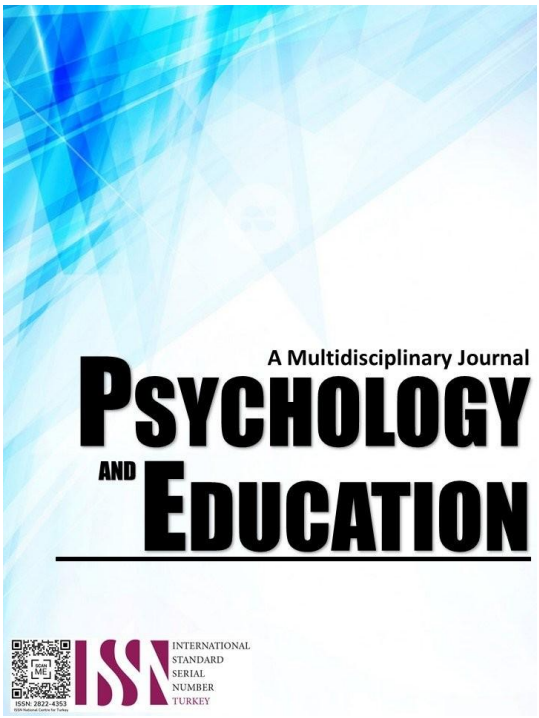
STUDENT'S ATTITUDE AND ACADEMIC PERFORMANCE IN SCIENCE CLASS AMONG THE JUNIOR HIGH SCHOOL STUDENTS OF IMMACULATE CONCEPTION ARCHDIOCESAN SCHOOL DE TETUAN



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Research Article

Student's Attitude and Academic Performance in Science Class Among the Junior High School Students of Immaculate Conception Archdiocesan School De Tetuan

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Abstract

This study explores the relationship between students' attitudes and academic performance in Science among Junior High School students at Immaculate Conception Archdiocesan School, Tetuan, during the 2025–2026 school year. It specifically examines students' attitudes toward participation, attention/focus, and interest, and how these dimensions relate to their achievement in science. A descriptive-quantitative-correlational design was employed, with a sample of 40 students from Grades 7 to 10 selected through stratified random sampling. Data were gathered using a self-administered survey questionnaire covering demographic profile, attitudes, and academic performance, and were analyzed using mean scores and regression analysis. Findings revealed that students generally exhibited high levels of participation, attention, and interest in science, which corresponded with high academic performance. Regression analysis confirmed that positive attitudes significantly predicted better performance, collectively explaining a substantial portion of the variance in students' Science achievement. These results highlight the importance of nurturing active participation, sustained attention, and genuine interest in promoting successful learning outcomes. The study concludes that fostering positive attitudes in science is crucial for enhancing students' academic performance, engagement, and motivation. The findings provide practical implications for teachers, administrators, and curriculum planners in designing strategies and interventions that cultivate constructive attitudes and support effective Science learning.

Keywords: *students' attitudes, academic performance, science education, participation, attention/focus, interest, junior high school*

Introduction

Science remains a foundational academic discipline that enables students to understand the natural world, develop critical thinking skills, and cultivate scientific literacy (Berame et al., 2022; Purnadewi, Arnawa, & Tatminingsih, 2022). Research has consistently highlighted students' attitudes, including motivation, interest, and engagement as significant predictors of science achievement. For instance, Purnadewi, Arnawa, and Tatminingsih (2022) found that interest and motivation positively influence science learning outcomes among elementary students, while interventions aimed at enhancing students' interest in science have led to notable improvements in performance (Fitri & Hasbi, 2023).

Immaculate Conception Archdiocesan School Tetuan (ICAS Tetuan), informal observations reveal variation in student engagement during science classes. Some Junior High School learners actively participate in discussions, ask questions, and eagerly engage in hands-on experiments. Others, however, appear disinterested, inattentive, or reluctant to participate in practical activities. These differences in engagement often correspond to differences in academic performance: highly engaged students tend to achieve higher grades, while less engaged students underperform.

