INNOVARE JOURNAL OF EDUCATION
Vol 14, Issue 4, 2026, ??
ISSN: 2347-5528
Research Article

The Impact of Home Learning Environment on the Academic Performance of Adolescents

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Abstract

Although the home learning environment has been recognized as an important component of students' development, the relationship between academic achievement and the learning environment is complex. The purpose of this study is to comprehend how secondary school students in Tamil Nadu's Thanjavur district perform academically in relation to their home learning environment. Using a normative survey approach, 200 students were selected from the Thanjavur district's secondary school student population. The statistical techniques (mean, standard deviation, *t*-test, analysis of variance, and Pearson's correlation) were used to analyze the data. The findings of the analysis revealed that there is no significant relationship between academic achievement and home learning environment. However, there was a significant negative correlation across various demographic categories for locality, grade, type of school, and medium of instruction. Additionally, students from English-medium schools, urban areas, and private and assisted institutions performed well academically.

Keywords: home environment, learning environment, academic performance, adolescents, secondary education

Introduction

A person's mental abilities, physical characteristics, and social structure are greatly influenced by their family as a social group. A family environment can be shaped by several factors, including family size, nature, and marital status, as well as parents' employment and income, sibling relationships, and socioeconomic and religious backgrounds.

Family Environment

Members of a family are affected by the same fundamental principles, people, real possessions, etc., because of the family's consistency. A family is a lifelong school. A child is exposed to the light of day within his home. His family is the first social setting where he can meet his cultural, mental, and physical demands. The base of all other social institutions is the family environment. His interactions with his family largely influence a person's growth. The mental health of a person is promoted by the proper functioning of these interactions (Kaur et al., 2015). The interactions between the family and its members are significant and occur at specific times. This affects the lives of children, especially those belonging to the category of secondary school-going age teens. The family and its members have important interactions that happen at specific times. Children's lives are affected by this, particularly those of teenagers in secondary school.

The family is the most crucial system for a child's human development. According to Ozcinar (2006), "a child's growth is largely affected by his family, being his primary socialization setting." Strong emotional ties have grown, encouraging parents, kids, and family members to make lifelong commitments. This is because "family members have a significant influence on survival," according to van Wel (2000). Family coherence and interactions among members have significant implications for children's psychological adjustment, especially during early childhood (Herman et al., 2007). The personality development of a child can be promoted by a nurturing family environment that includes supportive communication, emotional warmth, and positive reinforcement from family members.

However, because they focus more on the virtual world than the real one, young people today face many difficulties. In this instance, the family environment plays a crucial role in a person's growth, behavior formation, and social and moral education. Gottman (2001) asserts that parents serve as emotional coaches for their kids, helping them understand and make sense of unfavorable outcomes, cultivate a sense of control and optimism, and effectively manage their emotions. Young students' relationships with their peers are influenced by their family environment. For example, parents constantly monitor their children's academic progress, social activities, time spent at home, and friendships, which exposes them to more peers who have good study habits (Harris-McKoy, 2016). This suggests that, while peer network structure, friend quality, and personality orientation also influence students' academic achievement, parental educational involvement and parent-child communication also affect students' interpersonal relationships (Golsteyn et al., 2021). A better family environment is associated with better student performance and academic success, according to current research.

Academic Success

High academic performance is now expected among students worldwide and is considered an indicator of potential. According to Crow and Crow (1969), academic performance refers to "the

DOI: https://dx.doi.org/10.22159/ijoe.2026v14i4.58924. Journal homepage: https://journals.innovareacademics.in/index.php/ijoe
Acknowledgment: The authors express their sincere gratitude to the students and school authorities who participated in this study and provided valuable data. **Authors' Contributions:** The first author carried out data collection, analysis, and manuscript preparation. The second author supervised the research and guided the study's development. **Conflict of Interest:** The authors declare that there is no conflict of interest regarding the publication of this paper. **Funding Source:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
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degree to which a student is using guidance in the designated field of study." Academic performance encompasses a variety of learning domains and has many facets. It is thought that student selection, support, and recognition are based solely on academic performance.

