

THE EFFECT OF MOTIVATIONAL GOALS AND TASK-VALUE BELIEFS ON ACADEMIC ACHIEVEMENT IN ELECTRONICS TECHNOLOGY AT THE UNIVERSITY LEVEL

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ABSTRACT

Understanding the factors that influence student success is essential for improving educational outcomes in technical and technology-based programmes. Therefore, this study investigated the relationships between motivational goals, task-value beliefs, and academic achievement among electronics technology students in selected Nigeria universities. A correlational survey design was employed. Data were collected from 158 third-year electronics technology students in selected Nigerian universities using the Achievement Goal Questionnaire, the Task Value subscale of the MSLQ, and the students' previous academic records. The instrument was validated by experts, and it had a reliability coefficient of 0.83. Data were analysed using Pearson's product-moment correlation. Results revealed a moderate positive and statistically significant relationship between motivational goals and academic achievement ($r = .509, p < .05$). It is apparent that students with higher motivational goals tend to perform better. Conversely, the relationship between task-value beliefs and academic achievement appears weak and not statistically significant ($r = .154, p > .05$). This indicates that the perceived importance of the academic tasks performed does not directly affect student performance. It was concluded that, while task-value beliefs require further exploration, motivational goals are crucial variables for success in school. In order to improve student outcomes in electronics technology education, enhanced academic counselling, regular curriculum review, and use of motivational teaching strategies were recommended.

Keywords: Motivational goals, task-value beliefs, academic achievement

Introduction

Technology-oriented education has become important worldwide because of its role in promoting innovation, development, and economic empowerment. As a result, universities are placing emphasis on technical and vocational education as a strategy for promoting technological development (Nwosu & Monday, 2017). Electronics Technology is one of the courses offered in Nigerian universities to develop technological competence among students. Electronics, as described by Atsumbe et al. (2018), is a science and technology field that entails the study of how electrons behave and are controlled in electric circuits, as well as their effects in vacuums, gases, and semiconductors. The aim of Electronics Technology is to help students understand basic electronic components and lay a solid foundation for communication and control systems. Electronics Technology also provides a foundation for creativity and technological development in electronics, and it stimulates, develops, and enhances entrepreneurial skills in the field (FRN, 2014). In order for these objectives to be realised, students studying Electronics Technology need to develop interest, a positive attitude, self-esteem, and motivation towards participating in the tasks and activities required for the course, as well as to apply these effectively in the classroom. This may determine their instructional success, which is measured by their academic achievement. Additionally, in order to attain good academic achievement, students enrolled in the Electronics Technology programme need to be motivated to pursue their academic goals.

Setting goals can improve one's motivation and has the potential to result in tangible outcomes upon successfully completing a task. There is a sense of accomplishment whenever a task is completed, and this motivates a person to continue striving. Students' motivational goals refer to the specific objectives and aspirations that drive them to take action, persist in their efforts, and achieve success in their educational pursuits (Muenks et al., 2018). These goals can vary from one student to another based on personal interests, values, and experiences. There are three categories of motivational goals: mastery goals, performance-approach goals, and performance-avoidance goals. Mastery goals are when students aim to acquire the maximum amount of knowledge; performance-approach goals refer to the desire to perform better than other students; and performance-avoidance goals involve attempting not to perform worse than others (Suhag et al., 2016). Motivation, which is a key cause of success in all human endeavours, plays an important role in the lives of learners at all levels because it determines the extent of goal accomplishment. Various factors can lead individuals to achieve their goals. Some of these motivational goals for students include obtaining good academic results, social status, social approval, and life aspirations, among others. Apart from motivational goals, the perception of task value and other variables can influence the quality of students' academic achievements (Chiang et al., 2022; Mete, 2021; Green, Conlon & Morrissey, 2017).

Task-value beliefs are psychological constructs relating to how individuals perceive the value or importance of a particular task or activity. Such beliefs describe one's view about any assigned task. In the educational context, task-value beliefs refer to a student's perception of the significance, relevance, and personal worth of the tasks they are asked to perform in a learning environment (Eguin et al., 2024). Task value has been identified by many researchers as an important predictor of students' academic performance (Hofer et al., Al-Harthy & Aldhafri, 2014). Furthermore, Oyuga et al. (2019) noted that task values coupled with self-efficacy are among the combinations of variables that predict academic performance. Therefore, task-value beliefs can motivate students to engage deeply with learning when they find tasks enjoyable, aligned with their purposes, or conducive to their long-term goals. Students with high expectations of success are more likely to value learning tasks assigned by instructors than those who do not. Consequently, the value a student attaches to a task is expected to play a significant role in their motivation for mastery and, ultimately, in their academic achievement.

The successful outcomes of any action taken are referred to as achievement. Achievement represents performance outcomes that indicate the extent to which students have accomplished specific goals. Academic achievement specifically refers to performance outcomes indicating how far a person has progressed towards a specific set of goals in instructional settings such as schools, colleges, and universities (Steinmayr et al., 2014). It can also signify the attainment of academic milestones, such as earning a bachelor's degree (Suleiman, 2023). Some factors that determine the level of students' academic achievement include time management, self-efficacy, motivation, self-concept, engagement, interest, expectancy, behaviour, and attitudes, among others (Kang & Keinonen, 2018).

