young, C., & Holsteen, K. (2017). Model uncertainty and robustness: A computational framework for multimodel analysis. *Sociological Methods & Research*, 46(1), 3-40.

<https://doi.org/10.1177/0049124115610347>

Young, M. D., 1958. *The Rise of the Meritocracy*. Transaction Publishers.

Yu, J., Cong, C., Yang, X., Yang, Y., Yu, J., Xu, J. (2005). *Suzhi Jiaoyu Taolun*. Suzhi Jiaoyu.

Yu, S., Chen, B., Levesque-Bristol, C., & Vansteenkiste, M. (2018). Chinese education examined via the lens of self-determination. *Educational Psychology Review*, 30, 177-214.

<https://doi.org/10.1007/s10648-016-9395-x>

Yu, S., Hong, L., & Ma, G. (2023). The mediation of exam-oriented cultural capital: economic capital and educational inequality of Chinese high school students during the COVID-19 pandemic and school closures. *Applied*

*Research in Quality of Life*, 18(3), 1189-1204.

<https://doi.org/10.1007/s11482-022-10127-y>

Zainodin, H. J., & Yap, S. J. (2013, September). Overcoming multicollinearity in multiple regression using correlation coefficient. In *AIP Conference Proceedings* (Vol. 1557, No. 1, pp. 416-419). American Institute of Physics.

Zhang, R., Lu, Y., & Du, H. (2022). Vulnerability and resilience in the wake of COVID-19: Family resources and children's well-being in China. *Chinese Sociological Review*, 54(1), 27-61.

<https://doi.org/10.1080/21620555.2021.1913721>

Zhao, L. Q. (2019). Research of relation of high school students' family cultural capital and study achievement. Huazhong University of Science and Technology.

Zhu, B. (2020). Cultural reproduction or cultural mobility? Unequal education achievement among Chinese college students. *The Journal of Chinese Sociology*, 7(1), 6.

<https://doi.org/10.1186/s40711-020-00119-6>

胡安宁. "文化资本研究: 中国语境下的再思考." *社会科学* 1 (2017): 64-71.

任春荣, & 辛涛. (2010). 学生家庭社会经济地位 (SES) 的测量技术. *教育学报*, 5.

# Appendix

## Appendix A. Blank Student Information Sheet

### *PARTICIPANT INFORMATION SHEET*

Central University Research Ethics Committee Approval Reference: [Insert]

#### Introductory paragraph

You are being invited to take part in a research project. My name is [Insert], a MSc student at the University of Oxford, and my supervisor for this dissertation research is [Insert]. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part.

#### Why is this research being conducted?

The aim of this study is to understand your cultural activity participation and your academic achievement.

#### Why have I been invited to take part?

You have been invited because you are a senior secondary school student in a public school in Shanghai.

#### Do I have to take part?

No. It is up to you to decide whether to take part. You can stop at any time whilst completing the questionnaire.

#### What will happen to me if I take part in the research?

If you agree to take part in the study, you will be asked to complete an online questionnaire which takes about 20 minutes to fill out.

#### What are the possible disadvantages and risks in taking part?

There is minimal identified physical or mental risk for participating in this study.

#### Are there any benefits in taking part?

There's no direct benefits for you in taking part in the study. Results may help schools and families to better support their students' studies.

#### What information will be collected and why is the collection of this information relevant for achieving the research objectives?

The information about your gender, age, participation in activities and home

possessions and school names will be collected to assess your cultural activity participation and its impact on your academic achievement. The researcher and his supervisor will have access to the research data. The data you provide is fully anonymous and we will not collect or ask you to provide any personal data.

The researcher will store research data including the anonymous questionnaire data and consent data safely for at least 3 years after submitting the dissertation, and by then school names will be securely destroyed. The relevant data including the completed questionnaires and the consent forms will be stored safely on OneDrive and on a password-protected laptop that will only be accessible to the researcher.

**Will the research be published? Could I be identified from any publications or other research outputs?**

The findings from the research will/may be written up in a dissertation, and it is impossible for participants to be identifiable given the anonymous nature of the questionnaire.

#### **Data Protection**

The University of Oxford is the data controller with respect to your personal data, and as such will determine how your personal data is used in the research. The University will process your personal data for the purpose of the research outlined above. Research is a task that is performed in the public interest. Further information about your rights with respect to your personal data is available from the University's Information Compliance web site at <https://compliance.admin.ox.ac.uk/individual-rights>.