These patterns suggest that affective factors, such as students' attitudes, interests, and participation, play a critical role in shaping academic success in science, beyond the quality of instruction or curriculum content alone. While much research emphasizes cognitive and environmental determinants of achievement, the affective dimension of learning, particularly in the context of local private schools like ICAS Tetuan, remains underexplored. Understanding these factors is therefore essential for improving science teaching and learning outcomes.

This study aims to examine the relationship between Junior High School students' attitudes toward science, operationalized in terms of participation, attention/focus, and interest, and their academic performance in science classes at ICAS Tetuan. Specifically, it seeks to assess students' attitudes, evaluate their academic performance, and determine whether a significant relationship exists between these variables. The findings are expected to inform evidence-based strategies that enhance both intellectual and emotional engagement, ultimately improving academic performance and fostering greater motivation and appreciation for science among students.

Research Questions

This study sought to investigate Junior High School students' attitudes toward science and how these attitudes influence their academic performance. Specifically, it aimed to examine the key components of attitude and their relationship with science achievement.

1. What is the students' attitude towards Science Class in terms of:
   1.1 participation;
   1.2 attention/focus; and
   1.3 interest?

2. What is the student's academic performance in science?
3. Is there a significant relationship between students' attitudes and academic performance in science?

Literature Review

Students' Attitudes and Academic Performance in Science

Science education is widely recognized as a crucial domain for developing critical thinking, problem-solving skills, and scientific literacy among students (Berame et al., 2022; Purnadewi, Arnawa, & Tatminingsih, 2022). Globally, research has shown that students' attitudes, including interest, motivation, and engagement, play a significant role in shaping their academic performance in science. Positive attitudes toward science are linked with increased participation, sustained attention, and greater perseverance in learning tasks, all of which contribute to higher achievement (Wang, Liu, & Cheng, 2021; Alamer, 2022). Theoretical frameworks, such as the Expectancy-Value Theory (Eccles & Wigfield, 2020), support these findings, suggesting that students' beliefs in their capabilities (expectancy) and the value they place on science (value) strongly influence their involvement and success in learning activities. Similarly, the Theory of Planned Behavior (Ajzen, 2020) emphasizes that positive attitudes shape students' intentions and behaviors, which, in turn, directly impact learning outcomes.

International Perspectives on Student Attitudes in Science

Studies across countries underscore the link between students' affective dispositions and academic performance in science. Research by Hidi and Renninger (2021) demonstrated that affective engagement, such as interest and attention, enhances cognitive processing and conceptual understanding. Students who are emotionally engaged in science learning exhibit higher perseverance and are better able to apply knowledge effectively. Similarly, interventions that enhance intrinsic interest and motivation in science classrooms have been shown to improve achievement among secondary school learners (Fitri & Hasbi, 2023). Alamer (2022) also highlighted that students who actively participate in experiments and value science learning are more likely to achieve academic success, reinforcing the importance of combining the affective and behavioral components of attitude to promote better learning outcomes.

Empirical research conducted internationally strengthens the argument that students' attitudes are vital for academic success in science. Kisoglu, Kaya, and Ozdemir (2021) reported that high school students with strong internal motivation and active participation achieved better results in science assessments. Huang, Lin, and Wang (2020) found that students' attention, interest, and involvement in classroom activities directly predicted their assessment outcomes. Likewise, Tuan, Chin, and Shieh (2021) demonstrated that active engagement and sustained focus in science learning contribute to better conceptual understanding and retention, emphasizing the role of affective engagement in student achievement.

Local Literature on Science Learning in the Philippines

Within the Philippine context, studies confirm that students' attitudes significantly influence science performance. Magulod (2021) found that junior high school students who actively participate, maintain focus, and exhibit enthusiasm in science classes tend to achieve higher academic grades. Capili and Reyes (2022) also noted that intrinsic motivation, curiosity, and engagement in science activities positively affect students' understanding and retention of scientific concepts. The Department of Education's STEM Education Roadmap (2023) emphasizes the integration of affective skills such as curiosity, persistence, and active engagement into science instruction, indicating that fostering positive attitudes is essential for improving learning outcomes. Additionally, classroom environments that encourage inquiry-based learning, collaboration, and hands-on experimentation have been shown to increase students' attention and interest, thereby enhancing academic performance (Santos & Villanueva, 2021; Garcia & Dela Cruz, 2022).

