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Correlation Between Academic Motivation and Technical Education performance Among Secondary School Students.

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Abstract

The study examined the connection between secondary school students' academic performance in technical education and their level of academic motivation. In the study, a correlation survey was employed. Two hypotheses that were examined at the 0.05 alpha level served as the study's compass. Using a simple random sampling technique, 150 students were chosen as a sample from among 300 senior secondary two (SS2) technical education students in the Ethiopia East region of Delta State, Nigeria, during the 2024–2025 academic years. Data was collected using the Academic Motivation Questionnaire (AMQ), which was evaluated by three experts and has a reliability score of 0.68 according to Cronbach Alpha. The technical education exam results for the SS3 class of 2024–2025 show how well the students performed in the discipline. The Pearson product moment correlation was used to examine the collected data. The study's findings indicated a negative correlation, and most students expressed high levels of motivation. There was no discernible relationship between students' academic motivation and their technical education success. In technical education, there were also notable differences in the academic achievement of students who were highly and poorly motivated.

Keywords: Motivation, Technical education, performance, secondary school

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Introduction

Academic motivation is defined as the internal drive that compels a student to participate in learning activities and strive for success (Zambuk, 2021). In technical education—often referred to as Technical and Vocational Education and Training (TVET) or Technical and Livelihood Education (TLE)—motivation is particularly critical because students must master both theoretical concepts and complex manual skills (Abdelrahman, 2020). Technical education at the secondary level (Technical Colleges and Junior Secondary Basic Technology) focuses on the acquisition of practical skills and scientific knowledge. In Nigeria, the relationship between a student's drive (motivation) and their ability to master these technical competencies is significant. Motivation is categorized into intrinsic (internal interest) and extrinsic (external rewards like grades or job prospects (Zambuk, 2021).

In the Nigerian educational system, technical education at the secondary level (typically found in Technical Colleges and through subjects like Basic Technology) is designed to provide students with practical skills for self-reliance. Despite its importance, students often face societal stigma, leading to varied levels of academic motivation (Okwelle & Agwi, 2018). In Nigerian Technical Colleges and secondary schools offering Basic Technology, academic motivation serves as a differentiator. Students with high academic motivation are characterized by persistence, regular workshop attendance, and a positive attitude toward manual labour. Conversely, students with low academic motivation often view technical education as a second-class path, leading to poor engagement and low achievement (Zambuk, 2021).

Research conducted in technical secondary schools found a significant direct relationship between academic motivation and performance in technical mini-courses like mechanical drafting and pastry production (Zambuk, 2021). Students with higher motivation levels demonstrated better tenacity toward difficult technical tasks (Khalique & Singh, 2019). While both types of motivation (intrinsic and extrinsic) contribute to success, intrinsic motivation is often a stronger predictor of long-term skill retention. According to Alhassan et al. (2025), highly motivated students achieve better outcomes because they view studying as a pathway to professional mastery rather than just a school requirement. An empirical study by Alhassan et al. (2025) in Northern Nigeria found a significant positive relationship between motivation and academic achievement in secondary technical subjects. The study noted that students with high motivation levels were more likely to persist through difficult practical workshop exercises compared to their less-motivated peers.

In technical education, motivation is closely linked to self-efficacy—the belief in one's ability to perform specific technical tasks. Studies show that students who believe they can successfully manipulate tools or solve technical problems exhibit higher motivation and, consequently, better grades (Pena et al., 2015). Interestingly, some empirical evidence suggests that vocational students who are concurrently employed or have clear career goals show significantly higher motivation scores than their peers (Utvær & Haugan, 2016). Empirical data from secondary schools in Nigeria indicates a significant relationship between student motivation and academic achievement. Studies in Northern Nigeria (e.g., Katsina State) have shown that as student motivation increases, there is a corresponding rise in performance in technical subjects (Alhassan et al., 2025). Extrinsic motivation—such as the desire for immediate employment or parental approval—is a powerful driver. However, students who exhibit intrinsic motivation (a genuine interest in the craft, such as carpentry or electronics) tend to persist longer in difficult workshop tasks compared to those purely driven by grades (Zambuk, 2021). While some studies suggest male students in Nigeria show a slightly higher disposition toward technical education, empirical results frequently show no significant difference in the actual *relationship* between motivation and performance across genders. Both male and female students perform better when adequately motivated (Alhassan et al., 2025).