**Who has reviewed this research?**

This research has received ethics approval from a subcommittee of the University of Oxford Central University Research Ethics Committee. (Ethics reference: **xxxxxx**).

**Who do I contact if I have a concern about the research or I wish to complain?**

If you have a concern about any aspect of this research, please contact [Insert], and we will do our best to answer your query. //we will acknowledge your concern within 10 working days and give you an indication of how it will be dealt with. If you remain unhappy or wish to make a formal complaint, please contact the Chair of the Research Ethics Committee at the University of Oxford who will seek to resolve the matter as soon as possible:

The Chair, Social Sciences & Humanities Interdivisional Research Ethics Committee;  
Email: [ethics@socsci.ox.ac.uk](mailto:ethics@socsci.ox.ac.uk); Address: Research Services, University of Oxford, Boundary Brook House, Churchill Drive, Headington, Oxford OX3 7GB

#### **Further Information and Contact Details**

If you would like to discuss the research with someone beforehand (or if you have

questions afterwards), please contact:

[Insert]

Department of Education

15 Norham Gardens, OX2 6PY

\

## Appendix B. Blank Consent Form

### *Head teacher's consent to take part in Cultural capital's impact on students' academic achievement in the Chinese context*

Central University Research Ethics Committee (CUREC) approval reference: [Insert]

Purpose of Study: The study aims at investigating the potential impact of cultural capital on students' academic achievement.

**Please initial  
each box if  
you agree  
with the  
statement**

I confirm that I have read and understand the information sheet for the above research. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

I understand that my students' participation is voluntary and that they are free to withdraw at any point before they complete the questionnaire, without giving any reason.

I understand who will have access to personal data provided, how the data will be stored and what will happen to the data at the end of the project.

I understand that the students will not be identifiable from any publications.

I understand how to raise a concern or make a complaint.

I agree to take part.

\_\_\_\_\_  
Name of the head teacher

dd / mm / yyyy  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of person taking  
consent

dd / mm / yyyy  
Date

\_\_\_\_\_  
Signature

## Appendix C. Questionnaire in English

### **Cultural capital's impact on students' academic achievement in the Chinese context**

We would like to invite you to take part in a questionnaire designed to understand your cultural activity participation and academic achievement. Please read the embedded detailed information sheet should you wish to. Completing the questionnaire is entirely voluntary.

Completion of the questionnaire should take about 20 minutes. I will not collect identifying information such as your name, email or any contact data, but I will ask you to provide some demographic information (e.g., age, gender etc.). All data will be stored securely.

As you progress through the questionnaire, you can stop at any time or withdraw at any point without giving a reason, simply by closing your browser window. Once your responses have been submitted, it will not be possible for you to remove your data from the study.

If you have any questions or queries about the questionnaire, please contact my supervisor, [Insert], at [Insert] or the researcher, [Insert], at [Insert].

**Please confirm that I have read and understand the information regarding the aim and purpose of the questionnaire.**

- Yes**

**Please confirm that you understand that the participation is voluntary and you are free to withdraw at any time without giving any reason.**

- Yes**

**Please confirm that you understand by pressing submit at the end of the questionnaire, you agree to take part in this study.**

- Yes**

6. Please indicate your birthdate (MM/YYYY).

---

7. Please indicate your gender.

- Male
- Female
- Non-binary

8. Have you visited a museum or art gallery in the past 12 months?

- Never
- Once
- Twice
- Three to five times
- More than five times

9. Have you been to a concert or a play in the past 12 months?

- Never
- Once
- Twice
- Three to five times
- More than five times

10. How long would you read for pleasure on weekdays?

- Never or almost never

- Half an hour
- Half an hour to one hour
- One to two hours
- More than two hours

11. How long would you read for pleasure on weekends?

- Never or almost never
- Half an hour
- Half an hour to one hour
- One hour to two hours
- More than two hours

12. How often do you borrow books from the library?

- Never or almost never
- Once a year
- Once half a year
- Every month
- Every week

13. How many books do you have at home (excluding magazines and manga books)?

- 0-10
- 10-30
- 30-50

- 50-100
- More than 100

14. Do you have your own bookcase?

- No
- Yes

15. Do you have your own study space?

- No
- Yes

16. Do you have your own computer/laptop?

- No
- Yes

17. Do you participate in any extracurricular activity (e.g. football club, dancing class) after class or on the weekend?

