Article

A Comprehensive Study and Development Strategies for the Academic Achievement of Rural Primary School Students: A Case Study of Q Primary School in Qingxi Village

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Abstract: As educational reforms continue to deepen, challenges in rural education have become increasingly evident. This study examines the current status of academic achievement among students in rural primary schools, with the aim of identifying effective strategies to enhance their learning outcomes. Using Q Primary School in Qingxi Village as a case study, the research evaluates students' cognitive academic performance through a structured questionnaire survey. The results indicate an overall positive trend in students' academic achievement. Comparative analysis reveals that students in grades 4-6 perform better in cognitive academic tasks than those in grades 1-3, and that students taught by homeroom teachers with over ten years of teaching experience achieve higher academic outcomes. Based on these findings, the study proposes several developmental strategies, including strengthening teacher professional development, optimizing the distribution of educational resources, and promoting effective home-school collaboration. These measures aim to foster a more equitable and high-quality educational environment for rural primary school students, thereby supporting their holistic growth and long-term academic success.

Keywords: rural education; basic education; academic achievement

Published: 30 October 2025

1. Introduction

In contemporary educational research, the academic achievement of rural primary school students has attracted increasing scholarly attention. With ongoing socioeconomic development and the deepening of educational reforms, the educational gap between urban and rural regions has become ever more apparent. As a disadvantaged group in the distribution of educational resources, rural primary school students face multiple constraints in learning conditions, teaching quality, and opportunities for personal growth. In many rural schools, teaching facilities-such as libraries and laboratories-are both fewer in number and lower in quality than those in urban schools, thereby limiting the holistic development of rural students [1].

A 2022 study of 108 rural primary schools in Wenzhou, Zhejiang Province, revealed that students in rural schools performed significantly below the citywide average. Specifically, their cumulative application ability scores were 8.8% lower, higher-order thinking ability scores 9% lower, and reading ability scores 8.7% lower than the city average. Similarly, a 2018 survey of 252 students from rural primary schools in the Songhua River area of Heilongjiang Province found that 84% lacked pre-class preparation habits, 50% exhibited poor classroom learning behaviors, and 70% did not engage in post-class review. These findings underscore the difficulties rural students face in cultivating effective study habits, which in turn impede their academic achievement [2].

Further evidence comes from a 2023 report involving 488 students from three rural primary schools in eastern Guangdong, which found that only 14.62% of students

achieved high academic performance, while 40.62% exhibited low academic outcomes. The main contributing factors included inadequate educational investment, limited teaching staff, insufficient instructional facilities, and scarce learning materials. In some remote mountain schools, although educational conditions have gradually improved, shortages of teaching equipment and rudimentary learning environments remain common-factors that critically affect students' academic performance and overall development [3].

In addition, both students and parents in rural areas often have limited access to educational information and an incomplete understanding of modern educational concepts and methods, which constrains the implementation of educational innovation and reform. Economic difficulties in rural families further limit students' learning opportunities and contribute to the persistence of hidden dropout phenomena. These challenges collectively highlight the urgency of establishing effective mechanisms to improve the academic achievement of rural primary school students [4].

Academic achievement refers to performance outcomes that reflect the extent to which individuals have attained specific educational objectives [5]. It exerts multifaceted influences on individuals, families, and society.

At the individual level, academic achievement often shapes peer relationships and social hierarchies, increasing the likelihood of interaction and friendship among students with similar performance levels [6]. Flashman further emphasizes that friendships play a crucial role in the educational process by providing both emotional and instrumental support, which can either promote or hinder academic success [7]. Moreover, academic achievement during adolescence serves as an important determinant of future educational attainment and career development.

From a familial perspective, a child's academic achievement partially reflects the family's educational investment and is often viewed as a key indicator of successful family education [8]. At the societal level, numerous researchers have observed that education exerts a profound influence on socioeconomic development. A well-educated labor force contributes to technological innovation and improved productivity, positioning educational advancement as a cornerstone of sustainable economic growth. Furthermore, students' academic progress enhances social and cultural literacy, thereby helping to reduce social inequality [9].

