

Cultural Capital and Risk Perception: The Mediating Effect of Family Digital Education Strategies on Offspring Opportunities

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Abstract

The popularization of digital technology has not eliminated educational inequality, and families are facing a digital "risk gap". This paper integrates Bourdieu's theory of cultural capital and Beck's perspective of risk society, and proposes a "family digital risk assessment strategy" as an intermediary mechanism connecting traditional cultural capital and children's educational opportunities. Based on the analysis of 805 student and 820 parent questionnaires, it is found that families with high cultural capital tend to adopt an "actuarial navigation" strategy, converting risks into educational benefits; while families with low cultural capital are trapped in "intuitive defense" or "passive laissez-faire" strategies, restricting their children's educational opportunities. The type of strategy plays a significant mediating role between cultural capital and educational opportunities. This study provides a new explanatory path for understanding the reproduction of educational inequality in the digital age.

Keywords

Cultural capital; risk society; digital divide; family education; mediating effect.

1. Introduction

Entering the 21st century, digital technology has become widespread in China, and the "access gap" between urban and rural areas has significantly narrowed [1]. However, "technology access" has not brought about equal "usage benefits". Digital inequality has evolved from the explicit "access gap" and "usage gap" to the more concealed "third digital divide" - the disparity in the ability to manage risks and transform opportunities in an uncertain digital environment [2]. This "risk gap" is particularly prominent in the field of family digital education.

The "Double reduction" policy and the digital transformation of education in the post-pandemic era have jointly shaped this risk field. The space for off-campus training has been compressed, and the proportion of educational technology products used has increased [3]. The normalization of online teaching has made families the core intermediary for screening digital educational resources. However, the home platform is rife with "artificial uncertainties" such as algorithmic bias, information overload, and privacy security [4]. In this regard, Bourdieu's theory of cultural capital reveals how the cultural capital passed down from generation to generation within a family is legitimized and operated by the education system, reproducing social inequality [5]. This theory, when explaining the "usage gap" of numbers, confirms that the dominant class can transform traditional cultural capital into the digital skills of their offspring [6,7]. However, in an environment fraught with unknown risks, this framework needs to be expanded to accommodate "risk response capabilities" as a new form of practice for cultural capital in the digital age. In this regard, Beck's risk society theory precisely characterizes the social structural features of digital risk distribution: modernity generates global risks, risk distribution and wealth distribution are intertwined, and the superior class is more capable of avoiding or transforming risks [4]. However, Baker's theory lacks an

elaboration on how risks are perceived and responded to by the micro-unit of the household [8].

Based on this, this study raises the core question: In the digital education risk environment, how can the "digital risk assessment strategy" of families play a mediating role between traditional cultural capital and the educational opportunities of their children? By opening up the "risk cognition - assessment strategy" chain, connecting macro capital structure, meso family practice and micro educational opportunities, it provides a new explanatory path for understanding the reproduction of educational inequality in the digital age.

2. Literature Review

2.1. The Evolution of the Digital Divide: From Access, Use to Risk

The concern over digital inequality has deepened from the "access gap" to the "usage gap" and then to the "risk gap". Early research focused on the "access gap" at the physical level. The NTIA report reveals racial, class and geographical barriers [9]. Norris conceptualized it as the "democratic divide" [10]. With the popularization of the Internet, the research focus has shifted to "equal use". DiMaggio and Hargittai advocated examining inequality from multiple dimensions [11]. Hargittai proposed the "second digital divide", namely the socio-economic disparity in digital skills [12]. van Deursen and van Dijk pointed out that the skills gap is at the core of the differences in usage outcomes [13]. Hargittai and Hinnant revealed the class differentiation of usage purposes: the dominant class tends to use in a "capital-enhanced" way, while the disadvantaged group is limited to "capital-consolidated" usage [6].

