

The Impact of Parental Involvement in Preschool on Children's Academic Performance

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Abstract

This study aims to examine whether there is a correlation between parental involvement in preschool and children's academic performance. The study also investigated whether parental involvement (home-based, school-based and home-school conferencing) have an impact on pre-school children's academic performance. In addition, this study also investigated the effects of parents' gender, level of education and income on young learners' academic success at school. This study employed a descriptive research design and used questionnaire to collect the data. The sample consists of 400 parents from five preschools in Henan district, China. Stratified random sampling was used in choosing the sample. The data of the study were analyzed using independent correlation, regression, independent samples t-test and one-way ANOVA. The results revealed that there is a significant positive correlation between parental involvement (home-based involvement, school-based involvement and home-school conferencing) and preschoolers' academic performance. The findings also showed that female parents were more engaged than male parents at preschool. Results of the ANOVA test revealed that parents with higher level of education and higher income were significantly more involved in preschool compared to their counterparts with lower level of education and lower income. These findings are crucial for policy makers to take the right measures in enhancing parental involvement in preschool.

Keywords: Parental Involvement, Preschool Education, Academic Performance, Sociocultural Factors, Education Policy.

Introduction

According to the National Association for the Education of Young Children (Stegelin, 2018), ECE is a branch of education that deals with the teaching of children (formally and informally) from birth to the age of six. Preschool education is also a professional designation earned through a degree program in education. A study by Catherwood (2000) indicates that brain growth and potential success are crucial elements in children's early years. A child does not grow optimally if parents do not cooperate. Parents must accept responsibility and be actively involved in children's education (Yi-Feng et al., 2021). Numerous studies have stressed the importance of parental involvement in preschool (Hay & Nye, 2006; Topor et al., 2010; & Nye et al., 2006).

Parental involvement is a crucial component of effective education for kids of all ages (Barnes, 2018), This includes home-based involvement, such as listening to children read, and school-based involvement, such as attending parent-teacher meetings (Hornby & Lafaele, 2011; Kohl et al., 2000). The study by (Lacroix et al., 2001) indicated that parental engagement is also linked with the underlying factors that determine a child's academic standing such as, reading potential, grades, especially in mathematics, high attendance and good behaviour. There is a need for further research to investigate on how Chinese families' involvement in school, particularly in preschool settings plays role in the academic success of the young learners. The danger lies in marginalizing both kids and their parents in Chinese schools by underestimating their needs and aspirations (Hong et al., 2021). The role of parental preschool involvement and the initiatives taken by teachers and school administrators have not so far been examined analytically (Ginsburg & Bronstein, 1993). In China, it was found that school domination, and school-created matters of formality could

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discourage parental involvement in schools (Cui et al., 2018; Lin et al. 2018). When students get older, parents frequently struggle to support their learning at home and feel pressure to provide them with the best support possible (Friedel et al., 2010; Hattie et al., 2016).

In this regard, Stage et al. (2018) emphasized the significance of parental engagement in determining a child's academic success. Therefore, it is necessary to conduct an empirical investigation exploring parental involvement, specifically in terms of school-based, home-based, and home-school conferencing. This study aims to identify the most influential factors or dimensions that contribute to the academic performance of preschool children. This study's primary aims are to analyze parental involvement's impact on academic achievement, compare parental involvement levels between males and females, and explore the variations linked to different income levels.

The conclusions regarding the impact of preschool parental involvement on gender are inconclusive. Multiple studies suggest maternal involvement in their children's education surpasses paternal involvement (Hornby & Lafaele, 2011; Sayer, 2018; Rolle et al., 2019). The research conducted by Wulansuci and Rohmalina (2019) and Ndijuye and Rao (2018) has demonstrated that the level of father involvement has a substantial impact on both early childhood education and children's academic performance. However, the present study also examines the impact of gender on parental engagement in preschool.

A study conducted by Alexander et al. (1996) found that children from low- and high-income families exhibit distinct differences in their preparedness for school, including cognitive abilities, behavioral expectations, and commitment to learning, as early as first grade. The variable of income, one of the demographic factors examined in this study, exhibits a significant correlation with parental involvement due to its focus on parents' welfare and socio-economic standing (Tan et al., 2020). Typically, parents occupied with their professional responsibilities and part-time employment do not allocate equal time between their work and their household (Sullivan & Lewis, 2001). Yeung and Conley (2008) discovered that children's academic achievement is negatively impacted by parental income. Xia (2023) proposed that further empirical evidence is required to investigate the relationship between specific components of socioeconomic status, such as parental income and education, and above all children's academic performance.