In exploring factors that promote academic achievement, many scholars have emphasized the role of students' external social support systems. For instance, McCombs' motivational model posits that students who perceive greater support from teachers, parents, and peers are more likely to achieve academic success [10]. Similarly, Wentzel found that the learning motivation of rural primary school students is largely shaped by their social environment; when students receive positive feedback from teachers and peers, their learning behaviors are significantly reinforced [11].

Building on these insights, scholars have suggested that parents and teachers should cultivate students' learning motivation from an early age, as it plays a pivotal role in shaping self-concept, values, and academic outcomes [12]. Consistent with this view, Song et al. reported that insufficient parental support in rural families negatively affects children's academic development [13]. Likewise, Portes and Rumbaut demonstrated a significant correlation between students' academic performance and support from school, peers, and family [14]. A longitudinal study by Vekiri et al. further confirmed that students' perceived relationships with family, classmates, and teachers could predict their academic achievement two years later [15].

Although prior research has validated the positive influence of students' social relationships on academic outcomes, rural students often experience substantial limitations in obtaining such support compared with their urban counterparts. Therefore, their academic achievement must be examined within its specific local and cultural contexts. Moreover, empirical research on rural students' academic performance remains relatively limited. Academic achievement is not only vital to the personal development of

rural students but also carries broader implications for rural education reform, educational equity, and community cultural advancement.

From this perspective, the present study conducts an empirical investigation into the academic achievement of rural primary school students and proposes targeted strategies for improving their learning outcomes. The study seeks to enrich the theoretical foundation of rural basic education and, in practice, to enhance the quality of rural schooling, promote educational equity, and strengthen the cultural literacy of rural communities.

Accordingly, this study addresses the following research questions:

Research Question 1: What is the current state of academic achievement among rural primary school students?

Research Question 2: How can the academic achievement of rural primary school students be effectively improved?

2. Theoretical Background

2.1. Definition of Academic Achievement

Academic achievement is a multidimensional construct that serves not only as a key indicator of students' learning quality but also as a core criterion for assessing school effectiveness and identifying talent. It provides students with an individualized record of learning and serves as a valuable reference for educational investment and policy decision-making [16]. Despite its centrality in educational research, there remains no universally accepted definition of academic achievement.

In its early conceptualization, academic achievement was primarily measured through objective learning outcomes-such as test scores and examination results-representing the learning accomplishments attained at the end of a specific educational stage. This outcome-based approach was widely adopted in studies of primary and secondary school students [17]. However, as research evolved, scholars began to question whether objective performance alone could adequately capture the complexity of students' academic growth.

Since the 1970s, the emergence of self-reported assessments has prompted a paradigm shift, broadening the definition of academic achievement to encompass cognitive, non-cognitive, and general developmental dimensions [18]. For instance, Astin defined academic achievement as encompassing both cognitive and non-cognitive outcomes, including psychological and behavioral gains [19]. Other researchers emphasized the development of knowledge, skills, and competencies, viewing academic achievement as the outcomes students attain upon completing prescribed courses and instructional activities-covering foundational knowledge, scientific literacy, experimental and design ability, inquiry competence, and practical problem-solving skills [20].

Due to differences in definitional criteria, academic achievement has been conceptualized in diverse ways across studies. Within the educational field, it is often defined as the attainment of recognition or rewards based on students' performance in academic assessments [21]. Many researchers use quantifiable indicators-such as examination scores, pass rates, and progression rates in subjects like language, mathematics, and English-to evaluate academic achievement [22]. From a broader perspective, Marsh argued that academic achievement extends beyond school grades to include the mastery and practical application of knowledge, as well as the outcomes individuals achieve in later life and work [23]. Similarly, Pike proposed that academic achievement encompasses cognitive, practical, and affective dimensions [24]. Cognitive achievement involves the acquisition and application of knowledge across multiple domains; practical achievement pertains to the development of competencies such as communication, problem-solving, teamwork, and information technology use; and affective achievement relates to emotional and value-oriented growth, including self-awareness and personal values.