There is substantial research on academic success, and some results indicate that women typically outperform men on tests of verbal ability, mathematical spatial ability, and stereotypically male vocational knowledge and aptitude. However, studies indicate that women are more capable and driven than men. It has long been believed that girls have achieved more in school and college than boys. This phenomenon has several causes.

Academic success, social and personal activities, and a critical thinking test have all been demonstrated to be influenced by specific personality traits (Bauer & Liang, 2003). According to Jamuar (as cited in Barmola, 2013, p. 531), effective learning requires both effective teaching strategies and enjoyable learning techniques.

According to Tiwari and Bansal "children who do well in school are treated well, behave well, and are self-sufficient." Conversely, underachievers are dismissed from their jobs, deemed incapable, and ultimately fail in life. Students should be given both physical and mental exercise (as cited in Adsul, 2011, p. 2).

Objectives

1. To look into how academic performance is related to the home learning environment for secondary school students in the Thanjavur district of Tamil Nadu.
2. To assess how academic performance and family environment are related.
3. To investigate how demographic factors, including gender, geographical location, class, type of school, and media for instruction, affect academic performance and home environment.
4. To determine the extent to which family environment influences academic performance across different educational settings.
5. To provide recommendations for improving home learning conditions to enhance students' academic outcomes.

Hypotheses

1. The academic performance of secondary school pupils and their family environment is positively and significantly correlated.
2. Gender-based differences in academic success and family environment are substantial.
3. Rural and urban students' home environments differ significantly, and so does their academic performance.
4. The family environment and academic performance of students in grades 9 and 10 differ significantly.
5. Students from various types of schools (private, aided, and government) differ significantly in their familial environments and academic performance.
6. Learning outcomes and home environment change significantly depending on the language of teaching (English vs. Tamil).

Methodology

Participants

To examine secondary school pupils in grades 9th and 10th, the 200 teenagers that made up the representative sample for this study were further divided into 108 boys and 92 girls. The sample was selected from Thanjavur district, Tamil Nadu, using purposive sampling.

Tools

Family Environment

The Family Environment Tool, developed by Saidulu Kare and Govindarajan, was used to assess various facets of the home learning environment. The tool measures critical factors such as parental involvement, educational support, socio-emotional environment, communication, home study facilities, and so on, which collectively represent students' home environment. It uses a structured questionnaire with Likert scales to measure the impact of the home environment on students' academic performance. Reliability was assessed using Cronbach's alpha (α = .82), and validity was established through expert validation, which confirmed its effectiveness in measuring students' home environments.

Academic Achievement

Academic achievement data were collected from school records, representing the total marks students obtained in their most recent examinations. The maximum possible score was 500, and these scores were used for analysis.

Statistical Analysis

The distributions of family environment ratings and academic achievement were evaluated using descriptive statistics, including mean and standard deviation. The relationship between family environment and academic achievement was assessed using Pearson correlation analysis, which revealed significant differences by gender, geography, grade, and media. Instruction was assessed using independent-samples *t*-tests. Using a one-way ANOVA (*F*-test), differences in these characteristics were also investigated across different types of schools, including government, aided, and private schools. A statistically significant threshold of $p \leq .001$ was established for evaluating the degree of group differences and relationships. *p*-values were used to test for significance.

Results

Family Environment

Table 1

Mean and Standard Deviation of Family Environment and Academic Achievement Among Secondary School Students

Variables	*M*	*SD*
Family environment	187	32.9
Academic achievement	380	66.4

Note. $N = 200$. Academic achievement scores are based on a total of 500 marks.

The academic achievement scores are based on a total of 500 marks, obtained from students' school examination records. The Mean score for family environment is 187, with a standard deviation of 32.9, based on a sample size of 200. Similarly, the mean score for academic achievement is 380, with a standard deviation of 66.4 for the sample size. These values suggest a general distribution of scores across both variables, providing insight into the data's central tendency and variability. The nature of the association between academic achievement and the familial environment may become clearer with additional statistical study.