However, the present study examines the impact of parental involvement in various aspects (school-based involvement, home-based involvement, and home-based conferencing) on children's academic performance. Furthermore, this study seeks to ascertain the impact of parental demographic factors, such as gender and parental income level, on parental involvement in preschool. Analyzing sociocultural factors offers a deeper understanding of the dynamics between Chinese families and schools (Curdt-Christiansen, 2009). An analysis of preschool education is crucial to educate future educators about the demographic factors, such as gender, level of education, and income, that influence parental involvement in diverse families. Chinese parents may hold similar beliefs regarding the model of parental involvement at home, involvement at school, and home-school conferencing despite their different demographic characteristics (Park & Holloway, 2013).

Null Hypotheses

Based on the purpose of the current study, the following five null hypotheses were formulated and tested:

Ho1: Parental overall involvement (school-based involvement, home-based involvement and home-school conference involvement) has no significant correlation with children's academic performance.

Ho2: Parental involvement (school-based involvement, home-based involvement and home school conferencing) has no significant impact on children's academic performance in preschool education.

Ho3. Parents' gender has no significant effect on their overall involvement (home-based involvement, school-based involvement, and home-school conferencing) in preschool.

Ho4. Parents' level of education has no significant effect on their overall involvement (home-based involvement, school-based involvement, and home-school conferencing) in preschool.

Ho5. Parents' income has no significant effect on their overall involvement (home-based involvement, school-based involvement, and home-school conferencing) in preschool.

Underpinning Theories

This study is grounded on three prominent theories: Piaget's theory of cognitive development (1981), Vygotsky's sociocultural and scaffolding theory (1978), and Bronfenbrenner's ecological systems theory (1979). These theories significantly influence research and explore the correlation between parental involvement and children's academic performance.

Piaget's theory of cognitive development (1981) focused on children's cognitive development and the influence of interactions with peers and family members. The fundamental premise of his theory posits that young children are proactive learners motivated to harmonize their internal conceptualizations (their perceptions of the actual world) with external manifestations (the actualities they encounter). Children constantly modify and adapt their internal mental structures through assimilation and accommodation as they encounter new experiences. Assimilation refers to integrating new information into existing mental frameworks, known as schemas. The process is somewhat subjective because children tend to modify experiences and information slightly to fit in with their pre-existing beliefs. The second part is adaptation which is the ability to change existing schemas in the light of new information; this process is known as accommodation. The third part is Equilibration whereby all children try to strike a balance between assimilation and accommodation using a mechanism called equilibration (Piaget, 1981). Equilibration helps to explain how children can move from one stage of thought to the next. New schemas may also be developed during this process.

In this connection, children learn best when they have opportunities to interact with their environments, and particularly with their parents who are a vital part of children's environments (Athey, 2007). For example, parents' involvement activities such as practicing interactive homework creates opportunities for children to interact meaningfully with their parents in such a manner that children construct their own knowledge within both a social and physical environment through this process. As such, Piaget's cognitive development theory supports the idea that parental involvement in pre-school is a crucial factor in children's development and their academic performance.

Vygotsky (1978) in his sociocultural theory emphasized the relationship between human beings and their environment, both physical and social in his sociocultural theory. He highlighted the influences of social and cultural factors on development and learning of children. According to him children are surrounded by family members and are impacted by the culture in which they live. As such, children's interaction with their family members is so important for their learning and development since their first teacher is the family and their first learning takes place in the company of their family members. For this reason, children gain knowledge about the world through this interaction. In addition, Vygotsky (1978) also stressed that children learn better when they get scaffolding from adults or peers. He also emphasized that children would attain the zone of proximal development (ZPD) through scaffolding. Vygotsky outlined scaffolding as a tool for growth. Learners complete small, manageable steps to reach their respective goals. Working in collaboration with skilled and more knowledgeable adults or peers can help children make connections with concepts. As such Vygotsky's sociocultural theory is closely related to parental involvement in pre-school which contributes greatly to the development and academic achievement of a child.