The contemporary digital environment is becoming increasingly complex, driving research into a "risk gap" stage. Beck's risk society theory suggests that risk allocation and wealth allocation are intertwined [4]. Ragnedda proposed the "third digital divide", that is, the inequality in the ability to benefit from digital use [2]. Nguyen, Hargittai and Marler emphasized the necessity of paying attention to users' "algorithmic awareness" [14]. The digital divide is no longer merely about "owning" devices; it is more about whether one can make effective decisions in a risky environment.

2.2. Achievements and Dilemmas of Cultural Capital Theory

Bourdieu expounded that cultural capital exists in three forms: embodiment, objectification and institutionalization [5]. Passeron reveals that the education system achieves covert class reproduction by legalizing the cultural capital of the dominant class [15]. This theory demonstrates explanatory power when explaining the "usage gap" of numbers: the discovery of Hargittai and Hinnant is a digital manifestation of the cultural capital of the dominant class [6]. Verwiebe and Hagemann conceptualized it as "digital capital" [7]. Hou, Chen and Lin indicate that parental cultural capital shapes their children's educational access by influencing digital communication methods [16].

The family is the core field for the intergenerational transmission of cultural capital. Lareau proposed two parenting models: "collaborative cultivation" and "natural growth" [17]. The former conveys cultural capital through organized activities, while the latter lacks institutional guidance. This is expected to be directly reflected in the digital risk assessment strategies of families. However, Yamamoto and Brinton pointed out that the return on cultural capital depends on the institutional background [18]. More importantly, existing research has insufficient exploration of the mechanism by which cultural capital "transforms" into digital advantages - this "mechanism black box" urgently needs to be opened.

2.3. Introduction and Innovation of the Risk Society Perspective

Beck pointed out that modernity has produced "artificial uncertainty" [4]. Risk distribution and wealth distribution are intertwined, and the superior class is better able to avoid and transform risks. The digital education environment is a typical "risk field", rife with algorithmic biases, privacy leaks, and false information. Lash pointed out that the risk society is also a kind of "technology risk culture", and risk cognition relies on professional knowledge and personal experience [19].

Families with different cultural capitals exhibit different "risk positions". Families with high-level cultural capital possess a "reflective risk awareness". Families with low cultural capital may have insufficient awareness of risks due to "lack of knowledge", which confirms the "third digital divide" [2]. Qiu, Lin and Chen pointed out that there are differences in "risk perception sensitivity" among different groups [20]. However, Baker's theory does not clarify "how" risk allocation is achieved in daily family life. Risks, from macro structure to influencing individual opportunities, must be mediated by the family [8]. This is precisely the entry point of this research.

2.4. Literature Summary and Research Framework

In conclusion, research on digital inequality has been deepened to the "risk response" level [2]. The theory of cultural capital explains the reproduction of digital inequality [5]. The family upbringing model also explains this reproduction [17]. The risk society theory provides a macro framework [4]. However, there are two gaps: the "transformation mechanism" between cultural capital and digital results is unclear; the "family realization mechanism" for risk allocation has not been clarified. This study proposes that the "Family Digital Risk Assessment Strategy" serves as a key intermediary connecting cultural capital with educational opportunities. Based on the literature summary, this paper proposes research hypotheses: Hypothesis (1): Family cultural capital is positively correlated with risk assessment ability. Hypothesis (2): "Manageable risk" cognitive prediction "Actuarial navigation" strategy; "Uncontrollable danger" cognitive prediction "Intuitive defense" strategy; Cognitive fuzzy prediction "passive and permissive" strategy. Hypothesis (3): Risk assessment strategies play a mediating role between cultural capital and educational opportunities for offspring.

3. Research Design

3.1. Selection of Research Methods

A cross-sectional questionnaire survey method was adopted. Quantitative questionnaires are suitable for testing causal relationships and mediating effects between variables, while structural equation models and the Bootstrap method can effectively evaluate model fit and the significance of variable relationships [21]. The questionnaire method facilitates the collection of large samples and comparisons among groups, and standardized measurement ensures objectivity and comparability [22].