Table 2 presents the mean, standard deviation, and independent-samples *t*-test results for family environment scores among secondary school students ($N = 200$) across four demographic variables: gender, locality, class, and medium of instruction. Regarding gender, boys ($M = 185$, $SD = 32.1$) and girls ($M = 189$, $SD = 33.7$) showed similar family environment scores, with a *t*-value of .933 and a *p*-value of .352, indicating no statistically significant difference. For locality, rural students ($M = 202$, $SD = 25.8$) scored significantly higher than urban students ($M = 171$, $SD = 32.2$), with a *t*-value of 7.43 and $p \leq .001$, indicating a significant difference favoring rural students. In the term of grade 9th students ($M = 200$, $SD = 29.3$) performed significantly better than grade 10th students ($M = 174$, $SD = 31.4$), with a *t*-value of 5.86 and $p \leq .001$, reported significantly higher family environment scores than tenth-grade students. Finally, for medium of instruction, Tamil medium students ($M = 202$, $SD = 25.7$) scored

significantly higher than English medium students (M = 171, SD = 32.1), with a t-value of 7.56 and $p \leq .001$, indicating a significant difference based on the medium of instruction. Overall, Table 2 demonstrates that family environment differs significantly based on locality, class, and medium of instruction, whereas gender does not produce a significant difference.

Table 2
Mean, Standard Deviation, and t-Test Results for Family Environment by Gender, Locality, Grades, and Medium of Instruction

Variables	*n*	*M*	*SD*	*t*	*p*	Remark
Gender						
Boys	108	185	32.1	0.93	.352	NS
Girls	92	189	33.7			
Locality						
Rural	102	202	25.8	7.43	≤.001	S
Urban	98	171	32.2			
Grade						
9th	98	200	29.3	5.86	≤.001	S
10th	102	174	31.4			
Medium						
Tamil	101	202	25.7	7.56	≤.001	S
English	99	171	32.1			

Note. N = 200. NS = not significant, S = significant.

Table 3
One-Way ANOVA Results for Family Environment by Type of School

Type of school	*n*	*M*	*SD*	*F*	*p*	Remark
Government	70	202	25.7	24.9	≤.001	S
Aided	65	190	31.2			
Private	65	167	31.7			

Note. N = 200. S = significant.

The analysis of family environment among secondary school students across different types of schools reveals significant variations. Government school students exhibited the highest mean score (M = 202, SD = 25.7), followed by aided school students M = 190, SD = 31.2), while private school students had the lowest mean score (M = 167, SD = 31.7). The obtained F-value of 24.9 with a significance level of $p \leq .001$ indicates a statistically significant difference in family environment across these groups. This suggests that students from government schools experience a more supportive or enriched family environment compared to those from aided and private schools.

Academic Achievement

Table 4
Mean, Standard Deviation, and *t-Test Results* for *Academic Achievement* by *Gender, Locality, Class*, and *Medi*um of *Instruction*

Variables	*n*	*M*	*SD*	*t*	*p*	Remark
Gender						
Boys	108	367	60.5	3.01	.003	S
Girls	92	395	70.2			
Locality						
Rural	102	351	60.1	-7.00	≤.001	S
Urban	98	410	59.2			
Grade						
9th	98	373	66.4	-1.44	.151	NS
10th	102	387	66.2			
Medium						
Tamil	101	350	59.7	-7.18	≤.001	S
English	99	411	59.0			

Note. N = 200. NS = not significant, S = significant.

The analysis of academic achievement among secondary school students by gender, locality, class, and medium of instruction reveals significant differences across most categories. Girls (M = 395, SD = 70.2) outperform boys (M = 367, SD = 60.5), with a statistically significant t-value of 3.01 (p = .003). Urban students (M = 410, SD = 59.2) achieve higher than rural students (M = 351, SD = 60.1), with a highly significant t-value of -7.00 ($p \leq .001$). Similarly, students studying in English medium (M = 411, SD = 59.0) score significantly higher than those in Tamil medium (M = 350, SD = 59.7), as indicated by a t-value of -7.18 ($p \leq .001$). However, no significant difference in academic achievement is observed between grade 9th and 10th students (t = -1.44, p = .151). The findings suggest that gender, locality, and medium of instruction significantly impact academic performance, while grade level does not show a notable difference.

