JOURNAL OF COMMUNICATION, LANGUAGE AND CULTURE

Factors Influencing the Cooperative Preschool Education in Ulanqab Ethnic Area: Insights from the Input-Process-Outcome Perspective

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ABSTRACT

The integrated education model of multiparty cooperative education has become the development trend of preschool education, and preschools, families, and communities cover the main scope of children's activities. There is limited awareness of family-preschool-community cooperative education, and a lack of practical cooperative education management systems. Moreover, the existing research shows a lack of relevant experience in ethnic areas. For this reason, we established a family-preschool-community cooperative preschool education framework. The proposed framework adopts the input-process-output (IPO) model to examine the factors affecting preschool education quality and assess its applicability within the ethnic minority area of Ulanqab. This study collected and analysed data from 378 parents of preschool children in the Ulanqab area using SmartPLS for data analysis. The results show that family, preschool, and community have a direct and positive effect on preschool education quality. These inputs indirectly contribute to quality improvement through the mediating role of cooperative teaching and learning. The research results confirm the applicability of the family-preschool-community cooperation framework in Ulanqab and provide a reference for future preschool cooperative education policies and practices in similar ethnic regions.

Keywords: preschool education, IPO model, family-preschool-community cooperation, ethnic area, SmartPLS

Received: 9 April 2025, **Accepted:** 10 July 2025, **Published:** 30 July 2025

Introduction

Preschool education is the foundation of the national educational system. From the perspective of human capital accumulation, educational investment at this stage is the most beneficial (Delalibera & Ferreira, 2019). In rural areas of China, the annual return on investment in early childhood education can be as high as 7‑15% in the future (Wang et al., 2019). Therefore, countries worldwide are paying increasing attention to planning preschool education to ensure the quality of education for preschool children. From a sociological perspective, the growth of young children in the implementation of preschool education is inseparable from social environment constraints. The quality of preschool education is related to factors at multiple levels, such as family, community, school, social policy, and

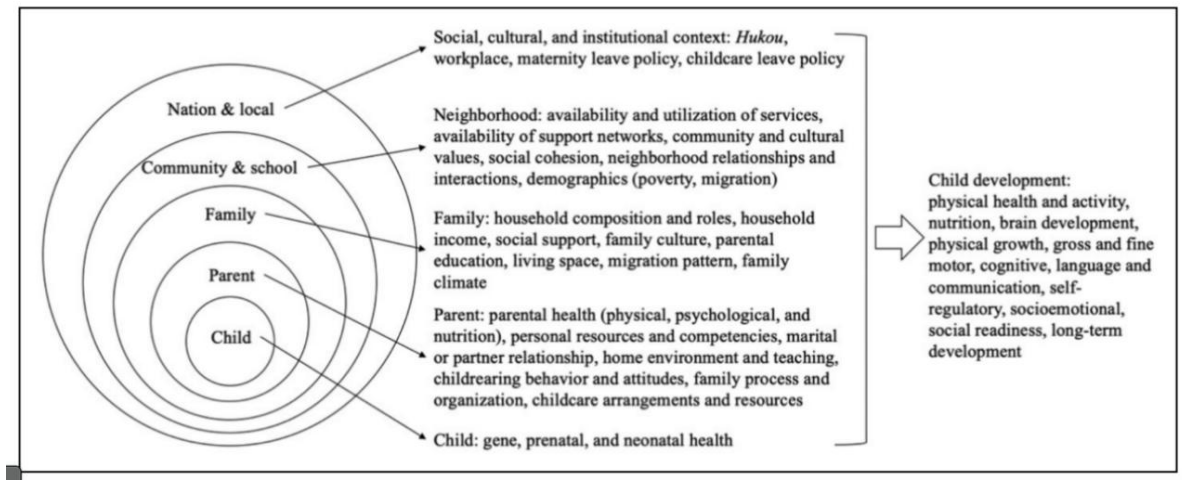
Journal of Communication, Language and Culture
doi: https://doi.org/10.33093/jclc.2025.5.2.10

Published by MMU Press. URL: https://journals.mmupress.com/jclc

welfare (Bronfenbrenner, 1979; Wu et al., 2024, Figure 1). Families, preschools, and communities are the main socialisation environments for young children. The construction of a new model of family-preschool-community cooperative education should be an important breakthrough in improving the quality planning of preschool education to achieve the goal of preschool education planning for China's education modernisation by 2035 (Jiang et al., 2022).

Figure 1

Conceptual Framework for Research on Early Childhood Development



Since 2010, China has implemented a systematic policy plan for preschool education, and various indicators have undergone tremendous changes, showing an overall rapid growth trend (Jiang et al., 2022). However, China's preschool education has started late. As a result, there is inevitably an imbalance in preschool education quality between regions and urban and rural areas (Luo & Li, 2017). As part of the overall quality of preschool education in China, preschool education in ethnic minority areas also urgently requires a suitable development path (Hong et al., 2023). Similarly, due to the late start, the foundation of the Family Community Preschool Project and its related policies is not well-established and is still being tested; research on this is still limited and not fully developed. It is crucial to collect longitudinal data covering the relationship between child development and family, school, and other social environments (Wu et al., 2024). By examining CNKI literature from 2018 to 2023, it was found that there is a lack of discussion on the effectiveness of this approach in ethnic minority areas.

At present, there is a lack of comprehensive research on cooperative preschool education among families, preschools, and communities in ethnic minority areas, which limits our understanding of the factors that may impact the quality of preschool education in Ulanqab. Therefore, to test whether a cooperative preschool education framework between families, preschools, and communities can improve the quality of preschool education in ethnic minority areas, this study proposes the following research questions:

1. What are the factors that determine the quality of preschool education in Ulanqab?
2. What are the key factors that affect cooperative teaching and learning between families, preschools, and communities in Ulanqab?
3. How does cooperative teaching and learning mediate the relationship between input factors and the quality of preschool education in Ulanqab?
4. What roles do cooperative teaching and learning play in the relationship between family, preschool, and community input and the quality of preschool education in Ulanqab?

To this end, this study uses the Input-Process-Output (IPO) framework to build a basic model of family-preschool-community cooperative preschool education for ethnic minority areas. It focuses on the role

and cooperation of families, communities, and preschool institutions to improve the quality of preschool education. This study takes Ulanqab as a case study to explore the factors that influence the quality of preschool education through families, preschools, and communities, and to test whether the cooperative preschool education framework applies to Ulanqab. The results of this study add to earlier research and support both real-world practice and academic study. This study may help develop a more effective preschool education approach in the future, especially in ethnic minority areas such as Ulanqab.

Literature Review

Family-Preschool-Community Cooperation

Robust partnerships among preschools, families, and communities are pivotal for enhancing educational outcomes, with sociopedagogical research emphasising the role of communities in child development (Garvis et al., 2021). Previous studies have explored various collaborative models, such as the home-school partnership framework developed by Hoover-Dempsey et al. (2010), the six types of parental involvement in education proposed by American educator Epstein (Epstein et al., 2018), and the family-preschool-community collaboration system theoretically constructed by Frederico and Whiteside (2016). These studies collectively underscore the need to establish educational partnerships among stakeholders.