- Never or almost never
- A few times a year
- A few times a month
- A few times a week
- Everyday

18. Do you participate in shadow education after class or on the weekend?

- Never or almost never
- A few times a year

- A few times a month
- A few times a week
- Everyday

19. Do you use dialect for communication at home?

- Never or almost never
- Sometimes
- Often
- Very often
- Always

20. What is your father's level of education?

- Junior secondary school and below
- Senior secondary school
- Bachelor's or equivalent
- Master's or equivalent
- Doctoral or equivalent

21. What is your mother's level of education?

- Junior secondary school and below
- Senior secondary school
- Bachelor's or equivalent
- Master's or equivalent
- Doctoral or equivalent

22. What is your father's occupation?

---

23. What is your mother's occupation?

---

24. What score did you get for your end of term Chinese exam?

---

25. What score did you get for your end of term Maths exam?

---

26. What score did you get for your end of term English exam?

---

## Appendix D. Result of the MAP Criteria

Velicer's Minimum Average Partial (MAP) Test:

Eigenvalues

3.1353  
1.6910  
1.1008  
.9450  
.8393  
.7479  
.7409  
.6435  
.6146  
.5779  
.5114  
.4525

Average Partial Correlations

	squared	power4
.0000	.0470	.0045
1.0000	.0221	.0013
2.0000	.0242	.0017
3.0000	.0341	.0032
4.0000	.0519	.0093
5.0000	.0717	.0210
6.0000	.0996	.0346
7.0000	.1439	.0601
8.0000	.2034	.1014
9.0000	.3307	.2387
10.0000	.4657	.3386
11.0000	1.0000	1.0000

The smallest average squared partial correlation is

.0221

The smallest average 4th power partial correlation is

.0013

The Number of Components According to the Original (1976) MAP Test is

1

The Number of Components According to the Revised (2000) MAP Test is

1

## Appendix E. Result of the Parallel Analysis

### PARALLEL ANALYSIS:

#### Principal Components

Specifications for this Run:

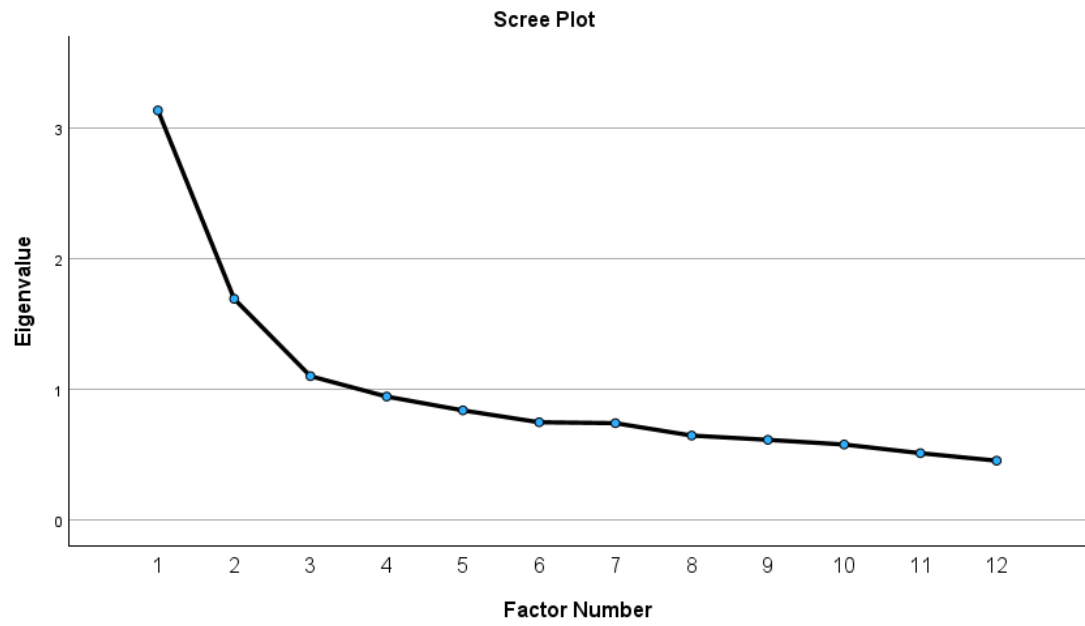
Ncases 539  
Nvars 12  
Ndatsets 100  
Percent 95

