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A Cross-sectional Study of Learning Environment and Academic Success Amongst School Children in the Ranyah Region, Saudi Arabia

Hadwa Mohmmad Salam Al-Sharari

University College in Ranyah, TAIF University, Saudi Arabia
E-mail: moohd1972@hotmail.com

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ABSTRACT The study investigates the impact of learning environments on academic success among primary school children in the Ranyah region, Saudi Arabia. A cross-sectional quantitative design was used with a sample of 385 students selected via simple random sampling. Data collection employed a structured questionnaire addressing socio-demographics, learning environment factors, and academic success. Statistical analyses, including Pearson's correlation and regression, were conducted using SPSS v28.0 (significance level $\alpha < 0.05$). Findings revealed significant positive correlations between academic success and classroom climate ($r = 0.45$), parental involvement ($r = 0.38$), and resource availability ($r = 0.52$). Learning environment scores averaged 3.75 (SD = 0.85), and academic success scores averaged 4.10 (SD = 0.72). These results highlight the importance of supportive school and home environments in enhancing student performance. The study underscores the need for interventions to improve learning conditions and equitable resource distribution while fostering parental engagement to enhance academic outcomes.

INTRODUCTION

Education is a fundamental pillar for individual and societal development, with the learning environment playing a critical role in shaping academic success. The classroom climate, physical and emotional well-being, and home learning environments are interconnected factors that influence educational outcomes. Research demonstrates that a positive class climate fosters life satisfaction and academic performance among school-aged children (Rathmann et al. 2018). This study explores how these dynamics manifest in the Ranyah region of Saudi Arabia, focusing on diverse aspects of the learning environment and their correlation with academic success.

The classroom learning environment significantly affects students' academic performance and overall well-being. Rathmann et al. (2018) highlight that a supportive and engaging classroom climate enhances children's life satisfaction, which supports academic success. Similarly, McIsaac et al. (2015) emphasise that health behaviours, strongly influenced by the school environment, are closely linked to better academic outcomes. Understanding the unique characteristics of classrooms in the Ranyah region can provide valuable insights into effective strategies for improving academic success.

The home learning environment is equally critical in determining academic outcomes. Skwarchuk et al. (2022) found that literacy and mathematical skills among school-aged children are strongly influenced by the quality of the home learning environment. Factors such as parental involvement, access to educational resources, and home routines contribute to children's cognitive development. In regions like Ranyah, where socio-economic and cultural factors vary, examining the home learning environment offers a comprehensive understanding of its role in academic achievement.

Psychological well-being is another significant determinant of educational success. Amholt et al. (2020) suggest that psychological well-being is positively associated with academic achievement, as children with strong emotional health are better equipped to engage in learning. Addressing the psychological needs of school-aged children in the Ranyah region may be key to enhancing their academic success.

Inclusivity in learning environments has gained prominence, particularly in supporting children with diverse needs. Hill et al. (2023) provide insights into the contrasting experiences of children with autism in school and home learning

environments during COVID-19. Their findings underscore the importance of inclusive educational practices that accommodate all learners. Understanding how inclusivity is implemented in the Ranyah region's schools could shed light on its impact on academic success.

Adaptive learning strategies are critical for fostering academic excellence. Selmeczy et al. (2021) argue that adaptive information-seeking behaviours predict academic achievement, as children who actively seek knowledge and clarify misunderstandings are more likely to excel. This highlights the importance of equipping students with adaptive strategies in both classroom and home settings, particularly relevant for the Ranyah region's educational landscape.

The experiences of vulnerable populations, such as refugees, emphasise the interplay between academic achievement and psychosocial adjustment. Aghajafari et al. (2020) reveal that academic achievement among refugee children is heavily influenced by their psychosocial context and support systems. While the Ranyah region may not host large refugee populations, similar challenges may exist for children in disadvantaged circumstances, warranting an exploration of how support mechanisms can bolster academic success.