Bronfenbrenner (1979) proposed the Ecological Systems Theory, which suggests that children's development is shaped by their immediate surroundings and the larger context, encompassing social, political, biological, and economic factors. In his 1994 work, "The Ecology of Human Development," he characterized these influences as settings and institutions that affect human development through "proximal processes" in different contexts and environments. Bronfenbrenner classified these influences into micro-, meso-, exo-, and macrosystems. The microsystem encompasses direct interactions in environments such as

family, school, and neighborhood, with the greatest impact on the child. These systems have mutual interactions and exert influence on one another; for instance, the mesosystem establishes the connection between school, home, and neighborhood. An optimal child's development is facilitated when the interconnections among these elements are robust and favorable (Prior & Gerard, 2007). Hence, the association between parental engagement in preschool and children's academic achievement can be attributed to Bronfenbrenner's Ecological Systems Theory. Bandura (1986) also highlighted the significance of children acquiring knowledge through imitation by adopting behaviors and attitudes observed by their parents and other adults in their environment.

Another theory, advocated by Bronfenbrenner (1979), is known as the Ecological Systems Theory. According to this theory, the development of children is affected not only by factors within the child but also by their family and the surrounding world. Social, political, biological, and economic conditions also affect the child (Bronfenbrenner, 1994). In his masterpiece, *The Ecology of Human Development* (1994), he described ecology as the settings and institutions that impact humans as they grow. His theory focuses on the developing child and the child's interactions with people, objects, and symbols in "proximal processes" across multiple settings, contexts, and environments. Bronfenbrenner (1979) arranged these ecological systems as micro-, meso-, exo-, and macrosystems. A microsystem is a pattern of activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics. The microsystem such as family, school, teachers, peers, child health services, and the neighbourhood affects the child most closely. Children experience a reciprocal face-to-face relationship with these immediate surroundings. These institutions within the microsystem also interact with and influence each other. For example, school affects neighbourhood and in return the neighbourhood affects the family members of the child. For example, the relations among school, home, and neighbourhood comprise the mesosystem. The development of a child is enhanced when the linkages among components of this system are strong and positive (Prior & Gerard, 2007). As such, parental involvement in pre-school and its relationship with children's academic performance is related to Bronfenbrenner's (1979) Ecological Systems Theory. Likewise, Bandura in his social learning theory (1986) stressed that children learn through imitation. They imitate parents' behaviour and adults around them.

Literature Review

The influence of parental involvement on children's academic achievement is a well-documented theme within educational research (Tin et al., 2024). Aurini et al. (2021) advocated that parental involvement contributes to children's academic achievement. Similarly, the study by McDowell et al. (2018) indicated that parental involvement in preschool statistically correlated with children's academic achievement. Another study by Sayer (2018) and Kong et al. (2022) claimed that mothers are more involved in children's preschool education as compared to fathers. Several studies revealed that fathers are less involved in their children's education than mothers (Hart, 2011; Hornby & Lafaele, 2011; Vincent et al., 2006). In addition, Henry et al. (2019), stressed that schools should take appropriate measures to enhance fathers' involvement in their children's education. On the other hand, a study by Rohmalina and Wulansuci's (2019) found that fathers are more involved in preschool education. Additional research by Lamb et al. (2013; and Ndijuye et al. (2018) indicated that fathers' involvement is crucial in enhancing children's academic performance. Since findings on mothers and fathers involvement in preschool are not conclusive; therefore, the current study investigates the effects of parents' gender in their involvement at the preschool level.

Parents and teachers' level of education has an impact on preschoolers academic achievement. The findings by Nair et al. (2017) revealed that preschool teachers with higher levels of education (diploma and above) significantly have better classroom practices than their counterparts with lower levels of education (below diploma). A study by Baeck (2010) concluded that parental involvement practices differ according to parents' level of education. Parents with high level education are more active than less educated parents. Conversely, parents with low level education are insecure about their knowledge regarding academic matters, and that this works as a barrier for their involvement in schools. Studies by Ngure et al. (2017), Fantuzzo et al. (2013), Back (2010) and Handayani et al. (2020) clearly indicated that parental educational level has a significant impact on parental involvement in school.