The motivation of the teacher is a proxy for student success. Research in Ilorin and Rivers State suggests that when technical teachers are demotivated (due to poor salaries or lack of equipment), student academic performance in technical subjects drops significantly (Zambua, 2025; Agorondu, 2022). Research by Olugbade et al. (2024) explored how modern tools (like PhET simulations) influence student motivation toward Basic Science and Technology. The findings indicated that when students are motivated by interactive technology, their academic performance in technical theory and practicals improves significantly (R=0.87).

A study by RSIS International (2023) highlighted a developing apathy where nearly 95.5% of sampled students initially held a negative attitude toward technical courses due to societal perception. However, the study found that for the small percentage of students who remained motivated, their academic performance was disproportionately higher than the unmotivated majority. Dumbiri and Nwadiani (2020) found that individual factors, specifically self-motivation and perseverance, were stronger predictors of success in Vocational and Technical Education (VTE) than even the availability of instructional materials. This suggests that in resource-poor Nigerian schools, a student's internal drive compensates for lack of equipment.

Empirical research conducted in North-Eastern Nigeria by Zambuk (2021) found a statistically significant difference in the mean performance scores of students with high and low motivation. Students categorized as highly motivated scored significantly higher in both theory and practical components of technical subjects like Woodwork and Metalwork compared to those with low motivation levels. In a study of technical students in Rivers State, Okwelle and Agwi (2018) observed that students with high intrinsic motivation were more likely to master complex technical tasks (e.g., circuit soldering or engine dismantling). Students with low motivation tended to abandon projects when they encountered mechanical difficulties, leading to lower grades in continuous assessments.

Research published by RSIS International (2023) regarding Nigerian students' attitudes toward technical education highlighted that student with low motivation levels often suffer from technical apathy. This group showed a failure rate nearly 40% higher than the high-motivation group, primarily because they lacked the interest to engage in repetitive practical exercises.

A unique finding in the Nigerian context is that highly motivated students often improvise when workshop tools are missing. According to Dumbiri and Nwadiani (2020), students with high motivation levels in resource-constrained schools still outperformed students with low motivation in well-equipped schools, proving that the psychological drive can sometimes compensate for a lack of physical infrastructure.

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Statement of the Problem

Despite government interventions and extensive research aimed at improving technical education, secondary school students—particularly in Ethiope east district, Delta State consistently exhibit poor academic performance. While traditional factors such as a shortage of qualified teachers and inadequate instructional resources are often blamed, a critical issue lies in the students' psychological disposition. The core of the problem is a pervasive lack of academic motivation, manifested through: Intense dislike, hatred, and fear leading students to avoid classes. A reliance on examination malpractice and unethical parental assistance rather than personal study. A resulting failure to engage with the subject, which creates a cycle of persistent underachievement and failure in external examinations.

Methods

The design of this study was a correlation survey. Three hundred senior secondary two (SS 2) technical; education students from the twenty-four public secondary schools in the Ethiopia East local government region, Delta State of Nigeria made up the research population. The One hundred and fifty studrnts from twenty-four Senior Secondary Schools (SS2) made up the study's sample. Simple random sampling was used to make the selection. The Academic Motivation Questionnaire (AMQ) was the tool used to collect data. The students' technical education results from the three terms of the 2024–2025 school year were used to evaluate their academic success. The instrument was validated by three specialists. Cronbach's alpha statistics were used to assess the internal consistency of the AMQ items, and the alpha coefficient value was 0.68.The research hypotheses were addressed using the Pearson moment correlation coefficient. The significance of the association between the two significant variables was assessed, and the null hypotheses were tested at 0.05 alpha levels using the t-test of correlation analysis.

RESULTS AND DISCUSSION

Results

Hypothesis one: There is no significant relationship between academic motivation and academic performance among these students in technical education.

Table 1: Pearson Product Moment Correlation Statistics showing relationship between academic motivation and students' academic performance.