Furthermore, Electronics Technology students with low motivational goals and weak task-value beliefs may exhibit less concern in their attitude and behaviour towards learning, which can negatively affect their level of achievement. This may also have implications for their competency after graduation, rendering them potentially unemployable or unable to be self-employed, thus limiting their positive contribution to society. Electronics Technology as a course of study is expected to equip prospective graduates with the requisite skills needed for self-reliance and gainful employment across numerous career opportunities (Lawal et al., 2023). These skills range from theoretical concepts that enhance cognitive ability to practical skills that improve psychomotor skills, foster creativity, and facilitate job creation. Unfortunately, the reverse has often been the case. Electronics Technology graduates produced by universities frequently lack adequate skills in various areas (Abides, 2024). Many do not possess full knowledge and experience of what they have studied, finding it difficult to apply their learning in practice. Some cannot troubleshoot minor electronic faults, let alone possess the competencies required to

advance the nation's technological development. In Africa, it is essential to address these concerns due to the need for a skilled technological workforce that is capable of addressing developmental challenges.

It is essential to find ways to help Electronics Technology students function to their full potential. Therefore, this study addressed this gap by investigating the relationships among motivational goals, task-value beliefs, and achievement among Electronics Technology students in Nigerian universities.

The study tested the following hypotheses:

Hypothesis 1

H₀: There is no significant relationship between motivational goals and the academic achievement of Electronics Technology students in Nigerian universities.

H₁: There is a significant relationship between motivational goals and the academic achievement of Electronics Technology students in Nigerian universities.

Hypothesis 2

H₀: There is no significant relationship between task-value beliefs and the academic achievement of Electronics Technology students in Nigerian universities.

H₁: There is a significant relationship between task-value beliefs and the academic achievement of Electronics Technology students in Nigerian universities.

Literature Review

Motivation and Achievement in Education

Motivation is widely recognised as a key factor influencing academic achievement and overall student success in educational settings. It is broadly conceptualised as the internal processes that initiate, direct and sustain goal-directed behaviours, such as study habits, attendance, persistence, and active participation in learning activities. Across various theoretical perspectives, motivation is considered the driving force behind students' effort, persistence and resilience when facing academic challenges. For example, Self-Determination Theory (SDT) distinguishes between intrinsic motivation (engaging in a task for its inherent satisfaction) and extrinsic motivation, which is driven by external rewards or pressures. Findings from previous research suggest that intrinsic motivation is more consistently associated with deep learning, creativity, and sustained academic achievement (Deci & Ryan, 1985; Ryan & Deci, 2000).

Another influential framework is Achievement Goal Theory (AGT). This theory differentiates between mastery goals, where students strive to develop competence and master tasks, and performance goals, which focus on demonstrating ability relative to others (Ames & Archer, 1988; Elliot & McGregor, 2001). Studies consistently show that mastery-oriented students exhibit higher levels of engagement and achieve better academically because their motivation is self-referential and centred on personal growth.

Conversely, a performance orientation can foster anxiety and avoidance behaviours, particularly in competitive or evaluative contexts. Additionally, the concept of self-efficacy, derived from Bandura's Social Cognitive Theory, emphasises the role of students' beliefs about their capability to succeed in specific tasks. High self-efficacy has been strongly linked with greater persistence, strategic learning, and academic success (Bandura, 1997).

Empirical evidence also supports a positive correlation between motivation and academic achievement. Motivated students tend to invest more time and effort in learning, resulting in better comprehension and improved grades (Shi, 2024). Moreover, motivation enhances performance on standardised assessments by encouraging focused and dedicated study habits (Zimmerman, 2008). High motivation is also associated with a positive academic attitude and a resilient work ethic, both of which are critical for success (Di Serio et al., 2013). Conversely, low motivation is frequently linked with disengagement, reduced effort, dropout, and lower achievement. Motivational constructs are influenced by internal factors, such as self-efficacy and goal orientation, and external factors, such as classroom environment and instructional strategies. For instance, supportive teacher-student relationships and autonomy-supportive classrooms enhance motivation, thereby indirectly boosting achievement (Schunk, Pintrich & Meece, 2014). In summary, motivation acts as a catalyst that energises, directs and sustains students' academic endeavours, making it a pivotal focus for educators aiming to enhance student achievement.

Task-Value Beliefs and Academic Achievement

Task-value beliefs represent students' evaluative judgements about the tasks they are engaged in, and it encompasses several dimensions critical to motivation. According to Eccles and Wigfield's expectancy-value theory, task value is integral to students' decisions to allocate effort and persist in academic activities. The construct is multifaceted, comprising intrinsic value, utility value, attainment value, and cost. Intrinsic value refers to the personal interest and enjoyment derived from the task itself and is often linked with curiosity and engagement. For example, students who find electronics technology projects inherently fascinating are more likely to invest sustained effort. Utility value reflects the perceived relevance of the task to future goals, such as career plans or educational trajectories. If students believe that mastering electronics theory enhances their employability or capacity for innovation, their motivation to engage increases. Attainment value involves the personal importance of excelling in the task, often connected to one's identity or self-concept, such as seeing oneself as a successful engineer. Finally, cost concerns the negative aspects associated with task engagement, including the effort required, time lost from other valued activities, or anxiety-related discomfort.