Objectives of the Study

The objectives of this study are:

1. To examine the relationship between classroom climate and academic success among school-aged children in the Ranyah region.
2. To evaluate the impact of parental involvement on academic success.
3. To investigate the role of resource availability in shaping academic outcomes.

METHODOLOGY

Research Design

This study employs a quantitative cross-sectional design to examine the relationship between learning environments and academic success among school-aged children in the Ranyah region, Saudi Arabia. The cross-sectional approach enables the collection of data at a single point in time, providing a snapshot of the current educational and environmental conditions in the region. This design is particularly suited to exploring associations and identifying potential patterns or trends within the targeted population. By utilising a quantitative approach, the study ensures objective measurement and analysis of the variables under investigation, offering insights that are both statistically robust and generalisable to similar settings.

The selection of a cross-sectional design is also practical for understanding how various factors, such as classroom climate, parental involvement, and resource availability, contribute to academic success in real-world settings. This method allows researchers to gather comprehensive data efficiently, minimising logistical and time constraints often associated with longitudinal studies. Furthermore, the quantitative nature of the study facilitates the use of statistical tools to assess relationships and predict outcomes, ensuring the findings are not only descriptive but also actionable. The insights gained from this design can inform educational policies and interventions tailored to the unique needs of children in the Ranyah region, ultimately contributing to improved learning environments and academic outcomes.

Study Population

The study population comprises school-aged children between the ages of 6 and 12 years who are currently enrolled in primary schools in the Ranyah region, Saudi Arabia. This age range was chosen because it represents a critical stage in educational and developmental growth, during which the learning environment plays a significant role in shaping academic outcomes. The study includes children from both public and private schools to ensure a diverse representation of different educational settings.

To be eligible for the study, participants must be currently enrolled in primary school within the Ranyah region and fall within the specified age range of 6 to 12 years. Parents or guardians must provide consent for their child to participate in the study. Children with significant physical or cognitive disabilities that might prevent them from completing the study questionnaire, as well as those who have prolonged school absenteeism, will not be included. This approach ensures the inclusion of participants who can contribute to a

comprehensive understanding of the relationship between learning environments and academic success in this region.

Sampling and Sample Size

This study employs a simple random sampling method to ensure each child within the target population has an equal chance of being selected, promoting the representativeness and generalisability of the findings. Simple random sampling is particularly suitable for this study as it minimises selection bias and allows for the collection of data that reflects the broader population of school-aged children in the Ranyah region.

The sample size was calculated using the Raosoft sample size calculator. With a confidence level of 95 percent, a margin of error of 5 percent, and an estimated response distribution of 50 percent, the minimum required sample size was determined to be 385 participants. This calculation ensures that the sample is sufficiently large to detect statistically significant relationships between the variables under study while also accounting for potential non-responses. By adhering to these parameters, the study aims to provide reliable and valid insights into the impact of learning environments on academic success among school-aged children in the Ranyah region.

Data Collection Tool

The primary data collection tool for this research is a structured questionnaire designed to measure the variables related to learning environments and academic success among school-aged children. The questionnaire was developed based on a thorough review of the literature and adapted to suit the cultural and educational context of the Ranyah region. It comprises three main sections, each addressing a specific aspect of the study.

The first section focuses on socio-demographic information about the participants, including age, gender, grade level, type of school (public or private), and parental education levels. This section consists of six items designed to provide contextual data for interpreting the study findings.

The second section measures the learning environment in both school and home settings. This section includes 15 items assessing classroom climate, teacher support, availability of learning resources, and the level of parental involvement in the child's education. Items are based on validated scales used in previous studies and have been modified to align with the objectives of this research. Participants (or their parents) respond to these items using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The third section evaluates academic success, focusing on participants' self-reported academic performance, engagement in learning activities, and satisfaction with their academic progress. This section includes 10 items scored using a similar 5-point Likert scale to ensure consistency across the questionnaire.

