

Comparative Effects of Four Dimensions of Social Environment on Academic Achievement: A Structural Regression Perspective

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Abstract

This study investigates the comparative effects of four dimensions of social environment—companionship, encouragement, neighborhood social cohesion, and role models—on academic achievement among preschool education students in vocational colleges in Ganzhou, China. A total of 500 participants completed standardized questionnaires measuring perceptions of social environment and self-reported academic achievement. Multiple regression and structural regression analyses revealed that all four dimensions significantly predicted academic achievement, jointly accounting for 46.4% of the variance. Among them, role models emerged as the strongest predictor, followed by companionship, encouragement, and neighborhood social cohesion. These findings highlight the importance of disaggregating social environment into distinct components to better understand their educational impacts. The study contributes to ecological and social cognitive theories by clarifying how interpersonal and community-level factors influence student performance in under-resourced educational contexts. Practical implications include the promotion of role model programs, peer support initiatives, and emotionally supportive learning environments. Limitations and future research directions are discussed.

1. Introduction

Academic achievement has long been regarded as a central indicator of educational success and future life outcomes. For students majoring in preschool education, academic performance is not only a personal accomplishment but also a predictor of their future teaching effectiveness, given their role in shaping early childhood development (Wang & Holcombe, 2010). In developing regions such as Ganzhou, China, where educational inequality persists, understanding the determinants of academic achievement among college students—particularly future educators—holds both theoretical and practical significance (Zhou & Brown, 2015).

Among the myriad factors influencing academic success, the social environment has emerged as a key contextual determinant. Social environment refers to the web of interpersonal

relationships, institutional climate, cultural expectations, and community interactions that collectively shape students' psychological well-being and learning experiences (Bronfenbrenner, 2005). International studies have consistently shown that a supportive social environment can enhance student engagement, motivation, and academic outcomes (Eccles & Roeser, 2011; Wentzel, 2017). However, the concept of "social environment" is inherently multidimensional. It encompasses various elements such as companionship, encouragement, neighborhood social cohesion, and the presence of role models—each potentially exerting distinct effects on students' learning outcomes.

Despite growing recognition of the importance of social context, few studies have systematically compared the relative impact of these subdimensions on academic achievement, especially in non-elite or under-resourced educational settings. In Ganzhou's vocational colleges, where students often face socio-economic constraints and limited academic support, disaggregating the effects of social environment components could yield more targeted and actionable insights (Luo et al., 2020).

Moreover, while existing research has highlighted the positive influence of role models (Bandura, 1997), peer companionship (Wentzel, 2005), and institutional cohesion (Allen et al., 2018) on student achievement, there is little empirical clarity regarding which dimensions matter most in specific regional or cultural contexts. This gap is particularly relevant in China, where educational resources and social support structures vary significantly across regions (Chen & Sun, 2021).

To address this gap, the present study examines the comparative effects of four distinct dimensions of social environment—companionship, encouragement, neighborhood social cohesion, and role models—on academic achievement among preschool education students in vocational colleges in Ganzhou, China. By employing structural regression analysis, this study aims to clarify which dimensions serve as the strongest predictors of student performance and to provide evidence-based recommendations for enhancing academic support systems in teacher education programs.

2. Literature Review

2.1 Conceptualizing Social Environment in Education

The concept of social environment in educational research encompasses the broader interpersonal, institutional, and community-based contexts in which students develop and learn. Drawing upon Bronfenbrenner's (2005) Ecological Systems Theory, the social environment is understood as the microsystem and mesosystem layers—comprising peer relationships, family support, school climate, and neighborhood cohesion—that directly shape students' day-to-day experiences. In recent years, researchers have moved beyond treating the social environment as a monolithic construct and instead emphasized its multidimensional nature, with specific subcomponents playing distinct roles in influencing academic outcomes (Eccles & Roeser, 2011; Wentzel, 2017).