It is evident that as research deepened, academic achievement has evolved from a narrow, test-based construct into a comprehensive indicator encompassing diverse aspects of intellectual, practical, and emotional development.

In the context of rural education, academic achievement primarily refers to students' performance and developmental progress within rural learning environments. It includes three interrelated dimensions: academic performance, ability development, and self-concept. Ability development covers teamwork, organization, leadership, and problem-solving skills, while self-concept involves students' self-awareness and self-evaluation-encompassing psychological well-being and life satisfaction.

However, limited educational resources in rural areas may indirectly hinder students' academic attainment. When caregivers lack access to institutional and social resources, they are often unable to provide the stimulating, responsive, and supportive parenting necessary for fostering academic success [25,26]. Consequently, improving rural students' academic achievement requires a multifaceted approach that integrates classroom cohesion, student satisfaction, clear instructional objectives, structured teaching processes, and reduced conflict-all of which contribute to stronger academic outcomes [27].

2.2. Influencing Factors of Academic Achievement

Research on academic achievement generally falls into two main categories: internal factors and external factors [28]. Internal factors encompass cognitive and non-cognitive dimensions such as intelligence, personality traits, and learning motivation, while external factors include school, family, and societal influences.

Regarding internal factors, numerous scholars-including Kokkinos and Kumar-have identified academic achievement as a key reflection of students' intelligence levels, emphasizing that intellectual capacity significantly affects academic performance [29,30]. Lanawati similarly found a strong correlation between intelligence and students' academic outcomes [31]. Beyond cognitive ability, positive personality traits and psychological characteristics-such as resilience, self-discipline, and optimism-also exert beneficial effects on students' academic performance. Moreover, successful academic performance can in turn enhance psychological resilience and self-efficacy, creating a reciprocal relationship between achievement and emotional well-being [32].

Learning motivation represents another critical internal determinant. High academic achievement not only reflects students' learning ability and effort but also strengthens their intrinsic motivation to learn. Pike argued that outstanding academic results reinforce students' enthusiasm and sense of self-efficacy, forming a positive feedback loop that fosters sustained engagement and deeper learning [24]. In many cultural contexts, academic excellence is closely associated with intelligence and diligence-traits that bring social recognition, respect, and prestige. The cultivation of strong academic performance also nurtures sound study habits, supporting lifelong learning and continuous professional growth [33].

External factors influencing academic achievement primarily involve **school**, **family**, and society. From the school perspective, improved academic performance is often regarded as a central indicator of enhanced teaching quality. When schools adopt measures such as diversified instructional strategies, experiential learning, and teacher development programs, students' academic outcomes typically improve. These improvements, in turn, elevate the school's educational reputation, attract governmental and societal support, expand educational resources, and enhance student enrollment [34].

Students' academic achievement also reflects teaching effectiveness. Higher achievement outcomes can motivate teachers to refine pedagogical approaches, pursue professional advancement, and innovate in classroom management. From a broader social perspective, Lanawati noted that high academic achievement predicts higher educational attainment, reduces educational conflict within families, improves family well-being, and

increases employment opportunities and income levels [31]. Children's academic and professional success can alleviate family financial burdens and enhance quality of life.

In rural areas, where educational resources are more limited than in urban settings, improving academic achievement can generate far-reaching effects. It can transform traditional attitudes toward education, strengthen community awareness of schooling's value, promote educational equity, and help narrow the urban-rural education gap [9]. Several researchers have further observed that enhancing the quality of rural education fosters students' learning enthusiasm and potential, empowering them to pursue higher education, facilitate social mobility, and contribute to cultural dissemination [35]. Moreover, the academic achievement of rural primary school students is closely linked to rural cultural development. Improving students' academic performance contributes to the preservation, understanding, and appreciation of traditional culture, thereby nurturing a more literate, inclusive, and vibrant rural society [36].