Moreover, several other studies also claimed that parental income and their socioeconomic status have a great impact on their involvement in schools. The study by Tan et al., (2020) indicated that parents with higher education can provide better support for their children and are more involved in their children's education. Conversely parents from low socio-economic status face economic hardships, time and energy constraints due to their workload and lack of pedagogical knowledge to guide their children at home (Lareau, 2000; and Wang et al., 2016). Parents' level of education and their income are closely linked with their socio-economic status and can effect their involvement in their childrens' education. As such, children coming from a low socio-economic background are disadvantaged group because they get less support and guidance from parents as compared to those coming from higher socio-economic background. Parental involvement across diverse economic and educational backgrounds is a challenge in preschool education and has further been investigated in this study.

Methodology

research design, research population, instrument, and validity and reliability tests.

Research Design

This study employed a descriptive research design, using a set of questionnaire to collect data. The purpose of descriptive studies is to describe individuals, groups, events, or conditions by studying them as they are in a natural setting (Gay et al., 2012)

Research Population

The research population are 1834 parents from five preschools in Luoyang City, Henan Province, China. The sample comprises 400 parents from the five kindergartens in Luoyang City, Henan Province, China (267 male, 133 female). The sampling technique used for this study is stratified random sampling. Parents who participated in the study were then selected from the five kindergartens with the assistance of the preschool teachers. The kindergartens are, Bang Bang Kindergarten, Luoyang Normal University Affiliated Kindergarten, Huayang Kindergarten, Fengye Kindergarten, and Sunflower Kindergarten.

Instrument

The questionnaire consists of five sections: Section A on parents' demographic information; Section B on parents' home-based involvement (HBI) with 12 items; Section C on parents' school-based involvement (SBI) with 12 items; Section D on parents' home-school conference (HSC) with 11 items; and Section E on children's academic performance with 6 items. Items in Sections B, C, and D are adapted from a questionnaire by Jeffries (2011), while items in Section E were formulated by the researchers based on feedback from preschool teachers.

Validity and Reliability

Before the actual study, a pilot test was carried out to assess the reliability of the questionnaire. Results of the factor analysis indicated that all items loadings were between 0.64 and 0.87, which is above the threshold of 0.4 (Hair et al., 2016). The Cronbach's alpha values for items in Sections B, C, D, and E were greater than 0.80, indicating high reliability and suitability for use in the study (Sekaran & Bougie, 2010). In order to obtain the validity of the instrument the researchers asked two professors (in the area of early childhood education) from two universities to validate the questionnaire in term of content of the item, construct validity face validity and suitability of the language used. Likert scale 1-10 was used to evaluate each validity. Both the professors selected scale 8-9 for each validity and the average score was 8.5. Therefore, it can be deduced that 85% of the validity of the questionnaire was achieved.

Data Analysis

The data were analyzed using correlation, regression, independent samples t-tests, one-way ANOVA and Tukey HSD test.

Results*Parental Overall Involvement and Children's Academic Performance***Table 1.** Correlations Between Parental Overall Involvement and Children's Academic Performance

PARENTAL OVERALL INVOLVEMENT	PEARSON CORRELATION	1	.800**
	Sig. (2-tailed)		.000
	N	400	400
CHILDREN'S ACADEMIC PERFORMANCE	Pearson Correlation	.800**	1
	Sig. (2-tailed)	.000	
	N	400	400

***. CORRELATION IS SIGNIFICANT AT THE 0.01 LEVEL (2-TAILED).*

The present study examined the relationship between parental overall involvement and children's academic performance. The correlation analysis in Table 1 reveals a strong and positive association between parental engagement in preschool and children's academic achievement ($r=0.800$, $p=0.000$). The correlation between parental engagement and children's academic performance is significant. The results also indicate that the rise in parental involvement will help in enhancing children's academic performance. So, these results failed to accept the H_0 .