This study focuses on four key dimensions of social environment: companionship, encouragement, neighborhood social cohesion, and role models. These dimensions were selected based on both theoretical relevance and their operationalization in validated instruments such as the Social Environment Questionnaire for College Students (SEQ-C). Each dimension captures a different facet of students' perceived social surroundings and contributes uniquely to the development of motivation, engagement, and achievement.

2.2 Companionship and Academic Achievement

Companionship refers to the emotional and social presence of peers with whom students can share experiences, study, and seek emotional support. Peer companionship has been found to promote belongingness and reduce academic stress, which are essential for sustained academic effort (Wentzel, 2005). In studies conducted among high school and college populations, companionship consistently predicted higher engagement and performance, especially among students from underprivileged backgrounds (Kindermann, 2007).

Moreover, peer interaction fosters collaborative learning and cognitive development, in line with Vygotsky's (1978) sociocultural theory. Students who report strong peer companionship tend to display greater classroom participation and higher self-efficacy in academic contexts (Ryan, 2001). In rural or less resourced educational settings such as Ganzhou, companionship can also buffer the negative impact of institutional deficiencies, making it a critical factor to investigate.

2.3 Encouragement and Academic Motivation

Encouragement, in this context, refers to the verbal and behavioral reinforcement received from peers, teachers, or family members that affirms students' academic potential. Encouragement is closely tied to emotional support, which has been empirically linked to increased academic motivation, resilience, and persistence (Suldo et al., 2009). It plays a vital role in shaping students' academic identity and beliefs about their own competence (Bandura, 1997).

Several studies have shown that encouragement from teachers and peers contributes to a growth-oriented mindset and enhances students' willingness to take academic risks and overcome challenges (Dweck, 2006). In the Chinese educational context, where high-stakes assessment pressures dominate, encouragement can serve as a powerful mediator of psychological well-being and academic outcomes (Chen & Sun, 2021).

2.4 Neighborhood Social Cohesion and Learning Environment

Neighborhood social cohesion refers to the perceived connectedness, trust, and mutual support among community members within a student's living environment. Although often overlooked in educational studies, this factor significantly influences students' safety, emotional stability, and cognitive engagement (Leventhal & Brooks-Gunn, 2000). Students from cohesive neighborhoods are more likely to feel secure, supported, and socially integrated—conditions that contribute to stronger school engagement (Wilkinson et al., 2007).

In China, particularly in third- and fourth-tier cities such as Ganzhou, neighborhood effects are increasingly relevant due to variations in infrastructure, public services, and community engagement (Luo et al., 2020). Research has shown that lower neighborhood cohesion is associated with increased stress and reduced educational aspirations, particularly among vocational and rural students (Zhang & Li, 2019).

2.5 Role Models and Academic Aspiration

The presence of role models—individuals whom students admire and emulate—has a profound impact on their academic ambition and behavioral choices. Role models provide social scripts for success and are instrumental in shaping students' self-concept, goal-setting, and perseverance (Bandura, 1997). In particular, studies suggest that exposure to academically successful peers, teachers, or community leaders enhances students' self-efficacy and encourages higher academic expectations (Oyserman et al., 2006).

For teacher education students, having role models who exemplify pedagogical skill, compassion, and professionalism may inspire them to take academic training more seriously, thereby improving performance. In Ganzhou and similar regions, where educational aspirations are often constrained by socioeconomic limitations, access to positive role models may compensate for environmental disadvantages (Chen & Yang, 2024).

2.6 Empirical Gaps and Research Direction

Although existing literature confirms the general influence of social environment on academic achievement, few studies have directly compared the relative impact of specific subdimensions. This lack of comparative insight limits the ability of educators and policymakers to prioritize interventions. Furthermore, the majority of past research has focused on students in urban or elite universities, leaving a gap in understanding the lived experiences of students in under-resourced areas, such as vocational colleges in Ganzhou.