3. Method

3.1. Research Design and Participants

This study employed a quantitative research design to explore and analyze the overall situation of academic achievement among rural primary school students. Data were collected through an online questionnaire survey, with parents of students serving as the primary respondents. The use of online questionnaires offers several advantages, including low cost, convenience, and efficiency in data collection [37].

The research was conducted at a primary school located in Qingxi Village, Youxi County, Fujian Province, China. The questionnaire was distributed via the *"Questionnaire Star" (Wenjuanxing)* mobile platform in August 2024, and the data collection period lasted for two weeks. A total of 125 questionnaires were received, of which 1 invalid response was excluded, resulting in 124 valid samples for statistical analysis.

Among the respondents, fathers served as the primary caregivers in 76 families (61.3%), mothers in 36 families (29.0%), and grandparents or other relatives in 12 families (9.7%). Regarding students' grade levels, 69 students (55.6%) were in Grades 1-3, and 55 students (44.4%) were in Grades 4-6.

As for family size, 10 families (8.1%) had one child, 62 families (50.0%) had two children, and 52 families (41.9%) had three or more children. The educational level of the primary caregivers varied: 88 caregivers (71.1%) had completed junior high school or below, 21 (16.9%) had high school education, and 15 (12.1%) had attained college education or above.

In terms of homeroom teachers, 39 (31.5%) were male and 85 (68.5%) were female. Regarding age, 75 teachers (60.5%) were between 20 and 35 years old, 37 (29.8%) were between 36 and 50, and 12 (9.7%) were over 50 years old. In terms of teaching experience, 46 teachers (37.1%) had less than five years of experience, 55 (44.4%) had five to ten years, and 23 (18.5%) had more than ten years of experience. Table 1 summarizes the demographic characteristics of the participants.

Table 1. Distribution of Research Participants.

Component	Category	Number	Percentage (%)
Primary Caregiver of the Child	Father	76	61.3
	Mother	36	29.0
	Other relatives	12	9.7
Grade Level of the Child	Grades 1-3	69	55.6
	Grades 4-6	55	44.4

Number of Children in the Family	1	10	8.1
	2	62	50.0
	＞3	52	41.9
Education Level of Primary Caregiver	Junior high school or below	88	71.0
	High school	21	16.9
	College or above	15	12.1
Homeroom Teacher's Gender	Male	39	31.5
	Female	85	68.5
Homeroom Teacher's Age Range	20-35 years	75	60.5
	36-50 years	37	29.8
	＞50 years	12	9.7
Homeroom Teacher's Teaching Experience	＜5 years	46	37.1
	5-10 years	55	44.4
	＞10 years	23	18.5
Total		124	100.0

Note. "Years" denotes chronological age when used in *Homeroom Teacher's Age Range*, and length of professional service when used in *Homeroom Teacher's Teaching Experience.*

3.2. Research Instrument

The research instrument was adapted from the questionnaire developed by Eom, Wen, and Ashill, with appropriate contextual modifications to suit the rural primary education environment [38]. The Cognitive Academic Achievement Scale consisted of four items, each rated on a five-point Likert scale (1 = *Strongly disagree*, 2 = *Disagree*, 3 = *Neutral*, 4 = *Agree*, 5 = *Strongly agree*).

The scale's Cronbach's alpha coefficient was 0.958, indicating excellent internal consistency and reliability. The questionnaire items focused on students' perceived academic performance, problem-solving ability, learning engagement, and self-evaluation of learning outcomes.

3.3. Data Collection Procedure

Prior to data collection, informed consent was obtained from all participants. The questionnaire link was distributed through parent-teacher communication groups using the Wenjuanxing platform. Respondents completed the survey voluntarily and anonymously to ensure authenticity and minimize social desirability bias.

The data collection period spanned two weeks in August 2024. After screening for completeness and logical consistency, 124 valid responses were retained for analysis. Data confidentiality and ethical research standards were strictly maintained throughout the process.