However, theoretical and empirical research in this domain remains significantly limited in China, particularly in ethnic regions with a notable lack of universally applicable collaborative experiences for reference. The city of Ulanqab, selected for this study, can be used as a typical research case to gain insight into the current status of preschool education in ethnic minority areas. The conceptual framework of family-preschool-community cooperation in preschool education is proposed based on the IPO model, which aims to provide practical and reasonable suggestions for the effective management of education departments and the formulation of relevant preschool education development strategies, as well as experience references for improving the quality of preschool education in similar ethnic minority areas.

The Input-Process-Output (IPO) Model

IPO models are widely used in systems thinking, business analysis, and software development. It provides a research framework that visually describes various industries' systems, processes, and projects. It helps identify which areas in the system may specifically promote or hinder the achievement of the ultimate goal and can be used to provide an analysis that links input and outcome indicators (Wy et al., 2024).

From the perspective of education managers, the evaluation of education quality must shift from simply focusing on the quality of student learning outcomes to a comprehensive consideration of inputs, processes, and results (Chen et al., 2022). UNESCO also expressed this idea in the Incheon Declaration on Education 2030, which stated that to provide high-quality education and learning outcomes, it is necessary to strengthen the evaluation of inputs, processes, and results (UNESCO, 2015). The input-process-outcome model is a framework that can be used to define and conceptualise education quality (Luong & Nieke, 2014).

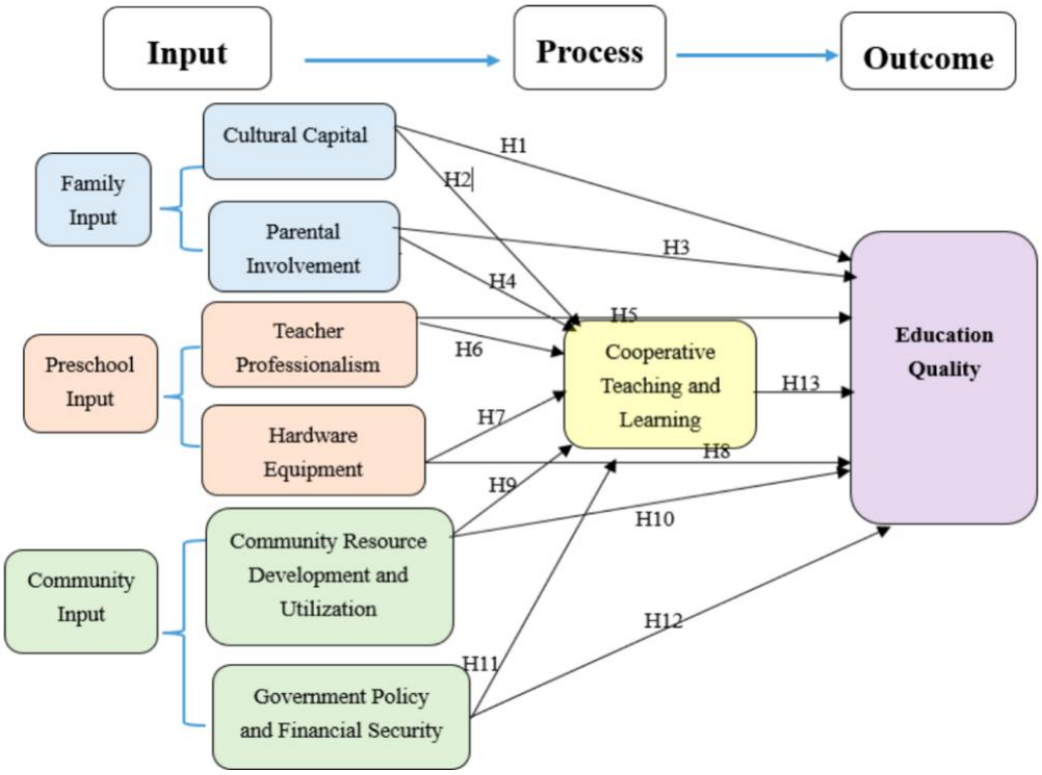
The IPO model consists of three basic aspects, namely “input” (I), “process” (P) and “outcome” (O). Input elements include educational policies, human resources (administrators, teachers, learners, and communities), infrastructure equipment, curriculum materials, and financial resources; the process involves all educational activities that occur in education, such as teaching activities, practice, and cooperation; outcome is the measurable result, such as student learning, performance, educational achievement, or stakeholder satisfaction (Luong & Nieke, 2014; Mezzanotte & C. Calvel, 2023).

The IPO model has been used in many previous studies in education across various contexts. For example, the “Input-Process-Outcome” model of inclusive education, proposed by Kyriazopoulou and Weber (2009), has been adopted in inclusive education and applied to measuring inclusive education in several European countries. In addition, the IPO model applies to monitoring and evaluating other educational fields (Mezzanotte & C. Calvel, 2023; OECD, 2021; UNESCO, 2015).

Based on the adaptability of the IPO model and the findings from numerous studies, we selected this model to investigate and understand the factors that influence the improvement in the quality of cooperative preschool education, particularly in ethnic areas such as Ulanqab. This study created a framework for family-preschool-community cooperative preschool education. The input showed factors related to the variables, including family, preschool, and community. The process utilised cooperative teaching and learning as a mediating variable, with the outcome being educational quality. The research framework affecting the Ulanqab family-preschool-community cooperative preschool education is shown in Figure 2.

Figure 2

Family-Preschool-Community Cooperation Framework



Family Input

It is wrong to place all responsibility for educating and nurturing children on teachers; instead, the primary focus should be on the responsibilities of parents in raising their children (Liu, 2023). Children's success in school depends largely on their family background, and family input is a key element that can effectively promote early childhood intervention (Joo et al., 2020). Parents invest their family's cultural background, values, expectations, and understanding of their children in early childhood education and provide feedback to teachers, who then apply their professional skills and "knowledge" to collaborative teaching activities to promote interactive dialogue in teaching young children (McWayne et al., 2022).

Cultural capital is an important factor in family investment (Sengonul, 2022). Parents' cultural level, educational concepts and behaviours, family collections of books, and other educational environments are all included in the content of family cultural capital (Kong & Feng, 2023). Ripamonti (2023) states that cultural capital is the most critical factor affecting early childhood education outcomes. Family cultural capital helps children improve their knowledge and skills, promote academic success, and subtly shape their thinking, learning habits, and behaviours (Breinholt & Jaeger, 2020; Caprara, 2016;

Feng & Wu, 2018). Zhai (2020) stated that this influence deepens as the two sides spend more time together. In this study, parent involvement encompasses establishing a positive parent-child relationship with the child, fostering a friendly partnership with the teacher, and actively participating in educational interactions. Many studies have confirmed that parental involvement positively correlates with improving children's academic performance (Polat & Bayindir, 2020; X. J. Yang, 2019). Parents' enthusiasm to participate in early childhood education influences their children's kindergarten performance (Y. Q. Yang, 2021). This influence extends to foundation skills such as reading, writing, and mathematics, providing positive school preparation (Smyth, 2017). Based on the above discussion, this study hypothesises the following.

H1: Cultural capital has a positive and significant effect on educational quality.