#### Random Data Eigenvalues

Root	Means	Prcntyle
1.000000	1.254819	1.314311
2.000000	1.185250	1.222680
3.000000	1.135761	1.174799
4.000000	1.093233	1.126951
5.000000	1.049250	1.079017
6.000000	1.012755	1.039833
7.000000	.973787	1.001622
8.000000	.939313	.964930
9.000000	.903267	.928008
10.000000	.862888	.897411
11.000000	.819690	.855297
12.000000	.769987	.823115

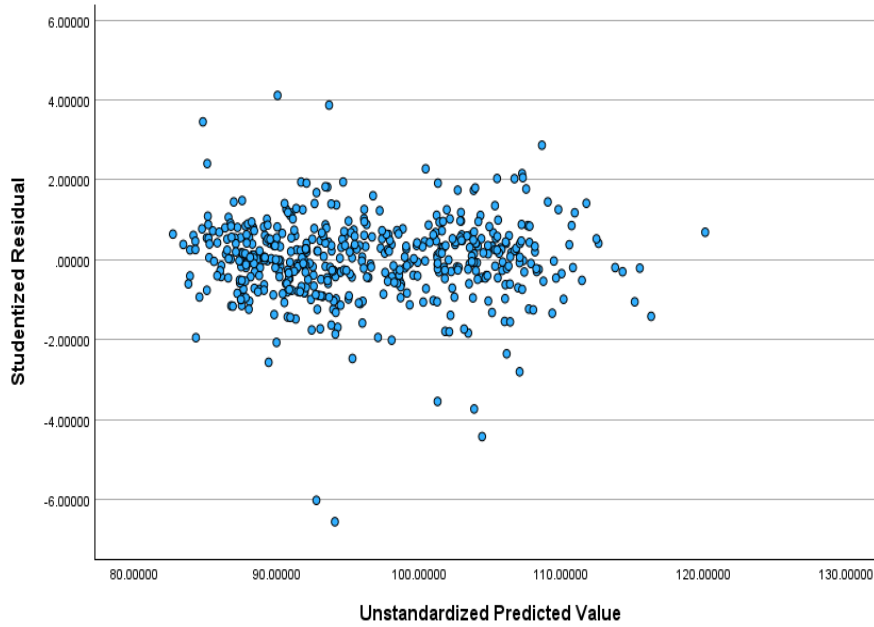
Factor	Total
1	3.13
2	1.69
3	1.10
4	0.94
5	0.84
6	0.75
7	0.74
8	0.65
9	0.61
10	0.58
11	0.51
12	0.45