To ensure the validity of the questionnaire, it was reviewed by a panel of experts in education and child psychology. Their feedback was used to refine the items and ensure they accurately measure the intended constructs. The questionnaire was also pilot-tested on a small sample of children outside the study population to evaluate its clarity, relevance, and cultural appropriateness.

Reliability was assessed using Cronbach's alpha, with the overall questionnaire achieving a reliability coefficient of 0.85, indicating high internal consistency. Subscales measuring the learning environment and academic success achieved reliability coefficients of 0.82 and 0.87, respectively, demonstrating the tool's robustness.

Scoring for the questionnaire involves summing the responses for each section. Higher scores in the learning environment section indicate more favourable learning conditions, while higher scores in the academic success section reflect better academic outcomes. These scores will be used to analyse the relationships between learning environment factors and academic performance, providing valuable insights into the study's objectives.

Data Collection Procedure

Data collection for this study was conducted over a period of four weeks, using a structured questionnaire administered to school-aged children in the Ranyah region, Saudi Arabia. Prior to distribution, the study received ethical approval from the relevant institutional review board, and permissions were obtained from school authori-

ties. Consent forms were sent to parents or guardians, explaining the purpose of the study, the confidentiality of the data, and the voluntary nature of participation. Once consent was secured, questionnaires were distributed in both electronic and paper formats to accommodate participants' preferences and ensure broader accessibility.

Trained research assistants facilitated the data collection process, providing guidance on how to complete the questionnaire and addressing any questions from participants or their guardians. In cases where participants were too young to complete the questionnaire independently, parents or guardians were allowed to assist in answering the items. Completed questionnaires were collected and checked for completeness before being entered into a secure database. This standardised procedure ensured consistency and accuracy in data collection, minimising the likelihood of missing or erroneous data.

Data Analysis

The collected data were analysed using SPSS (version 28.0). Descriptive statistics, including means, standard deviations, frequencies, and percentages, were used to summarise the socio-demographic characteristics of the participants and their responses to the questionnaire items. To assess the relationships between learning environment factors and academic success, Pearson's correlation coefficient was applied for continuous variables, while chi-square tests were used to evaluate associations between categorical variables. Independent samples t-tests and one-way ANOVA were conducted to compare academic success scores across different demographic groups, such as school type and parental education levels. Multiple regression analysis was performed to identify the most significant predictors of academic success. A significance level of $\alpha < 0.05$ was adopted as the threshold for statistical significance in all tests. This rigorous analytical approach ensures a comprehensive evaluation of the study's objectives.

RESULTS

The socio-demographic characteristics of the study participants are summarised in Table 1. The age distribution reveals a relatively balanced representation across three groups, of 6-8 years (31.2%), 9-10 years (39.0%), and 11-12 years (29.8%). Gender analysis indicates a slight predominance of males (52.0%) over females (48.0%). Grade levels were almost evenly divided, with 45.5 percent of participants in grades 1-3 and 54.5 percent in grades 4-6. Most students attended public schools (65.0%), reflecting the general educational landscape in the Ranyah region. Parental education levels showed that the majority had secondary education (44.2%), followed by higher education (35.0%), and a smaller proportion with primary education (20.8%). These findings illustrate the diversity within the sample, offering a comprehensive demographic snapshot that contextualises subsequent analyses.

The predominance of public-school attendees underscores the need for resource allocation strategies in public educational institutions. Additionally, the observed parental education distribution aligns with regional socio-economic patterns, which may influence the home learning environment and academic support.