3.2. Data Sources and Samples

The survey was conducted through an online professional questionnaire platform, and snowball sampling was carried out with the assistance of school committees and educational groups. The respondents were parents or their children of primary and secondary school students. In total, 805 student versions and 820 parent versions were collected. After eliminating invalid samples, 792 valid student samples (with an effective rate of 98.4%) and 806 valid parent samples (98.3%) were retained. Sample characteristics: In the student version, the distribution was balanced among grades 4-6 (34.2%), junior high school (33.2%), and senior high school (32.7%); in the parent version, mothers accounted for 63.9%, those with

monthly income below 8,000 yuan accounted for 74.3%, rural families accounted for 34.3%, and the samples were highly heterogeneous, facilitating the analysis of class differences.

3.3. Variable Measurement

Based on the above background, the independent variable of this study is traditional cultural capital. Bourdieu's classification provides the basis for measurement [5]. Empirical research also informs the measurement [23,24]. It is measured in three dimensions: (1) Institutionalized capital: parents' highest educational attainment (2 points for junior high school and below → 10 points for master's degree and above); (2) Objectified capital: frequency of family cultural activities in the past year (4 items, scored on a 5-point scale); (3) Attitudinal capital: parents' educational expectations and participation attitudes (5 items, scored on a 5-point scale, referring to Fantuzzo et al.) [25]. The mediating variable is the family digital risk assessment strategy. Through literature review, open interviews, expert evaluation and pre-tests, 12 items were formed and scored on a 5-point scale, covering three types of strategies [26,27]: (1) Actuarial navigation type: actively searching for information, rational weighing, and formulating rules; (2) Intuitive defense type: strictly limiting based on concerns; (3) Passive laissez-faire type: cognitive ambiguity, no intervention. The dependent variable is the educational opportunities of the offspring, which includes: (1) Processive opportunities: the breadth of access to high-quality digital resources (paid apps, online extension courses, etc.); (2) Resultative opportunities: digital literacy (referencing the DigComp framework, measuring information retrieval, privacy protection, etc.) and academic performance (grades, class ranking). The control variables include: the offspring's gender, grade; family income, parents' occupation, and place of residence.

3.4. Data Analysis Strategy

Use SPSS and the PROCESS plugin. First, conduct descriptive statistics. Then, perform correlation analysis to test H1 and H2. Finally, use the Bootstrap method for cross-analysis to test the mediating effect of H3 [21]. For the student and parent versions, a sample-by-sample verification logic is adopted to ensure the reliability of the results.

4. Results

4.1. Descriptive Analysis

The sample presents a significant cultural capital class gradient. In the parent version, families with a master's degree or above accounted for 3.5%, while those with a junior high school education or below accounted for 28.7%. The participation rate of high-education families in frequent cultural activities was 78.2%, while for low-education families, "never participated" accounted for 63.2%. In the student version, students with superior academic performance perceived their parents' "very high" expectations at 63.0%, while downstream students only had 17.8%. Cultural capital is deeply tied to academic performance. In terms of strategy distribution, "actuarial navigation type" accounted for 44.4%, "intuitive defense type" accounted for 4.5% - 13.3%, and "passive laissez-faire type" accounted for a certain proportion. However, strategy choices are constrained by cultural capital: parents with a master's degree or above who guide play a 79.4% role, while parents with a junior high school education or below who limit or laissez-faire have a significantly higher proportion.

4.2. Hypothesis Verification

H1: Cultural capital is positively correlated with risk assessment ability

The data from the parent version shows that among parents with a master's degree, "fully understand and then discuss" (the cognitive foundation of actuarial navigation) accounts for 71.0%, while among junior high school parents, it is only 34.5% ($Q2 \times Q9$). The proportion of

families with frequent cultural activities and guided management is significantly higher ($Q6 \times Q10$). High-expectation families have "fully understand + discuss" accounting for 71.9% ($Q7 \times Q9$). H1 is verified: Cultural capital determines "how to view risks" - manageable challenges or uncontrollable threats.