## Appendix F. The Scree Plot

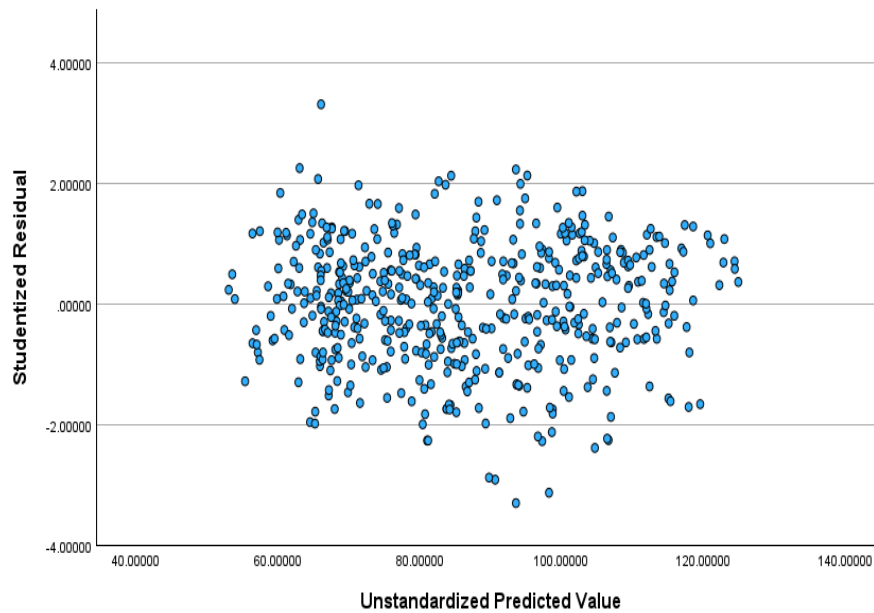


## Appendix G. Scatterplots of the Studentised Residuals for Exam Scores

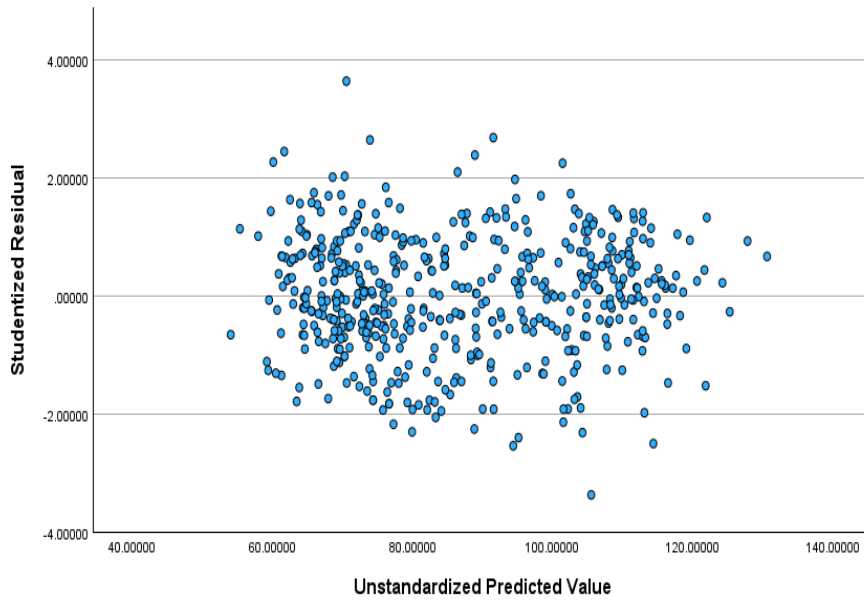
Scatterplot of the Studentised Residuals for Chinese Exam Score