*The Impact of School-Based Involvement, Home-Based Involvement, School-Based Involvement and Home-School Conferencing on Children's Academic Performance***Table 2.** Results Of Multiple Regression Analysis with Three Dimensions of Parental Involvement as Predictors Of Academic Performance (N - 400)

Criterion Variable	Predictor Variable	<i>F</i>	<i>R</i> ²	<i>df</i>	Beta	<i>t</i>	<i>p</i>
Academic performance	School-based involvement	239.36**	.645	(3,396)	.280	7.17	< .01
	Home-based involvement				.380	8.53	< .01
	Home-school conferencing				.270	6.28	< .01

Note: ** $p < .01$

This study also examined the effects of three aspects of parental engagement school-based involvement, home-based involvement, and home-school conferences—on children's academic achievement. The results of the regression analysis indicated that school-based involvement, home-based involvement and home-school conferencing have a significant impact on children's academic performance ($F=239.36$ and $p=0.000$). In the area of impact of school-based involvement, home-based involvement and home-school conferencing on children's academic performance, the value of Adjusted R square was 0.65. This

shows that in terms of parental involvement (school-based involvement, home-based involvement and home-school conferencing) has 65% impact or contribution in children's academic performance.

The results of the multiple regression coefficients in Table 2 also indicate the impact school-based involvement, home-based involvement and home-school conferencing on children's academic performance which is expressed by the standardized coefficient beta value. The Beta values for school-based involvement, home-based involvement and home-school conferencing are respectively .28, .38, .27, ($p=.000$), which are significant. However the dimensions of parental home-based involvement has a greater impact on children's academic performance ($\beta=.38$) compared to school-based involvement ($\beta=.28$) and home-school conferencing ($\beta=.27$). Therefore, these findings failed to accept H_0 .

Parents' Gender and Their Overall Involvement in Preschool

Table 3. Comparison Of Parental Overall Involvement Between Male and Female

	Gender	N	Mean	Std. Deviation	Mean Difference	t-value	df	p-value
Parental overall involvement	Male	133	118.41	17.31	-10.77	-6.72	398	.000
	Female	267	129.18	13.89				

Level of significance at $p<0.05$.

The results of independent samples t-test in Table 3 show the comparison between male and female parents in their overall involvement in preschool. The findings indicate that the involvement of female parents (Mean = 129.18, SD = 13.89) is higher than that of male parents (Mean = 118.41, SD = 17.31). Results of the independent samples t-test clearly show that parents' gender significantly affects their involvement in preschool (Mean Difference = 10.77, $t = -6.72$, $df = 398$, $p < .000$). These results revealed that the female parents are significantly more involved than male parents in preschool. As such, H_0 is rejected.

Parents' Level of Education and Their Overall Involvement in Preschool

Table 4. Analysis of Variance (ANOVA) for Parental Overall Involvement in Preschool by Education Level

Source of Variation	SS	df	MS	F	p-Value
Between Groups	5711.72	2	2855.86	11.876	.000
Within Groups	95464.67	397	240.47		
Total	101176.39	399			

The education levels of preschool parents in this study are high school and below, college level or graduates, and postgraduate. Findings indicate that parents with postgraduate education have the highest involvement in preschool ($N = 84$, $M = 128.31$, $SD = 16.26$), followed by parents with college level or graduates ($N = 291$, $M = 126.03$, $SD = 15.17$), and the lowest are parents with high school and below ($N = 25$, $M = 111.40$, $SD = 16.82$). The findings in Table 4 show that the results of the one-way ANOVA which indicate that parents' education level significantly affects their overall preschool involvement ($F = 11.88$, $df = 2$, $p < .000$).

The results of the Tukey HSD test indicate that involvement of parents with high school education and below is significantly lower in preschool than that of parents with college education or graduates (Mean Difference = -14.63, $p < .001$) and parents with postgraduate education (Mean Difference = -16.90, $p < .001$). There is no significant difference in parental involvement between parents with college level education or graduates and those who are postgraduates (Mean Difference = -2.28, $p = .462$). These findings suggest that the involvement of parents with college education or graduates and those with postgraduate education are comparably high.

These findings revealed that parental educational level significantly influenced parental involvement in preschool. A key finding is that parental involvement practices differ according to parents' level of education, with more educated parents being more active than less educated parents. Thus, the findings failed to accept Ho4.