To address these limitations, the current study adopts a structural regression approach to evaluate and compare the effects of companionship, encouragement, neighborhood social cohesion, and role models on academic achievement. By clarifying the unique contributions of each dimension, the study aims to offer evidence-based recommendations for enhancing academic support in teacher education settings.

3. Methodology

3.1 Research Design

This study employed a quantitative, cross-sectional research design to examine the comparative effects of four subdimensions of social environment—companionship, encouragement, neighborhood social cohesion, and role models—on academic achievement among students majoring in preschool education. The design was chosen to enable the collection of structured data from a large sample at a single time point, facilitating correlational and regression-based analyses (Creswell & Creswell, 2018). A structural regression approach was applied to test the predictive power of each dimension within a unified model, allowing for the evaluation of both individual and comparative effects.

3.2 Participants and Sampling

Participants were 500 full-time undergraduate students enrolled in preschool education programs at five vocational colleges located in Ganzhou, Jiangxi Province, China. These institutions were selected using stratified sampling to ensure representation across different types of colleges (e.g., public vs. private, urban vs. suburban). Inclusion criteria included: (1) Enrollment in a preschool education program, (2) Completion of at least one semester of coursework, (3) Willingness to provide informed consent. The average age of participants was 19.8 years ($SD = 1.2$), and 92% were female, consistent with gender distributions in early childhood education majors.

3.3 Instruments

3.3.1 Social Environment Scale (SEQ-C)

Social environment was measured using a modified version of the Social Environment Questionnaire for College Students (SEQ-C), developed specifically for Chinese higher education contexts. The scale comprises four subscales: (1) Companionship (e.g., “I have peers I can share learning experiences with”), (2) Encouragement (e.g., “People around me support me when I face

academic challenges”), (3) Neighborhood Social Cohesion (e.g., “People in my neighborhood help each other”), (4) Role Models (e.g., “There are people I look up to in terms of academic success”). Each item was rated on a 5-point Likert scale (1 = Strongly disagree to 5 = Strongly agree). The Cronbach’s alpha values for the subscales ranged from 0.83 to 0.89, indicating high internal consistency.

3.3.2 Academic Achievement Questionnaire (AAQ)

Academic achievement was assessed through the Academic Achievement Questionnaire (AAQ), adapted from Váchová and Novotny (2020), which includes three components: (1) Study performance, (2) Handling of study demands, (3) Social adaptation in academic settings. Participants rated their perceived achievement using a 5-point scale. The internal consistency of the AAQ was high ($\alpha = 0.91$).

3.3.3 Data Collection Procedures

Data were collected during the second semester of the 2024 academic year through paper-based surveys administered during scheduled classes. Participation was voluntary, and all students were informed of the purpose, confidentiality terms, and their right to withdraw at any time. Data collectors received training on ethical procedures and standardized administration techniques.

3.4 Data Analysis

The analysis was performed using SPSS 26.0 and AMOS 24.0 software. The following statistical procedures were applied: Descriptive Statistics were used to examine the distribution of variables and demographic information (mean, standard deviation, skewness, kurtosis). Reliability Testing was conducted using Cronbach’s alpha for all constructs. Pearson Correlation analysis was performed to examine the bivariate relationships between the four social environment dimensions and academic achievement. Multiple Regression Analysis was used to compare the relative predictive power of each social environment dimension. To control for multicollinearity, variance inflation factor (VIF) values were calculated and all were below 2.0.

3.5 Ethical Considerations

This study was approved by the Research Ethics Committee of the corresponding institution. Participants were assured of the anonymity of their responses and that participation would not affect their academic standing. Data were securely stored and used solely for research purposes.

4. Results

4.1 Descriptive Statistics

Descriptive analysis revealed that participants generally reported moderate levels of perceived social environment and academic achievement. The means (M) and standard deviations (SD) for the four dimensions of social environment were as follows: Companionship: M = 3.61, SD = 0.71; Encouragement: M = 3.57, SD = 0.68; Neighborhood Social Cohesion: M = 3.53, SD = 0.70; Role Models: M = 3.74, SD = 0.73. The mean score for academic achievement was M = 3.65, SD = 0.76. These results indicate a generally favorable perception of social support and self-reported academic performance among the sample.