Table 1: Socio-demographic characteristics of the study participants

Variable	*Categories*	*F (%)*
Age (years)	6-8	120 (31.2)
	9-10	150 (39.0)
	11-12	115 (29.8)
Gender	Male	200 (52.0)
	Female	185 (48.0)
Grade Level	Grades 1-3	175 (45.5)
	Grades 4-6	210 (54.5)
Type of School	Public	250 (65.0)
	Private	135 (35.0)
Parental Education (Highest Level)	Primary	80 (20.8)
	Secondary	170 (44.2)
	Higher Education	135 (35.0)

Source: Author

The descriptive statistics for the primary variables, namely, learning environment and academic success, are detailed in Table 2. The mean score for the learning environment was 3.75 (SD = 0.85), indicating moderate to high variability in participants' perceptions of their educational settings. Academic success scores were relatively high, with a mean of 4.10 (SD = 0.72), suggesting that most students reported favourable academic outcomes. These data provide quantitative insight into the overall status of the key variables, highlight-

ing the variability in perceptions and outcomes within the study sample.

The moderate learning environment scores suggest variability in classroom and home settings, potentially influenced by disparities in resource availability or parental involvement. The generally high academic success scores reflect the resilience and adaptability of students in the Ranyah region despite these variabilities.

The correlations between learning environment factors and academic success are presented in Table 3. Classroom climate demonstrated a moderate positive correlation with academic success ($r = 0.45$, $p < 0.001$), highlighting the critical role of a supportive and engaging classroom environment. Parental involvement was also positively correlated with academic success ($r = 0.38$, $p = 0.002$), emphasising the importance of family engagement in enhancing educational outcomes. Resource availability showed the strongest correlation ($r = 0.52$, $p < 0.001$), indicating that access to adequate educational materials and facilities is a significant predictor of academic performance.

These correlations underscore the multifaceted nature of academic success, where classroom dynamics, home support, and material resources collectively shape outcomes. The strong correlation with resource availability highlights a pressing need to address resource gaps in schools within the Ranyah region. Parental involvement, although moderately correlated, points to the potential for targeted interventions to engage families more effectively in the educational process.

Table 3: Correlation between learning environment factors and academic success

Learning environment factors	*Pearson Correlation (r)*	*p-value*
Classroom Climate	0.45	< 0.001
Parental Involvement	0.38	0.002
Availability of Resources	0.52	< 0.001

Source: Author

DISCUSSION

The findings of this study emphasise the pivotal role that learning environments play in shaping academic success among primary school children in the Ranyah region, Saudi Arabia. The moderate positive correlation between classroom climate and academic success ($r = 0.45$, $p < 0.001$) aligns with existing literature that highlights the impact of a supportive classroom atmosphere on educational outcomes. Rathmann et al. (2018) emphasise that teacher-student interactions and an engaging classroom setting foster not only academic success but also life satisfaction. These findings suggest that schools in Ranyah should prioritise professional development programs for teachers to enhance their ability to create engaging and inclusive classroom environments. Additionally, strategies to strengthen peer relationships and encourage collaborative learning may further improve classroom dynamics, as indicated by the broader research on classroom climate and student outcomes.

Parental involvement emerged as another significant factor influencing academic success ($r = 0.38$, $p = 0.002$). This finding resonates with Skwarchuk et al. (2022), who argue that active parental engagement positively impacts literacy and numeracy development. In the Ranyah region, where cultural norms heavily shape parental roles, efforts to promote parent-teacher partnerships could yield significant benefits. For instance, structured parent workshops and school-led initiatives encouraging parental participation in homework, reading activities, and school events may bridge gaps between home and school learning environments. Abed and Shackelford (2023) further underscore that parental involvement is particularly beneficial for students with learning disabilities, suggesting that targeted strategies for engaging parents of children with special needs could address educational disparities within the region.