H2: Cultural capital positively and significantly affects cooperative teaching and learning.

H3: Parental involvement has a positive and significant effect on educational quality.

H4: Parental involvement has a significant positive effect on cooperative teaching and learning.

Preschool Input

Preschool inputs are structural elements of education, such as teachers, teaching venues, equipment, and materials (Ogunsola et al., 2015). Studies have shown that smaller classroom student-teacher ratios and higher teacher education levels can lead to higher process quality and improved early childhood education outcomes (NICHD ECCRN, 2002).

The Outline of China's Education Modernisation 2035 Plan puts forward the clear requirement of "building a team of high-quality, professional, and innovative teachers." Ashraf and Ahmed (2022) stated that preschool teachers are the key driving force behind developing high-quality preschool education. Excellent teachers should have high-quality professional abilities, which are not only reflected in their teaching skills but also in their moral and behavioural performance. High-quality professional teachers have a significant and lasting impact on students' academic performance (F. Zhang, 2017; Sancar et al., 2021). Investment in preschool education institutions must be accompanied by quality teachers and directed towards improving infrastructure (Krisnawati, 2024). School facilities, such as amusement and sports equipment, are the basic amenities for childcare and education tasks. Improving this infrastructure can promote improvements in education quality (Saadu, 2024). Based on the above discussion, we assume that

H5: Teacher professionalism has a significant positive effect on quality of education.

H6: Teacher professionalism has a significant positive effect on cooperative teaching and learning.

H7: Hardware equipment has a significant positive effect on cooperative teaching and learning.

H8: Hardware equipment has a significant positive effect on quality of education.

Community Input

Education encompasses both formal schooling and informal early supplementary education. The latter lays the foundation for children to enter formal education. The latter is called community education. This shift is conducive to moving preschool education from a closed to an open approach and is an inevitable trend in the development of preschool education (Abubakar et al., 2024). In this study, community investment mainly refers to investment in preschool educational resources, including providing educational facilities and activities for preschool children.

Alam (2022) points out that utilising community education resources is an important determinant of education quality. Community education resources such as human, material, cultural, and information resources can be developed and utilised (Zhao, 2020). Community-based education resource investment benefits the teaching process, making preschool education more available. This investment in educational resources can help schools obtain valuable information for the teaching process and enable learners to understand more complex concepts, thereby improving classroom participation (Nwabuike,

2017). In China, the development of preschool education is primarily led by the government and promoted by policies (Hou, 2016). Community preschool education is a public welfare undertaking, and its development cannot be separated from government supervision, policy, legal support, or sufficient education funding (Angelia et al., 2020). To this end, this study makes the following assumptions.

H9: Community resource development and utilisation have a significant positive effect on cooperative teaching and learning.

H10: Community resource development and utilisation have a significant positive effect on the quality of education.

H11: Government policy and financial security have a significant positive effect on cooperative teaching and learning.

H12: Government policy and financial security have a significantly positive effect on the quality of education.

Cooperative Teaching and Learning

Preschool education quality process elements include teacher-student interactions and curriculum teaching (Salam, 2015; Slot et al., 2015). Curriculum teaching is at the centre, which can reflect the quality of the education process and the professional level of teachers, and is considered to be the core element that determines the quality of preschool education (Pianta et al., 2014). Building a strong partnership among preschools, families, and communities will help establish consistent goals, foster a more positive learning environment, and promote collaborative teaching (Díez et al., 2020; Tudge et al., 2022). This requires teachers to take the lead, use teaching skills to design course content, capitalise on advantages offered by family and community outside of school, carry out teaching cooperation activities with families and communities, take students out of the classroom, and bridge the gap between theory and practice (Garrity & Canavan, 2017; Yunus, 2022). To this end, the education department should be connected to establish good communication between the community and preschools (Ajibola, 2018). Cooperative teaching and learning help stakeholders work together to achieve the goals set for preschool education by 2035. Therefore, it is assumed that

H13: Cooperative teaching and learning have a significant positive effect on the quality of education.

Education Quality

The quality of education should be a primary concern for people. If the quality is poor, the benefits of preschool education programs on children's development may be extremely weak (Fort et al., 2020). The evaluation of the quality of early childhood education emphasises the comprehensive development of students, which is manifested in the form of academic achievement, social cognition, emotion, and psychomotor (Andrew et al., 2024; Ekpenyong et al., 2023).

Mediating Effects of Cooperative Teaching and Learning

Based on the IPO model, this study proposes the following hypothesis regarding the mediating effect in the educational process:

H14: Cooperative teaching and learning have a significant mediating effect between cultural capital and educational quality.

H15: Cooperative teaching and learning have a significant mediating effect on parental involvement and educational quality.

H16 Cooperative teaching and learning have a significant mediating effect on teacher professionalism and education quality.

H17: Cooperative teaching and learning have a significant mediating effect on the relationship between hardware equipment and education quality.

H18: Cooperative teaching and learning have a significant mediating effect on community resource development, utilisation, and education quality.

H19: Cooperative teaching and learning have a significant mediating effect on government policy, financial security, and education quality.

Methods

A quantitative approach is used in this study. Quantitative research design involves collecting data, analysing the data using statistical tools, and ultimately determining the relationship between independent variables (predictors) and dependent variables (outcome variables) to determine the research results (Andrade & Andersen, 2020). This study aimed to explore the implementation of the preschool education cooperation system in Ulanqab. According to Taherdoost (2022), quantitative research methods are most suitable for this study, as they can be used to evaluate hypotheses, study causal relationships and interactions, and make predictions about the results.

A simple random sampling technique was used for this study. Simple random sampling is a probability sample in which each member of the population has an equal probability of being selected as a respondent (Rahman et al., 2022). The respondents in this study were parents of children aged 3-6 in kindergartens in Ulanqab, as they are the primary external beneficiaries and are in the best position to know the overall situation of the children. This study used the G*Power software to determine the required sample size. After calculation, a sample size of at least 153 was considered sufficient (predictors: 7, power: 0.95, effect size: 0.15) (Kang, 2021). Based on the simple random sampling method, we distributed 400 paper questionnaires in the Ulanqab area through face-to-face questionnaires. After eliminating 22 invalid questionnaires, we finally obtained 378 valid questionnaires. The sample size was suitable for statistical analysis.

The tool used in this study was divided into two parts. Part A was the demographic profile of the respondents, including information such as education, annual household income, and kindergarten stage. Part B was the family-preschool-community cooperative preschool education questionnaire scale, which included questions related to each variable. Each variable contained 4 to 5 items, and these questions were adapted from B. B. Zhang et al. (2023) and Li (2020). Additionally, this study adopted a variance-based partial least squares (PLS) tool for structural equation modelling (SEM). Part B used a Likert 5-point scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. Before the formal data collection, 100 respondents were selected for the pilot test to ensure the quality of the questionnaire. The responses to the pilot test were evaluated using SPSS, and the Cronbach's alpha coefficient for the measurement items ranged from 0.847 to 0.908. Exploratory factor analysis extracted seven factors with a cumulative explained variance contribution rate of 61.658%. The rotation loading values of the measurement items were all greater than 0.5, and the commonality values were all greater than 0.4, indicating that the questionnaire passed the reliability and validity tests and could be used to conduct formal surveys.