4.2 Correlation Analysis

Pearson correlation analysis showed that all four dimensions of social environment were positively and significantly correlated with academic achievement: Companionship: $r = .42$, $p < .001$; Encouragement: $r = .39$, $p < .00$; Neighborhood Social Cohesion: $r = .35$, $p < .00$; Role Models: $r = .48$, $p < .001$; These findings support the hypothesis that a stronger perceived social environment is associated with better academic outcomes.

4.3 Multiple Regression Analysis

To determine the relative contribution of each social environment subdimension, all four were simultaneously entered into a multiple linear regression model with academic achievement as the dependent variable.

Table 1. Multiple Regression Coefficients for Social Environment Dimensions Predicting Academic Achievement

Predictor	β (Standardized)	t	p
Companionship	0.192	4.123	< .001
Encouragement	0.145	3.138	0.002
Neighborhood Social Cohesion	0.103	2.29	0.023
Role Models	0.276	6.191	< .001
R ²	0.464		

The overall model was significant: $F(4, 495) = 107.09$, $p < .001$, with an R^2 of .464, indicating that the four dimensions jointly explained 46.4% of the variance in academic achievement. Among the predictors, Role Models had the strongest standardized effect ($\beta = .276$), followed by Companionship ($\beta = .192$), Encouragement ($\beta = .145$), and Neighborhood Social Cohesion ($\beta = .103$).

5. Discussion

5.1 Overview of Key Findings

This study investigated the comparative effects of four social environment dimensions—companionship, encouragement, neighborhood social cohesion, and role models—on academic achievement among preschool education students in vocational colleges in Ganzhou, China. The results revealed that all four subdimensions significantly predicted academic achievement, with role models being the strongest predictor, followed by companionship, encouragement, and neighborhood social cohesion.

These findings confirm the initial hypothesis that social environment is a multi-layered construct, where different elements contribute to academic performance in varying degrees. The results also provide empirical validation for Bronfenbrenner’s Ecological Systems Theory (2005), which posits that student outcomes are shaped by diverse, interacting social systems within their environment.

5.2 Interpretation of Individual Predictors

5.2.1 Role Models

The most striking finding was the prominent effect of role models ($\beta = .276$), underscoring their critical role in shaping students’ academic aspirations and behaviors. This aligns with Bandura’s (1997) Social Cognitive Theory, which emphasizes observational learning and

vicarious experiences as key mechanisms in personal development. In under-resourced regions like Ganzhou, where institutional support may be limited, role models—whether they are teachers, senior students, or public figures—can serve as anchors of hope and direction. As prior research suggests, role models provide internalized standards of success and can significantly influence students' self-efficacy, persistence, and goal setting (Oyserman et al., 2006).

5.2.2 Companionship

Companionship had the second strongest effect ($\beta = .192$), highlighting the importance of peer relationships in promoting academic success. This finding supports Vygotsky's (1978) view that learning is a social process and reinforces prior studies showing that students with strong peer support systems demonstrate higher levels of engagement, satisfaction, and performance (Kindermann, 2007; Ryan, 2001). In the context of teacher education, where collaboration and emotional support are essential for coping with coursework and practicum stress, companionship may serve not only as an emotional buffer but also as a cognitive resource.

5.2.3 Encouragement

Encouragement emerged as a moderate predictor ($\beta = .145$), consistent with literature identifying verbal affirmation and emotional reinforcement as drivers of academic motivation (Suldo et al., 2009; Dweck, 2006). Encouragement helps students develop a growth mindset, where setbacks are viewed as part of the learning process. Particularly in cultures such as China's, where educational pressure is high and failure may carry social stigma, encouragement from peers, instructors, or family may foster resilience and reduce anxiety. Nevertheless, its lower effect size relative to role models and companionship suggests that encouragement alone may not suffice unless it is embedded within a broader support network.