Table 5
One-Way ANOVA Results for Academic Achievement by Type of Institution

Type of school	*n*	*M*	*SD*	*F*	*p*	Remark
Government	70	344	55.5	21.3	≤.001	S
Aided	65	393	66.4			
Private	65	406	61.1			

Note. N = 200. S = significant.

The analysis of academic achievement among secondary school students by institution type reveals significant differences. Private school students have the highest mean academic achievement (M = 406, SD = 61.1), followed by aided school students (M = 393, SD = 66.4), while government school students have the lowest mean score (M = 344, SD = 55.5). The obtained F-value of 21.3 with a significance level of $p \leq .001$ indicates a statistically significant difference among the groups. This suggests that students from private and aided schools perform better academically compared to those from government schools, possibly due to differences in educational resources, teaching methods, or learning environments.

Correlation Analysis

Table 6
Pearson Correlation Between Family Environment and Academic Achievement

Variables	*df*	*r*	*p*	Remark
Family environment and academic achievement	198	-.165	.990	NS

Note. N = 200. S = significant.

The study's conclusions show that secondary school students' academic performance and their familial environment are not significantly correlated. A weak negative link is indicated by the Pearson correlation coefficient (r = -.165), and the p-value (.990) is not statistically significant. The hypothesis is rejected based on this finding, which shows that the home environment had no discernible or direct influence on students' academic performance in this study.

Table 7
Pearson Correlations Between Family Environment and Academic Achievement by Demographic Subgroups

Variables		*df*	*r*	*p*	Remark
Family Environment and Academic Achievement	Gender	198	.066	.352	NS
	Locality	198	-.467	≤.001	S
	Grades	198	-.818	≤.001	S
	Types of school	198	-.439	≤.001	S
	Medium	198	-.473	≤.001	S

Note. N = 200. NS = not significant, S = significant.

The study's conclusions show that different factors have different effects on the relationship between academic achievement and the family environment. Gender does not significantly correlate (r = .066, p = .352). Nonetheless, there is a noteworthy inverse correlation with grade (r = -.818, p ≤.001), types of school (r = -.439, p ≤.001), locale (r = -.467, p ≤.001), and medium of instruction (r = -.473, p ≤.001). These findings indicate that gender does not influence the relationship between family environment and academic achievement, while other variables show significant inverse relationships.

Discussion

The current study focused on the relationship between home learning environment and academic achievement in secondary school students. The results indicated no significant correlation between family environment and academic achievement, contradicting earlier studies (e.g., Kaur et al., 2015) that found positive correlations. This might be because of various factors that affect students in different contexts. Significant differences were found in various demographic groups in terms of locality, class, type of institution, and medium of instruction. This study agrees with Golsteyn et al. (2021), who emphasized that various external factors can influence academic achievement. It was also found that students who study in private/aided schools in urban areas and attend English-medium schools achieve better academically. This might be because they have access to more educational resources and facilities. The negative correlations found in the study also indicated that the effect of family environment varies across contexts. The study concluded that students' academic achievement depends on various factors, primarily environmental conditions.

Conclusion

Based on the study's findings, no significant relationship exists between family environment and academic achievement among secondary school students. Although the family environment has been found to play an important role in students' overall development, it does not directly affect their academic performance. However, significant differences were found across demographic and institutional factors, including gender, locality, type of institution, and the medium of instruction used for teaching. Students from private and aided institutions, urban areas, and English-medium backgrounds were found to exhibit higher academic performance than their counterparts. In addition, it was found that the relationship between family environment and academic performance differs across subgroups, with certain factors exhibiting negative correlations. Hence, it may be suggested that external educational factors more strongly influence academic performance than the family environment. It may be suggested that academic performance can be enhanced by improving overall school quality, teaching methods, and the educational resources available to students from rural and government school backgrounds.

AI Use Statement

The authors used Grammarly and ChatGPT for grammar checking, improving sentence clarity, and language improvement. The author reviewed and edited the output and takes full responsibility for the final content.

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Received: 01 March 2026
Revised: 06 April 2026
Accepted: 11 April 2026