Parents' Income and Their Overall Involvement in Preschool

Table 5. ANOVA Results for Parental Overall Involvement by Income Level

Source of Variation	SS	Df	MS	F	p-Value
Between Groups	3227.266	3	1075.755	4.35	.005
Within Groups	97949.12	396	247.346		
Total	101176.390	399			

The parental income in this study is divided into four categories: 3500 yuan and less, 3501-5000yuan, 5001-8000 yuan, and more than 8000 yuan. The highest parental overall involvement is among parents with an income of 5001-8000 yuan (N = 215, M = 126.96, SD = 13.79), followed by those earning more than 8000 yuan (N = 97, M = 126.95, SD = 16.39), and those earning 3501-5000 yuan (N = 83, M = 121.40, SD = 19.09). The lowest involvement is observed among parents earning 3500 yuan and less (N = 5, M = 110.20, SD = 19.87). The results of the one-way ANOVA in Table 5 exhibit that parents' income significantly affects their overall preschool involvement (F = 4.35, df = 3, p = .005).

The Tukey HSD test results indicate significant differences in parental involvement: parents with incomes of 3501-5000 yuan have significantly lower involvement than those earning 5001-8000 yuan (Mean Difference = -5.57, p = .033). Conversely, parents earning between 5001-8000 yuan show significantly higher involvement than those earning 3501-5000 yuan (Mean Difference = 5.56, p = .033). No significant differences were found between parents earning 3500 yuan and less and those in higher income brackets (Mean Difference = -11.20, p = .411 for 3501-5000 yuan; Mean Difference = -16.76, p = .087 for 5001-8000 yuan; Mean Difference = -16.75, p = .095 for more than 8000 yuan). These results revealed that parents with higher income are significantly more involved in their children's education than those with lower income. Hence these findings reject Ho5.

Discussion

The present study unveiled a noteworthy positive correlation between parental overall engagement in preschool and children's academic performance. Multiple regression analyses have shown that parental involvement, including school-based activities, home-based activities, and home-school conferencing, significantly impacts children's academic performance in preschool education. Moreover, the results indicated that female parents (mothers) exhibit a significantly higher level of preschool involvement than male parents (fathers). The educational level of parents and their income had a substantial effect on their engagement in preschool (home-based involvement, school-based involvement and home-school conferencing).

This study clearly shows that parental involvement is significantly associated with children's academic performance in preschool settings. According to the hypotheses proposed and the data analyzed, this relationship is significant and there is a high positive correlation. The current findings are consistent with research conducted in the past, which found that parental involvement had great impact on children's academic performance. Study by Aurini et al. (2021) also indicate that the parents' relationship with their child and their involvement in their child's school activities and academics has a strong impact on their children's academic performance. Children whose parents are highly engaged and actively involved in routines and activities have positive outcomes in growth and learning (Dawes et al., 2021). Parents can be involved in school in a variety of ways through homework, activities, meetings, etc., which combines to make children perform better in their academic performance (Lerner et al. 2022). Hence, the key findings of this study are also consistent with the findings by Dotterer et al. (2016) which revealed that

parental involvement is crucial in children behaving well and improving their physical and academic development.

In addition, results of this study indicate those female parents are significantly more involved than male parents in preschool education. These results are similar with earlier studies that suggest fathers appear to be less interested in their children's education than mothers (Hart, 2011; Hornby et al., 2011; Vincent et al., 2006). These findings are also consistent with findings by Henry et al. (2019) which indicate that in order to optimize children's academic development, school officials must adopt a more inclusive stance toward the involvement of fathers in their children's education. Interestingly these findings support findings by Sayer (2018) which revealed that mothers spent slightly more than twice as much time providing physical child care and 1.63 times as much time providing academic guidance to children compared with fathers. Kong et al. (2022) also stressed that mothers are more active in participating in early childhood education, and the content of participation is richer.

However, current results contradict findings by Rohmalina et al. (2019) which indicated that that father's involvement has a significant influence on early childhood education. They also found that the level of influence of father involvement on early childhood education is at the highest (70%). There are also other empirical studies which established that fathers' involvements develop children's academic performance (Lamb et al, 2013; Ndijuye & Rao, 2018).