Scatterplot of the Studentised Residuals for Maths Exam Score

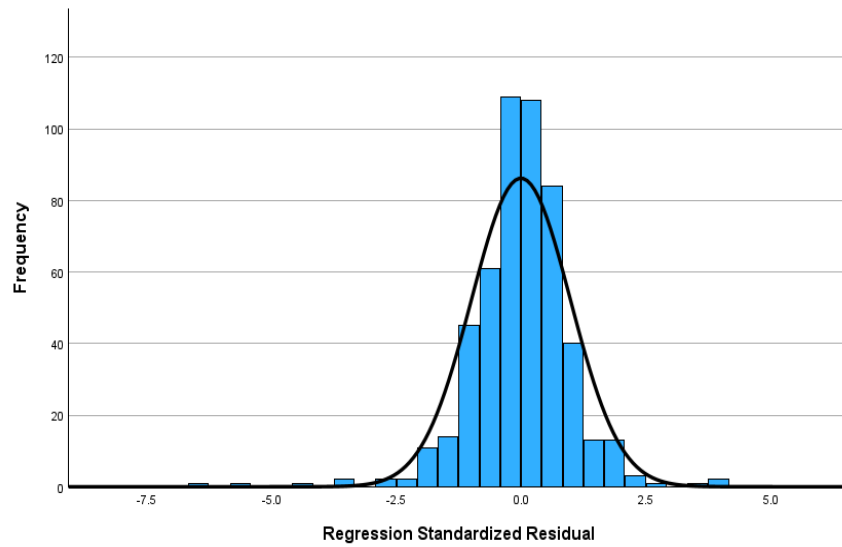


Scatterplot of the Studentised Residuals for English Exam Score

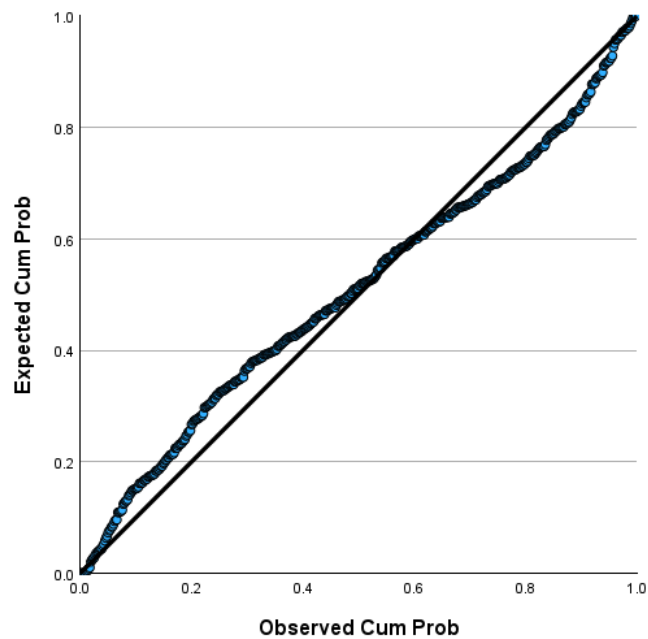


## Appendix H. Histograms and Normal P-P Plots of Regression Standardised Residual for Exam Scores

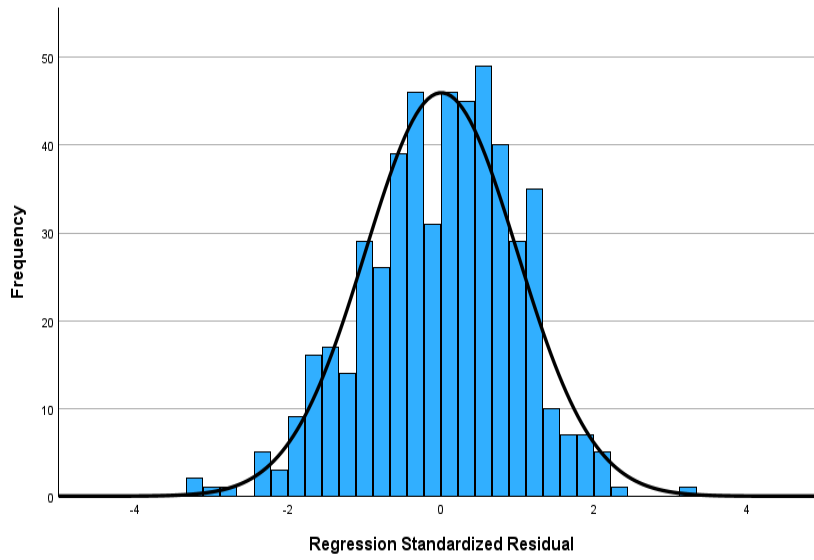
Histogram of Regression Standardised Residual for Chinese Exam Score



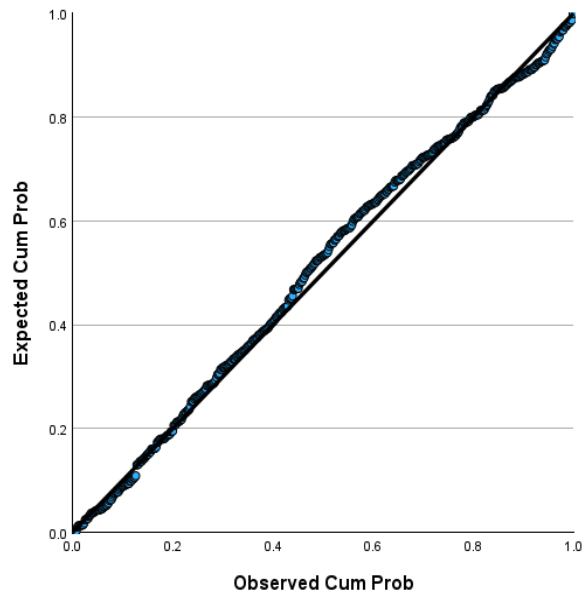
Normal P-P Plot of Regression Standardized Residual for Chinese Exam Score