Philippine-based studies corroborate international findings. Garcia and Villanueva (2022) found that junior high school students who demonstrate active participation, sustained focus, and interest achieve higher science grades than their less engaged peers. Dela Cruz, Santos, and Villanueva (2021) highlighted that inquiry-based experiments and active learning strategies enhance students' engagement, thereby improving science performance. Magulod (2021) further emphasized that motivated and attentive students consistently achieve better results, suggesting that affective factors directly contribute to academic outcomes. Capili and Reyes (2022) also underscored the effectiveness of interventions targeting motivation, participation, and curiosity in promoting science learning among junior high school learners.

Both foreign and local literature converge on the conclusion that students' attitudes, particularly participation, attention, and interest, are critical determinants of academic performance in science. Theoretical models such as Expectancy-Value Theory and the Theory of Planned Behavior explain how beliefs, perceived value, and intentions influence student engagement and achievement. Empirical evidence consistently demonstrates that affective engagement enhances conceptual understanding, knowledge retention, and overall academic success. Furthermore, classroom practices that encourage active participation, inquiry, and hands-on learning significantly shape students' attitudes, which in turn affect performance outcomes. These findings collectively justify the present study, which seeks to investigate how specific dimensions of students' attitudes influence academic performance in science among junior high school students at ICAS Tetuan. The study aims to provide insights that can inform pedagogical strategies fostering both cognitive and emotional engagement, ultimately improving science learning outcomes.

Methodology

Research Design

This study employed a quantitative correlational research design to examine the relationship between Junior High School students' attitudes and their academic performance in Science at Immaculate Conception Archdiocesan School – Tetuan (ICAS Tetuan). A correlational approach is appropriate when the goal is to measure relationships among variables without manipulating conditions, allowing researchers to determine the extent to which one variable predicts another (Creswell & Creswell, 2021). This design aligns with the study's objective of identifying how students' levels of participation, attention/focus, and interest influence their achievement in science.

Respondents

The study was conducted at ICAS Tetuan, a private Catholic school in Barangay Tetuan, Zamboanga City, which serves a Junior High School population of over 800 students. Respondents were 40 Junior High School students, selected through stratified random sampling to ensure proportional representation across Grades 7 to 10 and both genders. Ten students from each grade level were chosen, providing a representative sample for examining students' attitudes and academic performance in science. Participation was voluntary, and students were included only if they were willing to complete the questionnaire.

Instrument

Data were collected using a researcher-developed, self-administered questionnaire consisting of two sections. Part I collected the respondents' demographic profile, including age, gender, grade level, and most recent Science grade. Part II measured students' attitudes and academic performance in science through four subscales: Participation, Attention/Focus, Interest, and Academic Performance. Items were rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The instrument was validated by a panel of experts in Science education and research methodology to ensure clarity, relevance, and alignment with the study objectives (Tai et al., 2022; STEM Education Journal, 2022). Reliability was assessed using Cronbach's alpha through a pilot test with non-participant Junior High School students, yielding coefficients above 0.80, indicating high internal consistency (Tavakol & Dennick, 2011; Gliem & Gliem, 2020).

Procedure

Before data collection, formal permission was obtained from the school principal and the Science teachers to ensure compliance with institutional policies and ethical standards. The self-administered questionnaires were then distributed to the 40 selected respondents during their scheduled Science classes. Before completing the instruments, participants were thoroughly informed of the study's objectives, the voluntary nature of their participation, and their right to maintain anonymity and omit any item they felt uncomfortable answering. The researcher provided detailed instructions for completing the questionnaire and remained available to clarify any questions, ensuring that participants fully understood the items. Upon completion, the questionnaires were immediately collected to maintain data integrity and completeness. Subsequently, all responses from Part I (Demographic Profile) and Part II (Students' Attitudes and Academic Performance) were systematically coded and organized for entry into the statistical software for quantitative analysis.

Data Analysis

Quantitative data were analyzed using descriptive and inferential statistics. The Average Weighted Mean (AWM) was computed to summarize students' attitudes and academic performance in science, categorizing responses into high, moderate, or low levels (Creswell & Creswell, 2021). Multiple regression analysis was employed to determine the extent to which independent variables—Participation, Attention/Focus, and Interest—predicted the dependent variable, Academic Performance in Science, allowing for an assessment of each variable's contribution while controlling for others (Field, 2020; Pallant, 2020).