Results and Findings

Respondents' Profile

The respondents comprised 51.10% urban parents and 48.90% rural parents, out of the 378 completed questionnaires. Approximately 90.2% of the respondents had received a higher education. 83.9% of the respondents had an annual income of less than 100,000 RMB, of which the majority had a yearly income of 30,000–50,000 RMB. Table 1 summarises the respondents' demographic characteristics.

Table 1

Demographic Profile of the Respondents

Variable	Category	Frequency (N)	Per cent (%)
Education	High school	37	9.8
	Junior diploma	148	39.2
	Undergraduate	105	27.8
	Postgraduate	88	23.3
Annual Household Income (per person)	<30 thousand	103	27.2
	30-50 thousand	113	29.9
	50-100 thousand	101	26.7
	>100 thousand	61	16.1
Region	City	193	51.1
	Rural town	185	48.9
Learning Stages	Junior class	87	23.0
	Middle class	213	56.3
	Senior class	78	20.6

Measurement Model

First, the measurement model was evaluated to measure the question's reliability, internal consistency, convergent validity, and discriminant validity. According to Hair et al. (2019), the indicator loading values were all greater than 0.708, and the composite reliability (C.R.) exceeded the critical value of 0.7, confirming that the scale questions and internal consistency passed the test. Two main measurement elements were used in the validity test of the model: convergent and discriminant.

Factor loading, average variance extracted (AVE), and composite reliability (C.R.) are the three measures that must be established for convergent validity (Cheung et al., 2024). Hair et al. (2022) recommend that AVE should be higher than 0.50, and C.R. should be higher than 0.70. Appendix A presents details of the model's full convergent validity.

The Fornell-Larcker method was used to check the discriminant validity between the variables. According to Fornell and Larcker's (1981) method, the AVE of the latent variable should be greater than the squared correlation between the latent variable and all other variables. Table 2 presents details of the discriminant validity of the model. The results showed that the correlation coefficients of all the variables were lower than the square root of the AVE value of the measured variable. Therefore, the measured values were discriminative.

Table 2

Discriminant Validity: Fornell-Larcker Criterion

	CC	PI	TP	HE	CRDU	GPFS	CTL	EQ
CC	**0.828**							
PI	0.353	**0.829**						
TP	0.480	0.467	**0.825**					
HE	0.361	0.435	0.428	**0.780**				
CRDU	0.339	0.422	0.468	0.419	**0.832**			
GPFS	0.417	0.463	0.426	0.428	0.406	**0.849**		
CTL	0.509	0.567	0.548	0.505	0.475	0.510	**0.815**	
EQ	0.449	0.479	0.499	0.468	0.480	0.478	0.554	**0.802**

Note: The bolded diagonal font is the square root of AVE, and below the diagonal is the correlation coefficient

Structural Model

After establishing the validity of the measurement model, the next step was to estimate the structural model. We used R^2 and Q^2 to measure the explanatory and predictive power of the model and conducted a path analysis to test the hypothesis. According to Hair et al. (2022), this study used a bootstrapping procedure with 5,000 replacements to assess the significance of parameter estimates.

The coefficient of determination (R^2) is the most used indicator for evaluating structural models, which indicates the combined impact of exogenous latent variables on endogenous latent variables (Rigdon, 2012). Hair et al. (2022) state that R^2 values of 0.250, 0.500, and 0.750 indicate weak, moderate, and substantial explanatory power, respectively. A Q^2 value greater than zero also suggests the model has predictive relevance (Hair et al., 2022). Table 3 reports the R-squared values of the endogenous latent variables in the model, among which the R^2 value of cooperative teaching and learning was 0.528, Q^2 was 0.509, the R^2 value of educational quality was 0.455, and Q^2 was 0.402, indicating that the model had sufficient explanatory and predictive power.

Table 3

Coefficient of Determination R^2, Q^2

Endogenous Latent Factors	R^2	Q^2
Cooperative Teaching and Learning	0.528	0.509
Education Quality	0.455	0.406

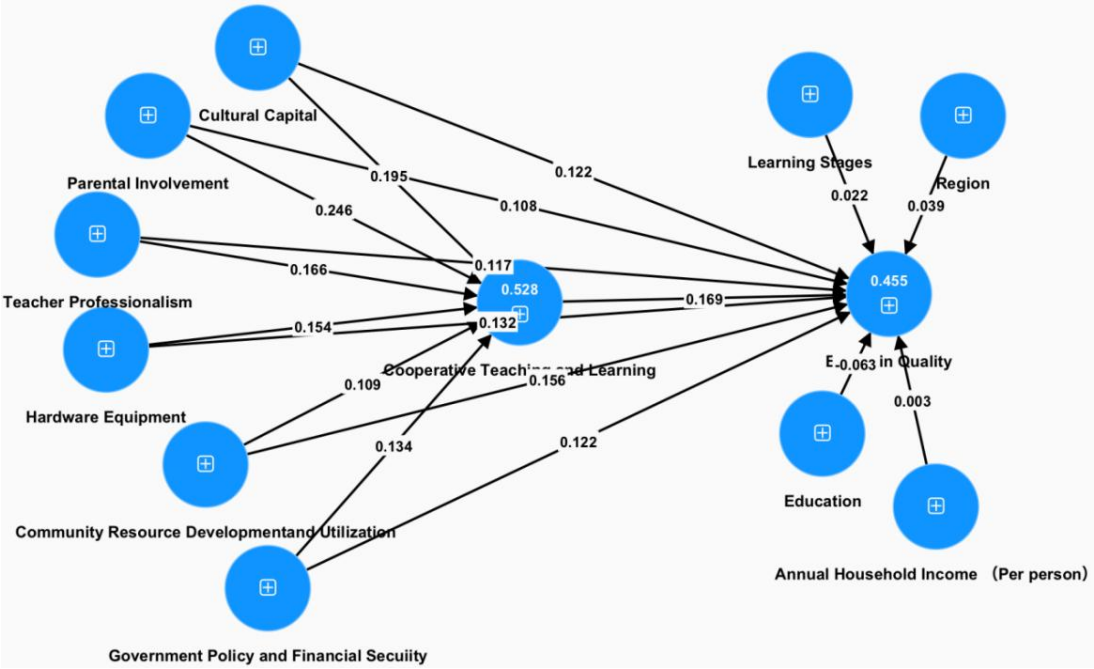
Finally, the size and strength of the paths were examined, as shown in Figure 3 and Table 5, respectively. The results showed that path analysis indicated that cultural capital (β=0.122; t=2.508; p=0.012), parental involvement (β=0.108; t=2.013; p=0.044), teacher professionalism (β=0.117; t=2.225; p=0.026), hardware equipment(β =0.132; t=2.628; p=0.009), community resource development and utilisation (β=0.156; t=3.117; p=0.002), government policy and financial security(β=0.122; t=2.529; p=0.011), and cooperative teaching and learning (β=0.169; t=2.967; p=0.003) were positively correlated with education quality, thus supporting hypotheses H1, H3, H5, H8, H10, H12, and H13. Cultural

capital(β=0.195; t=4.159; p=0.000), parental involvement (β=0.246; t=5.718; p=0.000), teacher professionalism(β=0.166; t=3.396; p=0.001), hardware equipment(β=0.154; t=3.63; p=0.000), community resource development and utilisation (β=0.109; t=2.351; p=0.019), government policy, and financial security (β=0.134; t=2.969; p=0.003) were positively and significantly correlated with cooperative teaching, thus providing evidence to support H2, H4, H6, H7, H9, and H11.