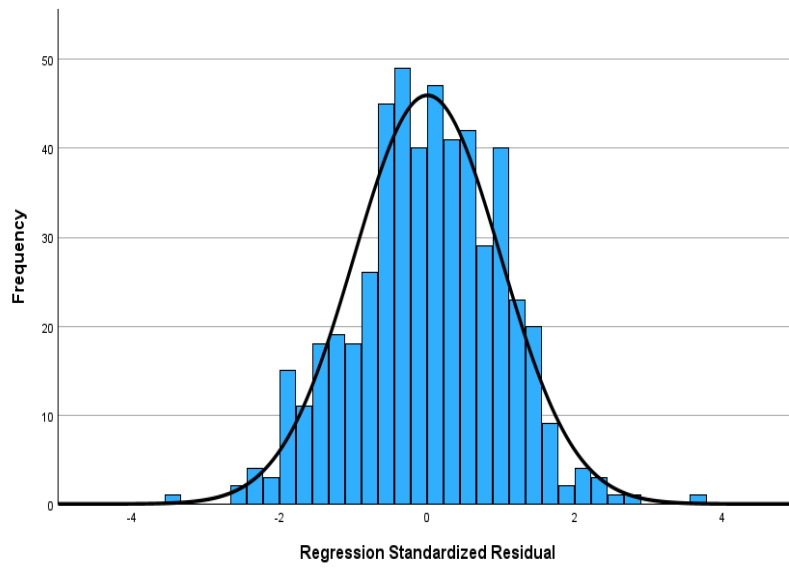
Histogram of Regression Standardised Residual for Maths Exam Score



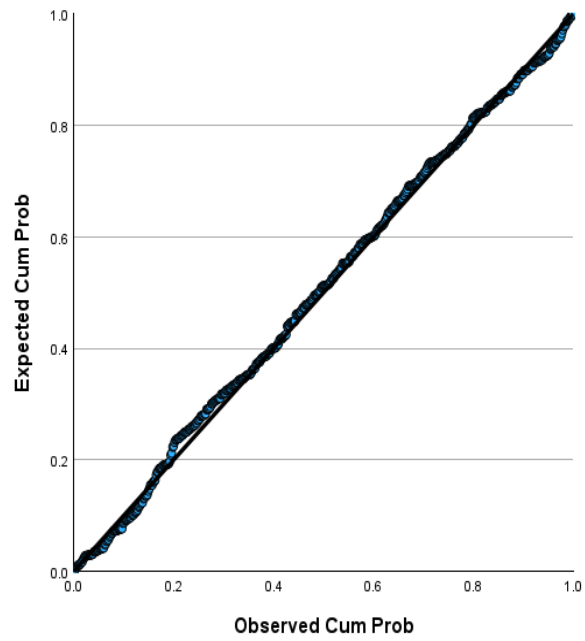
Normal P-P Plot of Regression Standardized Residual for Maths Exam Score



Histogram of Regression Standardised Residual for English Exam Score



Normal P-P Plot of Regression Standardized Residual for English Exam Score



## Appendix I. Ethics Approval

### Research ethics approval

**Research title:** Cultural capital's impact on students' academic achievement in the Chinese context

**Research ethics reference:** E1

The above application has been considered on behalf of the Education Departmental Research Ethics Committee (DREC) in accordance with the University's procedures for ethical approval of all research involving human participants.

I am pleased to confirm that, on the basis of the information provided to the DREC, ethics approval has now been granted for this study.

Please note the following:

**Personal data:** It is the responsibility of the PI to ensure that all personal data collected during the project is managed in accordance with the University's [guidance and legal requirements](#).

**In-person activities:** Any data collection involving in-person interactions with participants must have an up-to-date fieldwork risk assessment in place; further guidance is available from the Safety Office's [website](#).

**Amendments:** Please notify the committee if you intend to make any amendments to the information in your ethics application as submitted at date of this approval, as all changes must receive ethical approval prior to implementation. The amendment form is available on the [SSH IDREC webpage](#).

We welcome feedback on your experience of the ethical review process and suggestions for improvement. Please email any comments to [staff.curec@education.ox.ac.uk](mailto:staff.curec@education.ox.ac.uk) / [student.curec@education.ox.ac.uk](mailto:student.curec@education.ox.ac.uk) or [ethics@socsci.ox.ac.uk](mailto:ethics@socsci.ox.ac.uk).