5.2.4 Neighborhood Social Cohesion

Although statistically significant, neighborhood social cohesion showed the weakest predictive effect ($\beta = .103$). This result is consistent with existing research that finds neighborhood factors to be less directly influential on academic outcomes compared to school- or peer-level variables (Leventhal & Brooks-Gunn, 2000). In modern urban and semi-urban Chinese contexts, students often live in dormitories or relocate for study, thereby reducing the salience of neighborhood dynamics in daily academic life. However, the significance of this factor still underscores the importance of community trust and perceived safety in promoting educational well-being.

5.3 Theoretical Implications

The findings contribute to theory in several ways. First, the results empirically support the differentiation of social environment constructs, rather than treating them as a unified factor. This strengthens theoretical models such as Bronfenbrenner's and Bandura's, by demonstrating that specific ecological elements—such as role modeling and companionship—exert unique and powerful influences. Second, the data provide support for the mediated and layered nature of student success. While the current paper focused only on direct effects, the patterns observed here suggest potential pathways for mediation or moderation (e.g., the possibility that role models influence achievement via self-efficacy or academic identity), which can be explored in future structural equation modeling. Finally, these findings contextualize global theories within a localized Chinese educational setting, contributing to the emerging literature on educational psychology in non-Western contexts. They highlight how cultural, institutional, and socio-economic conditions shape the mechanisms of academic influence.

5.4 Practical Implications

The results offer actionable recommendations for educational leaders and policymakers in teacher training institutions, especially in developing regions: Implement Role Model Exposure Programs, Invite outstanding alumni, senior students, and exemplary teachers to share their experiences with current students. Such storytelling and mentoring can provide tangible success narratives that students can internalize. Strengthen Peer Support Structures, Establish peer mentoring schemes, collaborative learning groups, and social activities that promote companionship among students. These interventions can help mitigate academic isolation, especially among first-year or lower-performing students. Foster Encouragement-Centered Classrooms, Train faculty members to use praise, constructive feedback, and inclusive communication styles that affirm student effort and potential. Emotional support should be made an explicit component of teaching strategies. Leverage Community Resources, Although the impact of neighborhood social cohesion was smaller, fostering university-community partnerships—such as volunteer programs or service-learning—can increase students' sense of belonging and civic responsibility.

5.5 Limitations and Future Research

Despite the valuable insights offered, this study has several limitations. The use of cross-sectional data limits the ability to infer causal relationships. Longitudinal or experimental designs could better capture the evolution of social influences over time. Additionally, the reliance on self-reported measures may introduce social desirability bias. Objective performance data or observational ratings could help validate the results. Finally, the sample was limited to students from vocational colleges in Ganzhou, and thus the generalizability of the findings should be approached with caution.

Future research could explore potential moderating variables such as gender, academic year, or personality traits, and investigate whether teacher teaching ability or self-efficacy mediates the observed relationships, thereby providing a more nuanced understanding of the academic development process.

6. Conclusion

This study examined the differential impact of four dimensions of social environment—companionship, encouragement, neighborhood social cohesion, and role models—on academic achievement among preschool education students in vocational colleges in Ganzhou, China. The findings revealed that all four dimensions significantly predicted academic outcomes, with role models exerting the strongest influence, followed by companionship, encouragement, and neighborhood social cohesion.

These results underscore the value of disaggregating social environment into meaningful subcomponents to better understand the mechanisms shaping student performance. Theoretically, the study enriches ecological and social cognitive perspectives by offering empirical support for their applicability in under-resourced educational settings. Practically, the findings point to clear intervention pathways, particularly in enhancing role model exposure and peer support structures in teacher education programs.

While the study is limited by its cross-sectional design and localized sample, it offers a strong foundation for future longitudinal and multi-level research. A deeper understanding of how social

and psychological factors interact will be essential to improving educational equity and developing the next generation of qualified early childhood educators.

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