Appendix B presents the results of the mediation evaluation which shows that cooperative teaching and learning mediated the relationship between cultural capital and educational quality (β=0.033; t=2.311; p=0.021), and cooperative teaching and learning mediated the relationship between parental involvement and educational quality (β=0.042; t=2.53; p=0.011), which supports hypotheses H14 and H15. Cooperative teaching and learning mediated the relationship between teacher professionalism and education quality (β=0.028; t=2.1; p=0.036) and the relationship between hardware equipment and education quality (β=0.026; t=2.159; p=0.031), supporting H16 and H17. In addition, cooperative teaching and learning mediated the relationship between community resource development and utilisation and education quality (β=0.018; t=1.977; p=0.048), thus supporting H18. Cooperative teaching and learning mediated the relationship between government policies, financial guarantees, and education quality (β=0.023; t=2.1; p=0.036), supporting H19.

Figure 3

Results for the Structural Model



Discussion

First, it confirms that parental involvement and cultural capital variables in family investment can predict the quality of preschool education and cooperative teaching and learning. Specifically, this indicates that children can directly or indirectly utilise the support of educational resources provided by their parents (such as toys and books), and the stronger this cultural capital is, the more opportunities and interventions conducive to early childhood education can be offered. Tan et al. (2019) stated that the effect of cultural capital weakens as the educational stage increases, possibly because it is related to the mismatched educational abilities of parents. Parental involvement can enable parents and teachers to have a deeper understanding of their children, thereby forming a virtuous circle of educational quality, which is also consistent with previous research results (Boonk et al., 2018; Yulianti et al., 2022).

Second, as part of community input, community resource development and utilisation, government policy, and financial security also play important roles in determining the quality of education and cooperative teaching. Although there are often gaps between policy and practice, the government has recognised the importance of improving cooperative teaching policies and financial guarantees to achieve quality education. Kumar's (2023) research confirms this result. We believe that the current focus of the Ulanqab Municipal Government is based on ethnic and local characteristics and provides effective policy guidance according to local conditions, including but not limited to improving and promoting policy planning for cooperative teaching, sufficient financial support, maintaining and upgrading educational facilities, and establishing and making full use of community participation structures.

Third, the main factors affecting the quality of preschool education and cooperative teaching and learning are the preschool hardware equipment and teacher professionalism. The current research results show that when teachers grow, learners also grow. This is why the requirements for professional preschool teachers are recognised and guaranteed in policy frameworks, regulations, and guidelines. These efforts include starting with normal colleges at all levels that train preschool teachers, expanding the scale of targeted teacher training in ethnic minority areas, strengthening the precision training of preschool teachers, and promoting on-the-job teaching internships (Zhou & Wang, 2020). Future teachers should pay special attention to the application of digital technology in teaching (Yilmaz & Arslan, 2024). Boboc et al. (2022) believe that the culture and experience of any nation possess unique educational potential. Therefore, for ethnic areas, such as Ulanqab, the creation of preschool facilities and environments should promote and protect traditional ethnic groups. This can be achieved by considering the selection and layout of teaching aids, walls, and activity areas and giving more consideration to integrating ethnic elements.

Finally, the results confirmed the significant mediating role of cooperative teaching and learning between family, preschool, community input, and education quality. A key factor determining how increased school inputs improve education quality is how these inputs are used in practice and how teaching is organised. All stakeholders should work together to help teachers develop culturally responsive and inclusive curricula and teaching strategies, thereby improving the quality of education. Its essence is to realise added value by integrating various educational resources that were initially scattered, through cooperative teaching. Therefore, the collaborative teaching and learning model largely explains why it can play a key role in the input of families, providers, and communities, and the quality of preschool education. Although responsibility for early childhood education comes from three parties, kindergarten education should be the top priority in teaching practice. Families and communities should also provide auxiliary and supplementary education.

Conclusion

Based on IPO, this study conducts comprehensive modelling from the perspectives of different stakeholders (family, community, and preschool) and experimentally validates a conceptual framework. The framework answers the question of who should be responsible for cooperative education and how to implement it. The research results confirm the importance of implementing a cooperative education model. This study offers valuable insights into strategies for enhancing the quality of preschool education in Ulanqab. The practical significance of this study is important for various stakeholders in the early childhood education industry, including parents, teachers, community workers, and education administrators. This enables stakeholders to take an active role in preschool education and maximise the overall quality of preschool education.

Acknowledgement

We sincerely thank all the participants for their valuable time and insights, which made this research possible. The authors also appreciate the constructive suggestions from the reviewers and editors that have improved this manuscript.

Conflict of Interest

The authors have declared that no competing interests exist.

Author Contribution Statement

DY: Conceptualisation, Data Curation, Methodology, Validation, Writing – original draft preparation. TSH: Project Administration, Writing – Review and Editing. OHB: Project Administration, Supervision, Writing – Review and Editing.

Funding

This research received no specific grants from any funding agency in the public, commercial, or not-for-profit sectors.

Ethics Statements

This research did not require IRB approval because it involved an anonymous survey with no collection of personal or sensitive data.

Data Access Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Biography

Dong Yu is a master's student at the Faculty of Management, Multimedia University, Malaysia. Her research interests include education and ethnicity.

Siow-Hooi Tan is a professor at the Faculty of Management, Multimedia University, with a PhD in Financial Economics from University Putra Malaysia. Her interdisciplinary research covers behavioural finance, tourism, cultural heritage, and environmental responsibility, with recent interest in financial market predictability and technology for the elderly.

Hway-Boon Ong is an Associate Professor of Financial Economics at the University of Nottingham Malaysia. Her research interests include digital banking, financial intermediation, and household financial behaviour, particularly in the ASEAN region. She has published extensively on e-wallet use, financial inclusion, and the economic impact of payment systems.

References

Abubakar, A., Juhadira, J., Puspitasari, Y., Nasir, N., Muliyani, M., Rasid, R., & Bagea, I. (2024). Community-Based Human Resource Management in Quality Early Childhood Education. *International Journal of Educational Management and Innovation, 5*(2), 96-106. https://doi.org/10.12928/ijemi.v5i2.9175

Ajibola, A. A. (2018). Availability, adequacy and utilisation of resources for teaching Agricultural Science at secondary schools in Osogbo, Nigeria. *International Journal of Arts and Social Science Education, 1*(1 & 2), 1–9.