Moreover, the study's findings indicate that female participation in preschool education is considerably greater than male participation. The findings are consistent with previous research indicating that fathers demonstrate a lower level of engagement in their children's education than mothers (Hart, 2011; Hornby & Lafaele, 2011; Vincent et al., 2006). These findings align with the research conducted by Henry et al. (2019), which suggests that school officials should embrace a more inclusive approach towards fathers' participation in their children's education in order to maximize their academic progress. These findings corroborate the research conducted by Sayer (2018), which showed that mothers dedicated more than double the amount of time to physical childcare and 1.63 times more time to academic guidance for children as compared to fathers. Kong et al. (2022) also highlighted that mothers play a more prominent role in early childhood education, and their involvement encompasses a broader range of activities. Nevertheless, the results of Rohmalina and Wulansuci's (2019) study contradict the earlier findings, as they demonstrated a significant impact of father involvement on early childhood education. Additionally, it was discovered that father involvement significantly impacts early childhood education, with a high level of influence at 70%. Additional empirical research has also confirmed that fathers' participation contributes in enhancing children's academic achievement (Lamb et al., 2013; Ndijuye & Rao, 2018).

Similarly, the findings for the effect of parental level of educational on their involvement in preschool is significant. Parents with postgraduate education were the most involved, followed by parents with a college education or graduates, and finally, parents with a high school education and below. The current findings are consistent with the study by Ngure and Amollo (2017), Fantuzzo et al. (2013); Baeck (2010) and Handayani et al. (2020) which indicated parental educational attainment significantly impacted their involvement in children's education. A key finding is that parental involvement practices differ according to parents' level of education, with more educated parents being more active in their involvement than less the educated parents.

Finally, the results indicate that parents' income substantially affects their level of involvement in preschool activities. Parents earning between 5000 to 8000 yuan had the highest level of parental involvement, while parents earning the least that is less than 3500 yuan, had the lowest recorded participation. These findings indicate that parents with lower incomes are less inclined to engage in activities related to parental involvement. This aligns with research that has demonstrated a correlation between parental socioeconomic status or income level and parental involvement in their children's education (Lareau, 2000; Wang et al., 2016; Tan et al., 2020). Parents from lower socioeconomic backgrounds exhibit lower levels of participation in extracurricular activities for their children (Wang et al., 2016; Mayo & Siraj, 2015). They frequently work in challenging, poorly paid occupations that restrict their ability to engage in educational activities with their children (Waanders et al., 2007). In addition, parents with low income are more prone to encountering

difficulties such as hazardous neighborhoods, mental health disorders, and familial issues that reduce their inclination toward their children's education. Therefore, the results of this study are consistent with those of Tan et al. (2020), suggesting that parents with higher income levels and superior socioeconomic status exhibit greater involvement in their children's academic pursuits.

Conclusion

This study enriches the domestic application of Bandura's social learning theory (1986) and Bronfenbrenner's ecological systems theory (1999). Furthermore, this study integrates concepts derived from theories of home-school interaction, parent-child interaction, parental efficacy, and children's cognitive development, which are closely related to parental participation in preschool education (Vygotsky, 1978). The current findings demonstrate the impact of parental involvement in preschool education on children's academic performance (Piaget, 1981).

Regarding pedagogical implications, this study indicates that parents' participation in children's educational activities can greatly enrich children's educational resources and provide substantial support for teachers. In terms of practical implications, as stressed by Wang et al. (2021), the activities that parents participate in are not only directly aimed at children's growth and education but also help address challenges in parent education and children's education. Consequently, the Ministry of Education in China should consider making parental involvement compulsory in preschool.

This study has several limitations. The first limitation is that it investigates the correlation between parental involvement in preschool and children's academic performance. Future studies could explore the impact of parental involvement on children's socio-emotional growth. The second limitation is that it investigates the impact of parental involvement in early childhood education from the parents' perspective alone. It does not consider other influencing factors such as children's attitudes and reactions to parental participation and the support from various entities such as schools and communities for parental involvement. The third limitation is the absence of a longitudinal research method, which makes it difficult to track parental involvement throughout the various stages of preschool children's growth. Fourth, the current study did not involve any interventions to enhance parental involvement in preschool. Future researchers are encouraged to implement interventions to enhance parental involvement in preschool.

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Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

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Contribution/Originality

This current study explores the role of Chinese parents' involvement in preschool education and its effects on children's academic achievement. Moreover, the research not only examines how parents' gender, their level of education and income affects young learners' academic performance but also addresses the challenges associated with parental involvement.

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