Ethical Considerations

This study adhered to ethical standards for educational research. Administrative approval was obtained from the school principal, and informed consent was secured from all student respondents. Participants were assured of confidentiality, anonymity, and voluntary participation, and they were informed that they could withdraw at any time without consequences. Data were stored securely and will be destroyed after completion of the study. The study ensured that participation posed no psychological, social, or academic risk, maintaining the welfare of all respondents throughout the research process (American Psychological Association, 2020).

Results

What is the students' attitude towards Science Class in terms of Participation, Attention/Focus, and Interest?

Table 1 shows the students' attitude towards science class in terms of participation. The data indicate that students are most responsive during class discussions (WM = 4.25, Very High), suggesting that they are highly engaged when allowed to share their ideas orally. Volunteering to answer questions in class also scored high (WM = 4.10, High), reflecting students' willingness to contribute to the learning process. Contributing ideas during group activities (WM = 3.95, High) and asking questions when they do not understand

(WM = 3.85, High) were slightly lower but still indicate a positive level of participation.

Table 1. *The students' attitude towards Science Class in terms of Participation*

Statements	*Weighted Mean*	*Description*
I actively participate during science class discussions.	4.25	Very High
I volunteer to answer questions in science class.	4.10	High
I contribute ideas when working in group activities.	3.95	High
I ask questions in science class when I do not understand.	3.85	High
Average Weighted Mean	4.04	High

The overall weighted mean of 4.04 (High) suggests that Junior High School students at ICAS-Tetuan generally participate substantially in science classes. This aligns with previous research indicating that active engagement and participation in science learning activities promote a better understanding of scientific concepts, retention of scientific concepts, and overall academic performance (Kaur & Suri, 2022; Magulod, 2021). Therefore, the findings imply that participation is a notable component of students' positive attitudes toward science, which may contribute to their academic success.

Table 2. *The students' attitude towards Science Class in terms of Attention/Focus*

Statements	*Weighted Mean*	*Description*
I listen attentively to the teacher during science lessons.	4.30	Very High
I avoid distractions during science class.	4.05	High
I follow instructions carefully in science activities.	3.95	High
I take down notes or highlight important details.	3.90	High
Average Weighted Mean	4.05	High

Students showed very high attentiveness to the teacher during lessons (WM = 4.30), indicating strong focus. Avoiding distractions (WM = 4.05), following instructions (WM = 3.95), and taking notes (WM = 3.90) were high but slightly lower than the first item. The overall average of 4.05 confirms that students maintain high attention and focus, supporting effective cognitive engagement in science class. This outcome supports the Expectancy–Value Theory, which posits that students are more likely to achieve academically when they actively concentrate on learning tasks (Eccles & Wigfield, 2020).

Table 3. *The students' attitude towards Science Class in terms of Interest in Science*

Statements	*Weighted Mean*	*Description*
I enjoy learning new Science concepts.	4.15	High
I look forward to attending Science class.	4.05	High
I like doing experiments and hands-on Science activities.	4.00	High
I read or watch additional Science-related materials outside class.	3.80	High
Average Weighted Mean	4.00	High

Table 3 shows the students' attitude towards science class in terms of interest. The data indicate that students generally enjoy learning new science concepts (WM = 4.15, High), suggesting strong intrinsic motivation and curiosity about the subject. Looking forward to attending science class (WM = 4.05, High), participating in experiments and hands-on activities (WM = 4.00, High), and reading or watching additional science-related materials outside class (WM = 3.80, High) also reflect a high level of interest, though slightly lower than the enjoyment of new concepts. The overall weighted mean of 4.00 (High) indicates that Junior High School students at ICAS-Tetuan maintain a strong interest in science, an essential affective factor supporting engagement and academic performance. These findings are consistent with previous studies suggesting that students who are intrinsically motivated and interested in science tend to achieve better learning outcomes and retain concepts more effectively (Kaur & Suri, 2022; Magulod, 2021).