Alam, A. (2022). Mapping a sustainable future through conceptualisation of transformative learning framework, education for sustainable development, critical reflection, and responsible citizenship: an exploration of pedagogies for twenty-first century learning. *ECS Transactions, 107*(1), 9827. https://doi.org/10.1149/10701.9827ecst

Andrade, S. B., & Andersen, D. (2020). Digital story grammar: A quantitative methodology for narrative analysis. *International Journal of Social Research Methodology, 23*(4), 405–421. https://doi.org/10.1080/13645579.2020.1723205

Andrew, A., Attanasio, O. P., Bernal, R., Sosa, L. C., Krutikova, S., & Rubio-Codina, M. (2024). Preschool quality and child development. *Journal of Political Economy, 132*(7), 2304-2345. https://doi.org/10.1086/728744

Angelia, N., Batubara, B. M., Zulyadi, R., Hidayat, T. W., & Hariani, R. R. (2020). Analysis of community institution empowerment as a village government partner in the participative development process. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 3*(2), 1352-1359. https://doi.org/10.33258/birci.v3i2.991

Ashraf, M. A., & Ahmed, H. (2022). Approaches to quality education in tertiary sector: An empirical study using PLS-SEM. *Education Research International, 2022*(1), 1–12. https://doi.org/10.1155/2022/5491496

Boboc, R. G., Băutu, E., Gîrbacia, F., Popovici, N., & Popovici, D. M. (2022). Augmented reality in cultural heritage: An overview of the last decade of applications. *Applied Sciences, 12*(19), 9859. https://doi.org/10.3390/app12199859

Boonk, L., Gijselaers, H. J. M., Ritzen, H., & Brand-Gruwel, S. (2018). A review of the relationship between parental involvement indicators and academic achievement. *Educational Research Review, 24,* 10-30. https://doi.org/10.1016/j.edurev.2018.02.001

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

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design.* Harvard University Press.

Caprara, B. (2016). The impact of cultural capital on secondary students' performance in Brazil. *Universal Journal of Educational Research, 4*(11), 2627–2635. https://doi.org/10.13189/ujer.2016.041116

Chen, Z., Bao, Y., & Zhu, T. (2022). An empirical study on IPO model construction of undergraduate education quality evaluation in China from the statistical pattern recognition approach in NLP. *ACM Transactions on Asian and Low-Resource Language Information Processing, 21*(6), 1-18. https://doi.org/10.1145/3543851

Cheung, G. W., Cooper-Thomas, H. D., Lau, R. S., & Wang, L. C. (2024). Reporting reliability, convergent and discriminant validity with structural equation modelling: A review and best-practice recommendations. *Asia Pacific Journal of Management, 41*(2), 745–783. https://doi.org/10.1007/s10490-023-09871-y

Delalibera, B. R., & Ferreira, P. C. (2019). Early childhood education and economic growth. *Journal of Economic Dynamics and Control, 98*(1), 82–104. https://doi.org/10.1016/j.jedc.2018.10.002

Díez, F., Villa, A., López, A. L., & Iraurgi, I. (2020). Impact of quality management systems in the performance of educational centres: educational policies and management processes. *Heliyon, 6*(4), 1-7. https://doi.org/10.1016/j.heliyon.2020.e03824

Ekpenyong, J. A., Owan, V. J., Mbon, U. F., & Undie, S. B. (2023). Family and community inputs as predictors of students' overall, cognitive, affective and psychomotor learning outcomes in

secondary schools. *Journal of Pedagogical Research, 7*(1), 103-127. https://doi.org/10.33902/JPR.202319099

Epstein, J. L., Sanders, M. G., Sheldon, S. B., Simon, B. S., Salinas, K. C., Jansorn, N. R., Van Voorhis, F. L., Martin, C. S., Thomas, B. G., Greenfeld, M. D., Hutchins, D. J., & Williams, K. J. (2018). *School, family, and community partnerships: Your handbook for action* (4th ed.). Corwin Press.

Feng, L. N., & Wu, Z. D. (2018). 家庭社会经济地位、父母教养行为对幼儿学习品质之影响 [The influence of family socioeconomic status and parenting behaviour on preschoolers' learning quality]. *宁波大学学报(教育科学版)* [Journal of Ningbo University, Educational Science Edition], *21*(04), 109–119.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Fort, M., Ichino, A., & Zanella, G. (2020). Cognitive and noncognitive costs of day care at age 0–2 for children in advantaged families. *Journal of Political Economy, 128*(1), 158–205. https://doi.org/10.1086/704075

Frederico, M., & Whiteside, M. (2016). Building School, Family, and Community Partnerships: Developing a theoretical framework. *Australian Social Work, 69*(1), 51–66. https://doi.org/10.1080/0312407X.2015.1042488

Garrity, S., & Canavan, J. (2017). Trust, responsiveness and communities of care: An ethnographic study of the significance and development of parent-caregiver relationships in Irish early years settings. *European Early Childhood Education Research Journal, 25*(5), 1–21, Advance online publication. https://doi.org/https://doi.org/10.1080/1350293X.2017.1356546

Garvis, S., Phillipson, S., Harju-Luukkainen, H., & Sadownik, A. R. (Eds.). (2021). *Parental engagement and early childhood education around the world.* London: Routledge

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modelling (PLS-SEM)* (3rd ed.). Sage.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2-24. https://doi.org/10.1108/EBR-11-2018-0203

Hong, X., Zhang, M., Liu, Q., Zhong, B., & Li, H. (2023). Preschool education demand in China by 2035: A prediction analysis. In *The Impact of New Fertility Policies on Early Education and Development in China* (pp. 27–42). Routledge.

Hoover-Dempsey, K. V., Whitaker, M. C., & Ice, C. L. (2010). Motivation and commitment to family-school partnerships. In *Handbook of School-Family Partnerships* (pp. 30–60). New York: Routledge

Hou, L. M. (2016). 成就与挑战:政府主导下的我国学前教育发展评析[Achievements and challenges: An evaluation of preschool education development under government leadership in China]. *广西师范大学学报(哲学社会科学版)* [Journal of Guangxi Normal University (Philosophy and Social Sciences Edition)], *52*(6), 106–110. https://doi.org/10.16088/j.issn.1001-6597.2016.06.017

Jiang, Y., Zhang, B. B., Zhao, Y., & Zheng, C. C. (2022). China's preschool education toward 2035: Views of key policy experts. *Review of Education, 5*(2), 345-367. https://doi.org/10.1177/20965311211012705

Joo, Y. S., Magnuson, K., Duncan, G. J., Schindler, H. S., Yoshikawa, H., & Ziol-Guest, K. M. (2020). What works in early childhood education programs? A meta-analysis of preschool enhancement

programs. *Early Education and Development, 31*(1), 1–26. https://doi.org/10.1080/10409289.2019.1624146.

Kang, H. (2021). Sample size determination and power analysis using the G* Power software. *Journal of Educational Evaluation for Health Professions, 18,* Article 17. https://doi.org/10.3352/jeehp.2021.18.17

Kong, L., & Feng, J. Y. (2023). 家庭文化资本对幼儿社会情感能力发展的影响研究: 基于五省调查数据的实证分析 [A study on the effect of family cultural capital on the preschoolers' social-emotional ability development: Empirical analysis based on data from five provinces]. *陕西学前师范学院学报* [Journal of Shaanxi Xueqian Normal University (Philosophy and Social Sciences Edition)]*, 39*(9), 76-85.