3.4. Data Analysis

Data were analyzed using SPSS 26.0 software. First, a frequency analysis was conducted to examine the general demographic characteristics of respondents and to compute frequencies and percentages for each variable. Second, Cronbach's alpha coefficients were calculated to verify the internal reliability of the measurement instrument. Third, descriptive statistical analysis was performed to assess the overall academic achievement of rural primary school students. Finally, comparative analyses (e.g., independent samples *t*-tests and one-way ANOVA) were used to explore potential

differences in students' cognitive academic achievement across demographic variables such as grade level and teachers' years of experience.

4. Results

4.1. Test of Normality

To determine whether the academic achievement scores of rural students met the assumptions of a normal distribution, descriptive statistics-including mean, standard deviation, kurtosis, and skewness-were calculated. The results indicated that academic achievement had a mean (M) of 4.1371, a kurtosis value of -0.520, and a skewness value of -0.613 (Table 2). According to Nadarajah, when the kurtosis and skewness values fall within the range of -2 to 2, the data can be considered approximately normally distributed [39]. Therefore, the data in this study satisfied the normality assumption and were suitable for parametric statistical analyses.

Table 2. Descriptive Statistics of Key Variables.

Variable	Mean	SD	Skewness	Kurtosis
Academic Achievement	4.1371	.83882	-.613	-.520
		N = 124		

4.2. Comparative Analysis of Academic Achievement

To examine differences in rural primary school students' academic achievement across demographic variables, a one-way ANOVA was performed for the primary caregiver, number of children in the family, caregiver's education level, homeroom teacher's age, and years of teaching experience. Independent-samples t-tests were conducted for grade level and teacher gender.

The results revealed significant differences in students' academic achievement across grade levels ($t = -2.122$, $p < .05$) and teachers' years of teaching experience ($F = 6.672$, $p < .05$). Specifically, students in Grades 4-6 (M = 4.31) demonstrated higher levels of academic achievement than those in Grades 1-3 (M = 4.00). Similarly, students taught by homeroom teachers with more than ten years of teaching experience (M = 4.61) achieved better outcomes than those whose teachers had five to ten years (M = 4.17) or fewer than five years (M = 3.86) of experience. No statistically significant differences were observed for other demographic factors (As shown in Table 3).

Table 3. Differences in Cognitive Academic Achievement among Rural Primary School Students (N = 124).

Variable		M		SD
Primary Caregiver of the Child	Father	4.24		0.8
	Mother	4.05		0.74
	Other Relatives	3.73		1.23
	F		2.276	
	p		0.107	
Grade Level of the Child	Grades 1–3	4.00		0.89
	Grades 4–6	4.31		0.75
	t		-2.122	
	p		0.036*	
Number of Children in the Family	1	4.10		0.88
	2	4.04		0.88
	≥3	4.26		0.78
	F		0.977	

	p		0.379	
Education Level of the Primary Caregiver	Junior high school or below	4.16		0.82
	High school	3.95		0.96
	College or above	4.25		0.78
	F		0.680	
	p		0.509	
Homeroom Teacher's Gender	Male	4.01		0.91
	Female	4.20		0.80
	t		-1.177	
	p		0.241	
Homeroom Teacher's Age Range	20–35 years	4.02		0.81
	36–50 years	4.26		0.85
	＞50 years	4.52		0.89
	F		2.462	
	p		0.089	
Homeroom Teacher's Years of Teaching Experience	＜5 years	3.86		0.72
	5-10	4.17		0.93
	＞10 years	4.61		0.60
	F		6.672	
	p		0.002*	
		*p≤.05		

Note. "Years" refers to chronological age in the "Age Range" variable and to length of professional service in the "Teaching Experience" variable. $p \leq .05$.

As shown in Table 3, students in Grades 4-6 exhibited significantly higher levels of cognitive academic achievement than those in Grades 1-3 (t = -2.122, $p < .05$). This finding aligns with Huppert's [40] theory of stage-based cognitive development, which suggests that as children mature, their cognitive structures, attention span, and learning strategies become more advanced. Consequently, older students tend to exhibit stronger metacognitive awareness, better concentration, and more effective study habits, leading to higher academic achievement compared with younger learners.