H2: Risk cognition type predicts strategy selection

Parents who believe their children's ability is "very strong" have guided management accounting for 79.4% (manageable cognition $\rightarrow$ actuarial navigation); junior high school families have restrictive management accounting for 74.6%, mainly due to concerns about "attention distraction" (uncontrollable cognition $\rightarrow$ intuitive defense); low-education parents have permissive management accounting for 37.8%, and only 6.5% for those with a master's degree (cognitive ambiguity $\rightarrow$ passive permissiveness). H2 is verified: Strategies are the "cognitive diagnosis" results of parents' perception of the nature of risks.

H3: Mediating effect of risk assessment strategies

Path 1 (payment resources): Families with actuarial strategies and high expenditures (above 2000 yuan) account for 71.9%, while defensive families only have 21.2%, and the utilization rate of upstream families' payment resources reaches 87.7%. Path 2 (digital literacy): When parents "discuss suggestions", the average awareness of children's privacy protection is 8.7, while defensive families only have 6.4. Path 3 (detrimental path): 71.2% of junior high school families have no digital expenditures, and 66.7% have downstream performance. H3 is verified: Strategies are the key valve for cultural capital to transform into educational opportunities.

4.3. Dual Verification

The data of the student version and the parent version are highly consistent on the core path: The children's self-assessment of their grades based on the parents' "discussion and suggestions" is higher (student version $Q7 \times Q15$); Guided management of children's academic performance in the upstream accounts for 69.4% (parent version $Q10 \times Q15$). The two samples mutually verify each other, eliminating the common method bias.

5. Discussion

5.1. Summary of Core Findings

This study verified the mediating model of "traditional cultural capital $\rightarrow$ family digital risk assessment strategy $\rightarrow$ offspring educational opportunities". High cultural capital families defined digital risks as "manageable challenges" and adopted actuarial navigation strategies to transform risks into educational benefits; low cultural capital families either fell into "intuitive defense" (regarding risks as uncontrollable threats) or slid into "passive abandonment" (a blind spot in risk perception), resulting in a reproduction dilemma for offspring educational opportunities. The strategy is the key valve for converting cultural capital into educational opportunities.

5.2. Theoretical Contributions

First, this study expands Bourdieu's theory of cultural capital by combining the static concept of "cultural capital" with the dynamic concept of "risk assessment strategies" and proposing a new "embodied" form of capital's effectiveness in the risk society [5,17]. Second, it deepens Beck's theory of the risk society by shifting the macro-level concept of "risk distribution" to the level of family practices, revealing how the "risk gap" is generated through daily strategies [4,8]. Third, it advances research on the digital divide by providing a clear and testable mediating explanation path for the "third digital divide" (the benefit gap) [2,28].

5.3. Practical Insights

For families, it is necessary to cultivate the ability to conduct prudent risk assessment, shifting from "how to use" to "how to use wisely". For policymakers, policies should shift from merely focusing on hardware access to building a supportive digital education ecosystem, with particular attention to the "inequality outbreak point" during the junior high school stage. For educational technology enterprises, product design should carry social responsibility and develop more inclusive and transparent functions.

5.4. Limitations and Future Research

This study has the following limitations: Cross-sectional data cannot be used for strict causal inference; Unmatched samples limit direct correspondence analysis within families; The classification of strategy types needs to be refined. In the future, a follow-up design can be adopted to test the causal direction, combined with qualitative interviews to deeply explore the dynamic process of strategy formation, and conduct cross-cultural comparisons to test the universality of the model.

6. Conclusion

This paper integrates Bourdieu's cultural capital theory and Beck's risk society perspective to propose and empirically test the mediating role of family digital risk assessment strategies. The results show that high cultural capital families adopt actuarial navigation strategies to turn digital risks into educational advantages, while low cultural capital families fall into defensive or passive strategies that restrict children's opportunities. The findings highlight that the "risk gap" is a key mechanism of digital inequality reproduction. To reduce educational inequality in the digital age, interventions should enhance families' risk assessment capabilities rather than merely providing hardware access. Future research should explore the dynamic formation of these strategies through longitudinal and cross-cultural designs.

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