Table 4. *Students' Academic Performance in Science*

Statements	*Weighted Mean*	*Description*
I exert effort in studying for science quizzes and exams.	4.20	Very High
I accomplish my science assignments and projects on time.	4.10	High
I prepare and review my science lessons regularly.	4.00	High
I am confident that I can achieve a good grade in science.	3.95	High
Average Weighted Mean	4.06	High

Table 4 shows the students' academic performance in science. The results reveal that students exert very high effort in studying for quizzes and exams (WM = 4.20, Very High), demonstrating their dedication to academic tasks. Completing assignments and projects on time (WM = 4.10, High), regularly preparing and reviewing lessons (WM = 4.00, High), and confidence in achieving good grades (WM = 3.95, High) also indicate strong academic engagement. The overall weighted mean of 4.06 (High) suggests that Junior High School students at ICAS-Tetuan generally perform well in science. These findings imply that positive attitudes, as reflected in participation, attention, and interest, are reflected in students' academic outcomes. This aligns with previous research showing that affective factors in science learning, such as motivation, engagement, and curiosity, significantly influence students' performance and understanding of scientific concepts (Magulod, 2021; Kaur & Suri, 2022).

Is there a significant relationship between students' attitudes and academic performance in science?

Table 5. *Regression Analysis Between Students' Attitude and Academic Performance in Science.*

Independent Variable	*Dependent Variable*	*R*	*R²*	*T*	*P-value*	*Interpretation*
Students' Attitude (Participation, Attention, Interest)	Academic Performance in Science	0.792	0.627	16.84	0.000	Significant

Table 5 shows the relationship between students' attitudes and their academic performance in science. The correlation coefficient ($R = 0.792$) indicates a strong positive relationship, suggesting that students with higher levels of participation, attention, and interest tend to achieve better academic outcomes. The coefficient of determination ($R^2 = 0.627$) indicates that approximately 62.7% of the variance in science performance is explained by students' attitudes, highlighting the substantial influence of affective factors on learning outcomes. The computed t-value ($T = 16.84$) and p-value (0.000) demonstrate that this relationship is statistically significant at the 0.05 level. These findings imply that Junior High School students at ICAS-Tetuan who actively engage in class discussions, maintain focus, and show genuine interest in science are more likely to excel academically. This supports previous studies emphasizing the critical role of affective components, including motivation, engagement, and curiosity, in predicting Science performance (Magulod, 2021; Kaur & Suri, 2022). Moreover, the results underscore the importance of addressing students' attitudes—behavioral, cognitive, and affective—to enhance achievement, aligning with current educational frameworks that promote holistic development, where both cognitive skills and affective engagement are essential for success in STEM disciplines (DepEd, 2023).

Conclusions

Based on the findings of this study, it is concluded that Junior High School students at Immaculate Conception Archdiocesan School – Tetuan generally demonstrate high levels of participation, attention, and interest in science classes. Among the attitudinal components, participation scored the highest, reflecting active engagement in class discussions, group activities, and voluntary responses during lessons. Attention and focus were also high, as students carefully followed instructions, avoided distractions, and maintained concentration during activities. Interest in Science, while slightly lower, remained strong, as evidenced by enjoyment of experiments, curiosity in exploring new concepts, and engagement with supplementary Science materials outside the classroom (Magulod, 2021; Kaur & Suri, 2022). The regression analysis further revealed a strong and significant relationship between students' attitudes and their academic performance in Science ($R = 0.792$, $R^2 = 0.627$, $p = 0.000$). This indicates that approximately 62.7% of the variance in science performance can be explained by the combined effect of participation, attention, and interest. In practical terms, learners who demonstrate higher engagement, motivation, and curiosity are more likely to attain better academic outcomes. These findings underscore the critical role of affective factors in science learning, emphasizing that students' attitudes significantly influence both comprehension and achievement (DepEd, 2023; Magulod, 2021). Overall, fostering positive attitudes toward science is essential not only for improving academic performance but also for cultivating curiosity, intrinsic motivation, and a lifelong interest in scientific inquiry. By enhancing participation, attention, and interest, students are better positioned to develop critical thinking skills, retain scientific knowledge, and achieve holistic academic success.

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