Krisnawati, E. (2024). Evaluation of the implementation of the CIPP model character education strengthening program (Context, Input, Process, Product). *International Journal of Teaching and Learning, 2*(5), 1412–1423. https://injotel.org/index.php/12/article/view/170

Kumar, R. (2023). Challenges and Strategies for Improving Minority Education Access and Success. *Sage Science Review of Educational Technology, 6*(1), 48–58. https://journals.sagescience.org/index.php/ssret/article/view/59

Kyriazopoulou, M., & Weber, H. (Eds.). (2009). *Development of a set of indicators: For inclusive education in Europe (Project No. 135749-LLP-1-2007-1-DK-COMENIUS-CAM).* Odense, Denmark: European Agency for Development in Special Needs Education.

Li, R. R. (2020). *示范性幼儿园家园社合作共育的现状分析—以 C 幼儿园为例* [An analysis of the current situation of home-kindergarten-community collaborative education in exemplary kindergartens: A case-study of Kindergarten C] *[Unpublished bachelor's thesis].* Kashgar University.

Liu, Y. (2023). Research on the collaborative education mechanism of family school cooperation in preschool education. *Academic Journal of Humanities & Social Sciences, 6*(24), 57–63. https://doi.org/10.25236/AJHSS.2023.062410

Luong, M. P., & Nieke, W. (2014). Conceptualising quality education from the paradigm of recognition. *Journal of education and practice, 5*(18), 178-191.

Luo, M., & Li, K. J. (2017). 基于全国 428 个班级样本的学前教育质量 城乡差距透视 [An analysis of the urban-rural gap in preschool education quality based on a national sample of 428 classes]. *学前教育研究* [Preschool Education Research]. 31(6), 13-20. https://doi.org/10.13861/j.cnki.sece.2017.06.002

Mezzanotte, C. & C. Calvel (2023). Indicators of inclusion in education: A framework for analysis (*OECD Education Working Papers,* No. 300). OECD Publishing, Paris, https://doi.org/10.1787/d94f3bd8-en.

McWayne, C. M., Melzi, G., & Mistry, J. (2022). A home-to-school approach for promoting culturally inclusive family–school partnership research and practice. *Educational Psychologist, 57*(4), 238–251. https://doi.org/10.1080/00461520.2022.2070752

NICHD Early Child Care Research Network. (2002). Early child care and children's development prior to school entry: Results from the NICHD study of early child care. *American Educational Research Journal, 39*(1), 133-164. https://doi.org/10.3102/00028312039001133

Nwabuike, R. N. (2017). *A study of the appraisal of available community resources for teaching and learning agricultural science in secondary schools in old Anambra Local Government Area of Anambra State* (Unpublished master's thesis). Department of Vocational Teacher Education, University of Nigeria, Nsukka.

OECD (2021), Education at a glance 2021: OECD indicators. *OECD Publishing.* https://doi.org/10.1787/b35a14e5-en.

Ogunsola, O. K., Osuolale, K. A., & Ojo, A. O. (2015). Parental and related factors affecting students' academic achievement in Oyo State, Nigeria. *International Journal of Business, Human and Social Sciences, 8*(9), 3137–3144.

Pianta, R. C., DeCoster, J., Cabell, S., Burchinal, M., Hamre, B. K., Downer, J., LoCasale-Crouch, J., Williford, A., & Howes, C. (2014). Dose-response relations between preschool teachers' exposure to components of professional development and increases in quality of their interactions with children. *Early Childhood Research Quarterly, 29*(4), 499–508. https://doi.org/10.1016/j.ecresq.2014.06.001

Polat, Ö., & Bayındır, D. (2020). The relation between parental involvement and school readiness: the mediating role of preschoolers' self-regulation skills. *Early Child Development and Care, 192*(6), 845–860. https://doi.org/10.1080/03004430.2020.1806255

Rahman, M. M., Tabash, M. I., Salamzadeh, A., Abduli, S., & Rahaman, M. S. (2022). Sampling techniques (probability) for quantitative social science researchers: A conceptual guidelines with examples. *SEEU Review, 17*(1), 42–51. https://doi.org/10.2478/seeur-2022-0023

Rigdon, E. E. (2012). Rethinking partial least squares path modelling: In praise of simple methods. *Long Range Planning, 45*(5-6), 341-358. https://doi.org/10.1016/j.lrp.2012.09.010

Ripamonti, E. (2023). Cultural capital, economic capital, and participation in early childhood education: A place-based approach. *Regional Science Policy & Practice, 15*(2), 387-403. https://doi.org/10.1111/rsp3.12635

Saadu, U. T. (2024). Availability and Utilisation of Preschool Play Equipment. *ASEAN Journal of Educational Research and Technology, 3*(1), 37-48.

Salam, A. (2015). Input, process and output: system approach in education to assure the quality and excellence in performance. *Bangladesh Journal of Medical Science, 14*(1), 1–2. http://dx.doi.org/10.3329/bjms.v14i1.21553

Sancar, R., Atal, D., & Deryakulu, D. (2021). A new framework for teachers' professional development. *Teaching and Teacher Education, 101*, 103305. https://doi.org/10.1016/j.tate.2021.103305

Sengonul, T. (2022). A review of the relationship between parental involvement and children's academic achievement, and the role of family socioeconomic status in this relationship. *Pegem Journal of Education and Instruction, 12*(2), 32-57. https://doi.org/10.47750/pegegog.12.02.04

Slot, P. L., Leseman, P. P. M., Verhagen, J., & Mulder, H. (2015). Associations between structural quality aspects and process quality in Dutch early childhood education and care settings. *Early Childhood Research Quarterly, 33*, 64-76. https://doi.org/10.1016/j.ecresq.2015.06.001

Smyth, C. (2017). Maximising advantage in the preschool years: Parents' resources and strategies. *Australasian Journal of Early Childhood, 42*(3), 65–72. https://doi.org/10.23965/AJEC.42.3.08

Taherdoost, H. (2022). What are different research approaches? Comprehensive Review of Qualitative, quantitative, and mixed method research, their applications, types, and limitations. *Journal of Management Science and Engineering Research, 5*(1), 53-63. https://doi.org/10.30564/jmser.v5i1.4538

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

Tudge, J. R., Merçon-Vargas, E. A., Liang, Y., & Payir, A. (2022). The importance of Urie Bronfenbrenner's bioecological theory for early childhood education. In L. E. Cohen & S. Waite-Stupiansky (Eds.), *Theories of early childhood education* (pp. 50–61). Routledge.

UNESCO. (2015). *Education 2030: Incheon Declaration and Framework for Action towards inclusive and equitable quality education and lifelong learning for all.* UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000245656

Wang, L., Xian, Y., Zhang, S., Bai, Y., Emmers, D., Pradhan, M., & Rozelle, S. (2019). 中国农村儿童早期发展:政府投资的效益—成本分析 [Early childhood development in rural China: A benefit-cost analysis of government investment]. *华东师范大学学报(教育科学版)* [Journal of East China Normal University (Educational Sciences Edition)], 37(3), 118–128. https://doi.org/10.16382/j.cnki.1000-5560.2019.03.010

Wu, X. G., Li, X., & Miao, J. (2024). Early Childhood Development and Social Mobility in China. *ECNU Review of Education, 7*(4), 991-1008. https://doi.org/10.1177/20965311241240479

Wy, A. E. G., Bonifacio, R. A. V., Casino, S. M. E., Julian, L. M. J., Nisperos, A. J. P., Sison, A. N. G., & Gonzales–Marzan, C. P. (2024). Perception of business students in achieving Sustainable Development Goal #4: Quality education. *PREO Journal of Business and Management. 5*(1), 17-42. https://assets.zyrosite.com/YX4Z6DKzaLcOG2wp/2-sustainable-development-goal-YZ926VbzrxTkbDeQ.pdf

Yang, X. J. (2019). *父母教养行为、亲子关系与4-6岁幼儿学习品质的关系研究* [A study on parenting behaviour, parent-child relationship, and learning quality among 4-6-year-old children]. *[Unpublished bachelor's thesis].* East China Normal University.