Variable	N	R	r^2	r^2%	Sig(2-tail)
Motivation – performance	150	-0.041	0.0017	0.17%	0.721

In Table 1, the Pearson r value indicates a very weak negative correlation. The value is so close to zero that, for practical purposes, there is virtually no linear relationship between the two variables. Coefficient of Determination (r^2%=0.17%): This reveals that academic motivation accounts for only 0.17% of the variance in students' academic performance. This implies that 99.83% of the factors affecting performance are attributed to other variables not captured in this specific test. Since the p-value (0.721) is significantly greater than the standard alpha level of 0.05, the relationship is not statistically significant.. The null hypothesis which states that there is no significant relationship between academic motivation and academic performance among these students in technical education is accepted.

Hypothesis Two: There is no significant difference between the academic performance of students with high and low motivation in Technical Education,

Table 2: Independent t-test analysis of students' academic motivation, percentages and their academic performance Technical Education (N = 150)

Levels	N	Percentage	t-value	P-value
High Motivation	85	56.67		
			3.51	0.000
Low Motivation	65	43.33		
Total	150	100		

The Table 2 presents a comparison between two distinct groups within the sample. Distribution (N and %): Out of 150 students, 85 (56.67%) were categorized as having High Motivation, while 65 (43.33%) were categorized as having Low Motivation. The t-test value of 3.51 indicates a significant gap between the two groups. In research, a t-value this high typically suggests that the difference in academic performance between highly motivated and lowly motivated students is not due to chance. Since the p-value is less than the standard significance level ($p<0.05$), the result is highly statistically significant. There is a significant difference in the technical education academic performance of secondary school students based on their levels of academic motivation. Students with high motivation levels perform significantly better than those with low motivation levels. The null hypothesis which states that there is no significant difference between the academic performance of students with high and low motivation, is rejected.

Discussion of Findings

The result indicates that in this specific study, a student's level of motivation did not translate into better or worse academic grades. The findings suggest that even if a student is highly motivated, other structural barriers in the Nigerian educational system may prevent that motivation from yielding high scores. As noted by Dumbiri and Nwadiani (2020), in technical education, a student's desire to learn (motivation) can be completely neutralized by a lack of functional workshop equipment and a shortage of qualified instructors.

In the context of the problem statement provided earlier, the hatred or fear of Technical education courses might be so intense that it overrides motivation. Adedeji (2022) argues that when students experience high levels of subject-specific anxiety, their psychological motivation fails to improve performance because their cognitive processing is blocked by stress. The non-significant

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and near-zero correlation may also reflect the unethical methods mentioned in the research background. If academic performance scores are influenced by examination malpractice or parental interference, the relationship between a student's internal motivation and their final grade becomes distorted and statistically invisible.

The findings of this t-test provide strong empirical evidence that motivation is a deciding factor in Technical education success among Nigerian secondary school students. The significant t-value (3.51) confirms that students who possess the internal drive to succeed are better equipped to handle the complexities of technical subjects. This aligns with the findings of Tella (2017), who asserted that highly motivated Nigerian students demonstrate greater persistence in solving technical problems, leading to higher achievement scores than their unmotivated counterparts. As noted in the statement of the problem, many students dislike, hate, or fear technical subjects. These results suggest that the 56.67% of students with high motivation have likely developed psychological resilience against this fear. According to Adedeji (2022), motivation acts as a mediator that reduces anxiety, allowing students to focus on learning rather than avoidance. The 43.33% of students in the low motivation category represent a significant portion of the population at risk of academic failure. In the Nigerian context, Alhassan et al. (2025) noted that low motivation often stems from a lack of instructional materials and poor teacher-student relationships, which leads to the poor performance .

Conclusion

The study concludes that academic motivation is a critical determinant of success in Technical education. Therefore, to improve students' results in Delta State, interventions must focus not only on providing textbooks but also on psychological strategies to boost student motivation. The study proves that increasing motivation alone, without addressing the underlying issues of resource scarcity and exam integrity, will not improve academic outcomes. The consensus in Nigerian TVET (Technical and Vocational Education and Training) research is that motivation is a catalyst. While government funding and workshop tools are necessary, they are insufficient without highly motivated students. The empirical evidence confirms that for Nigerian technical students, motivation is not just a psychological bonus but a necessity for overcoming the challenges of ill-equipped workshops and societal bias. Highly motivated students are more likely to bridge the skill gap and achieve mastery in their respective trades.

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