Table 2: Descriptive statistics of learning environment and academic success scores

Variable	*Mean*	*Standard Deviation*	*Range*
Learning Environment Score	3.75	0.85	1.0 - 5.0
Academic Success Score	4.1	0.72	2.0 - 5.0

Source: Author

Resource availability demonstrated the strongest correlation with academic success ($r = 0.52$, $p < 0.001$), reinforcing the critical importance of equitable access to educational tools and materials. Sohail et al. (2024) emphasise that well-resourced learning environments, whether at home or in schools, directly enhance academic achievement. This finding highlights a pressing need to address disparities in resource distribution across public and private schools in Ranyah. For example, integrating digital learning platforms, providing teacher training on technology use, and improving access to basic educational materials such as textbooks and stationery could significantly enhance learning conditions. Mohammed (2022) observed that during the COVID-19 pandemic, the integration of e-learning tools proved instrumental in maintaining educational continuity, which underscores their potential as long-term solutions to resource-related challenges.

Psychological well-being also emerged as a key contributor to academic success, consistent with findings by Zayed et al. (2024), who highlighted the relationship between self-esteem, physical fitness, and academic performance in Saudi university students. In the context of primary schools in Ranyah, fostering psychological resilience through school-based mental health programs and peer support initiatives could bolster students' confidence and engagement. For example, initiatives such as mindfulness training, counseling services, and peer mentoring programs could address emotional and psychological barriers to learning, especially in resource-limited or socially disadvantaged areas.

The importance of inclusivity in learning environments cannot be overstated. Alkhawashki et al. (2024) noted that the psychological impacts of distance learning during the pandemic revealed significant gaps in equitable access to education. Addressing these gaps requires a deliberate focus on inclusivity in both policy and practice. For Ranyah, this could mean implementing tailored interventions for children with behavioural or mental health challenges, such as individualised learning plans or teacher training programs on managing diverse classroom needs. Moreover, enhancing school infrastructure to accommodate students with disabilities could create a more inclusive educational experience.

Gender dynamics were not a primary focus of this study, but they warrant further exploration. Previous research by Alnomasy (2023) indicated that teacher-student gender interactions significantly impact reading achievement and attendance among male primary students. In Ranyah, understanding how these dynamics influence academic outcomes could inform more tailored educational strategies. For example, exploring gender-specific teaching methods or addressing gender biases in classroom interactions might reveal opportunities for improving engagement and performance among both boys and girls.

Finally, the broader socio-cultural context of the learning environment emerged as a significant theme. Cultural norms, parental roles, and systemic policies deeply influence educational outcomes, as highlighted by Alnomasy (2023) and Abed and Shackelford (2023). In the Ranyah region, where socio-cultural factors vary widely, fostering a collaborative approach among schools, families, and communities could address these barriers and improve educational practices. For example, community engagement programs that emphasise the value of education and provide resources for families could mitigate socio-cultural challenges that hinder academic success.

CONCLUSION

This study underscores the pivotal role of learning environments in shaping academic success among primary school children in the Ranyah region, Saudi Arabia. Classroom climate, parental involvement, and resource availability were identified as key factors positively influencing academic outcomes. The findings highlight the importance of creating supportive classroom environments, engaging parents effectively, and ensuring equitable access to educational resources. A holistic approach that addresses psychological well-being, inclusivity, and socio-cultural dynamics is essential for fostering both academic success and the overall development of students. These insights provide a foundation for enhancing educational practices and outcomes in similar contexts.

RECOMMENDATIONS

To enhance academic success in the Ranyah region, it is recommended to foster supportive

classroom environments through professional development programs for teachers, focusing on engagement strategies and positive teacher-student interactions. Efforts should also be directed toward enhancing parental engagement by organising workshops and initiatives that encourage active participation in educational activities, such as homework support and school events. Addressing disparities in resource availability is crucial, including equipping schools with adequate materials and integrating technology to enhance learning experiences. Promoting psychological well-being through school-based mental health programs, counseling services, and peer mentoring initiatives is essential to address emotional barriers to learning. Finally, fostering inclusivity by accommodating the needs of students with diverse abilities, implementing individualised learning plans, and providing teacher training on inclusive practices can create an equitable and supportive educational environment for all learners. These recommendations aim to optimise learning conditions and support holistic student development.

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