Yang, Y. Q. (2021). 家庭教育在幼儿教育中的重要作用 [The important role of family education in early childhood education]. *教师 [Teachers], 35*(24), 74-75.

Yilmaz, H., & Arslan, E. (2024). Examining the Relationship Between Preschool Teachers' Digital Literacy and Their Attitudes Towards the Use of Technological Tools and Equipment in Preschool Education. *Inonu University Journal of the Faculty of Education (INUJFE), 25*(2), 732. https://doi.org/10.17679/inuefd.1418267

Yulianti, K., Denessen, E., Droop, M., & Veerman, G. J. (2022). School efforts to promote parental involvement: the contributions of school leaders and teachers. *Educational Studies, 48*(1), 98-113. https://doi.org/10.1080/03055698.2020.1740978

Yunus, O. B. (2022). Community-based resources as educational inputs in the teaching and learning of agricultural science in public secondary schools in Osun State. *American Journal of Education and Learning, 7*(1), 14–23. https://doi.org/10.55284/ajel.v7i1.617

Zhai, Z. Y. (2020). 家长教育行为及孩子行为之间的正向关联与反向激励[Positive associations and reciprocal encouragement between parenting behaviours and children's behaviours]. *名师在线* [Elite Teacher Online], *6*(23), 23-24.

Zhang, B. B., Zhou, Y., Jiang, Y., Zheng, C. C., Li, H., & Lan, S. F. (2023). Determinants of preschool choice: Understanding how middle-income parents choose kindergartens in Shanghai. *Journal of Child and Family Studies, 32*(4), 989–1001. https://doi.org/10.1007/s10826-022-02294-1

Zhang, F. (2017). 幼儿教师素质是提高学前教育质量的关键探述 [The key role of preschool teacher quality in improving early childhood education]. *知识文库* [Knowledge Repository], *33*(05), 89-90.

Zhao, L. (2020). *幼儿园开发利用社区教育资源现状研究* [*Current situation of kindergartens' development and utilisation of community educational resources*] *[Unpublished bachelor's thesis]*. Jilin University of Foreign Languages.

Zhou, X. & Wang, Y. (2020). 民族地区学前教育师资建设问题与对策 [Problems and countermeasures in the construction of preschool education teachers in ethnic areas]. *民族高等教育研究* [Journal of National Higher Education Research], *8*(6), 30-35.

Appendix A

Measurement Model Results

Constructs	Items	Loadings	C.R.	AVE
Cultural Capital	CC1	0.841	0.916	0.685
	CC2	0.823		
	CC3	0.812		
	CC4	0.832		
	CC5	0.830		
Parental Involvement	PI1	0.829	0.916	0.687
	PI2	0.808		
	PI3	0.842		
	PI4	0.829		
	PI5	0.835		
Teacher Professionalism	TP1	0.838	0.914	0.681
	TP2	0.815		
	TP3	0.818		
	TP4	0.824		
	TP5	0.831		
Hardware Equipment	HE1	0.782	0.886	0.608
	HE2	0.765		
	HE3	0.811		
	HE4	0.764		
	HE5	0.777		
Community Resource Development and Utilisation	CRDU1	0.794	0.918	0.692
	CRDU2	0.810		
	CRDU3	0.855		
	CRDU4	0.851		
	CRDU5	0.849		
Government Policy and Financial Security	GPFS1	0.858	0.912	0.721
	GPFS2	0.848		
	GPFS3	0.849		
	GPFS4	0.842		

Measurement Model Results (Continued)

Constructs	Items	Loadings	C.R.	AVE
Cooperative Teaching and Learning	CTL1	0.804	0.933	0.664
	CTL2	0.832		
	CTL3	0.831		
	CTL4	0.809		
	CTL5	0.807		
	CTL6	0.798		
	CTL7	0.824		
Education Quality	EQ1	0.807	0.900	0.644
	EQ2	0.809		
	EQ3	0.796		
	EQ4	0.809		
	EQ5	0.790		

Appendix B

Hypotheses Testing

Hypothesis and Relationship	Path. Coeff	T-Values	P-Values	Decision
H1 Cultural Capital -> Education Quality	0.122	2.508*	0.012	Supported
H3 Parental Involvement -> Education Quality	0.108	2.013*	0.044	Supported
H5 Teacher Professionalism -> Education Quality	0.117	2.225*	0.026	Supported
H8 Hardware Equipment -> Education Quality	0.132	2.628**	0.009	Supported
H10 Community Resource Development and Utilisation -> Education Quality	0.156	3.117**	0.002	Supported
H12 Government Policy and Financial Security -> Education Quality	0.122	2.529*	0.011	Supported
H2 Cultural Capital -> Cooperative Teaching and Learning	0.195	4.159***	0.000	Supported
H4 Parental Involvement -> Cooperative Teaching and Learning	0.246	5.718***	0.000	Supported
H6 Teacher Professionalism -> Cooperative Teaching and Learning	0.166	3.396***	0.001	Supported
H7 Hardware Equipment -> Cooperative Teaching and Learning	0.154	3.63***	0.000	Supported
H9 Community Resource Development and Utilisation -> Cooperative Teaching and Learning	0.109	2.351*	0.019	Supported
H11 Government Policy and Financial Security -> Cooperative Teaching and Learning	0.134	2.969**	0.003	Supported
H13 Cooperative Teaching and Learning -> Education Quality	0.169	2.967**	0.003	Supported
Mediating Effects				
H14 Cultural Capital -> Cooperative Teaching and Learning -> Education Quality	0.033	2.311*	0.021	Supported
H15 Parental Involvement -> Cooperative Teaching and Learning -> Education Quality	0.042	2.53*	0.011	Supported
H16 Teacher Professionalism -> Cooperative Teaching and Learning -> Education Quality	0.028	2.1*	0.036	Supported
H17 Hardware Equipment -> Cooperative Teaching and Learning -> Education Quality	0.026	2.159*	0.031	Supported

Hypothesis and Relationship	Path. Coeff	T-Values	P-Values	Decision
H18 Community Resource Development and Utilisation -> Cooperative Teaching and Learning -> Education Quality	0.018	1.977*	0.048	Supported
H19 Government Policy and Financial Security -> Cooperative Teaching and Learning -> Education Quality	0.023	2.1*	0.036	Supported

Note: T > 3. 29, *** p<0. 001; T > 2. 58, ** p<0. 01; T > 1. 96, *p<0. 05.