Furthermore, students taught by homeroom teachers with over ten years of experience demonstrated the highest levels of academic achievement, followed by those taught by teachers with five to ten years and fewer than five years of experience (F = 6.672, $p < .05$). This outcome partially supports Postholm's theory of teacher professional development, which posits that accumulated teaching experience enhances educators' pedagogical expertise, classroom management, and understanding of students' learning needs [41]. Experienced teachers are also more capable of providing stable, adaptive, and supportive learning environments, which in turn promote better student performance and engagement.

5. Conclusion

The primary purpose of this study was to examine the overall status of academic achievement among rural primary school students and, based on empirical findings, propose targeted strategies for improvement. To address Research Question 1-*"What is the current state of academic achievement among rural primary school students?"*-comprehensive descriptive and variance analyses were conducted using data collected from 124 parents at a rural primary school. The results indicated that the overall level of cognitive academic achievement among rural students was generally positive.

The variance analysis further revealed that students in Grades 4-6 demonstrated significantly higher levels of cognitive academic achievement than those in Grades 1-3. This finding suggests that as students mature, their cognitive abilities, concentration, and

learning strategies develop progressively, contributing to improved academic performance. In particular, older students tend to exhibit stronger mastery of cognitive skills, greater attentional control, and more effective application of learning strategies, thereby achieving better academic outcomes.

Moreover, students taught by homeroom teachers with more than ten years of teaching experience obtained the highest cognitive academic performance scores, followed by those whose teachers had five to ten years, and finally, those with less than five years of experience. This result implies that experienced teachers are more capable of implementing effective pedagogical approaches, managing classrooms efficiently, and offering psychological and emotional support. Such teachers create stable and supportive learning environments that enhance student achievement, whereas less experienced teachers may still be refining their instructional skills and professional competencies.

To address Research Question 2-*"How can the academic achievement of rural primary school students be improved?"*-the study proposes several developmental strategies. First, teachers should engage in continuous professional learning to acquire innovative educational concepts and methods that meet diverse student needs. In classroom practice, diversified instructional approaches such as cooperative learning, project-based learning, and differentiated instruction can be adopted to enhance students' motivation and participation. Teachers should also pay close attention to students' concentration levels and learning pace, adjusting teaching content and rhythm to ensure optimal learning outcomes.

Second, family involvement plays a crucial role in supporting student learning. Parents are encouraged to actively participate in their children's education by maintaining open communication with teachers, monitoring progress, and providing emotional and academic support at home. Strengthening home-school collaboration ensures consistent educational guidance and creates a more supportive environment for student development.

Focusing on Q Primary School in Qingxi Village, this study applied descriptive and variance analyses to evaluate rural students' academic achievement and to propose evidence-based improvement strategies. The findings not only provide valuable data and insights into the current state of rural education but also have significant implications for promoting educational equity and enhancing teaching quality. Factors such as family background, grade level, and teacher experience were identified as key determinants of academic outcomes. These findings may inform more equitable allocation of educational resources and the adoption of personalized instructional practices. Additionally, the study highlights the persistent challenges faced by rural education and calls for greater policy and societal attention to address regional disparities and improve educational conditions in rural areas.

Nevertheless, certain limitations must be acknowledged. The sample was limited to Q Primary School in Qingxi Village, which constrains the generalizability of the findings to other rural contexts. Methodologically, the reliance on survey data identifies correlations but does not fully uncover the causal mechanisms underlying academic performance. Furthermore, social and cultural dimensions were not extensively integrated into the analysis. Future research should broaden the sampling scope, employ mixed-methods designs, and incorporate socio-cultural variables to gain a more comprehensive understanding of rural students' academic development and to design more effective, context-sensitive improvement strategies.

Funding: This research was supported by the College Student Innovation and Entrepreneurship Training Program (Project No. 202411488027) and the Quzhou University Research Project (Project No. BSYJ202225).

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