The task-value construct has demonstrated strong predictive validity for academic behaviours and achievement. Research has revealed positive correlations between high intrinsic and utility values and academic performance, including higher grades and persistence in challenging science and technology courses (Al Shuaili, 2025). However, the relationship between task value and achievement is complex. High perceived cost can diminish the otherwise positive effects of task value by discouraging effort or fostering disengagement (Caixia et al., 2025). Additionally, task value often interacts with expectancy beliefs, such that students are unlikely to engage fully in tasks they value if they lack confidence in their ability to succeed. Furthermore, cultural and contextual factors influence task-value beliefs. In some educational environments, utility value might be emphasised more strongly, while in others intrinsic interest may be a greater motivator. Intervention studies demonstrate that enhancing students' understanding of task relevance and aligning instructional activities with their interests can effectively increase motivation and learning outcomes (Fasco et al., 2024). Technology-based learning tools that integrate real-world applications, especially in technical subjects, have been shown to raise students' task-value perceptions and engagement (Abid et al., 2022). Therefore, educators and policymakers can leverage task-value components to design curricula and learning experiences that resonate with students' goals and aspirations, thereby promoting improved achievement.

Motivation and Task-Value in Electronics Technology Education

Science and technology disciplines, including Electronics Technology, require both theoretical understanding and practical skills. The demanding nature of electronic technology education, which involves comprehension of complex concepts, abstract principles, and hands-on application, necessitates strong motivational foundations to sustain students' effort and interest. Motivational theories offer valuable insights into how students' goals and task-value perceptions influence their success in these fields. According to Pintrich (2000), students with high motivational goal orientations, such as mastery goals, demonstrate deeper engagement with materials and are more likely to overcome difficulties and persist through technical challenges.

Task-value beliefs are especially important in engineering-related fields because of the often-perceived gap between rigorous academic requirements and students' personal interests or career aspirations. When Electronics Technology students perceive their studies as vital for achieving future employment or personal growth, they tend to exhibit higher motivation and better academic outcomes (Roberts & Lords, 2020). Conversely, if they view the subject matter as irrelevant or overly difficult, motivation declines, leading to dropout or poor performance. The utility value of Electronics Technology is frequently emphasised given its critical role in Nigeria's industrial and technological development. The Federal Republic of Nigeria's national educational policy underscores the importance of technical

education for national growth, thereby framing task value in terms of wider socio-economic utility (FRN, 2014).

Despite recognising the importance of motivation and task value in student success, empirical research specifically focusing on Nigerian Electronics Technology students remains limited. Nigerian universities also confront unique challenges, including resource limitations, variability in instructional quality, and diverse student backgrounds, which may affect motivation (Atsumbe et al., 2018). Understanding how motivational goals and task-value beliefs interact to shape academic achievement in Nigeria can inform targeted support strategies. For example, integrating motivational interventions that clarify the relevance and future benefits of Electronics Technology could foster persistence and innovation skills, enhancing both individual and national technological capacities.

Academic Achievement Predictors

Academic achievement is influenced by a variety of interrelated predictors, including cognitive, motivational, behavioural, and socio-environmental factors. Among these, motivation and task-value beliefs are interwoven with other key variables such as self-efficacy, metacognitive strategy use, time management, and social context to influence educational outcomes. Pintrich et al. (1993) and Muenks et al. (2018) highlight that motivation functions both as a direct driver of effortful engagement and indirectly through the regulation of learning strategies. For instance, motivated students with positive task values are more likely to employ metacognitive strategies such as planning, monitoring, and evaluating their learning, which are critical for mastering complex content.

Self-efficacy, defined as students' beliefs in their capabilities to succeed in specific tasks, moderates how motivation and task value translate into achievement. Students with high self-efficacy set challenging goals, recover from setbacks, and persist longer, thereby enhancing academic outcomes (Bandura, 1997). Time management skills contribute by facilitating effective allocation of study time, reducing procrastination, and improving concentration (Kang & Keinonen, 2018). Social cognitive models emphasise the influence of socio-environmental factors such as peer influence, parental support, and classroom atmosphere on motivational beliefs and self-regulatory behaviours, which indirectly affect achievement (Schunk & DiBenedetto, 2020).

In higher education contexts, including Nigerian universities, understanding these predictors is vital due to diverse challenges students face, ranging from academic pressure to resource constraints. Suleiman (2023) stresses the need for further empirical investigation of motivational and cognitive predictors within specific disciplines such as Electronics Technology. Identifying reliable predictors enables the development of holistic interventions that combine motivational enhancement, skills training, and supportive learning environments tailored to students' needs.

Conceptual Framework

The conceptual framework for this study illustrates the relationship between motivational goals, task-value beliefs, and academic achievement among Electronics Technology students in Nigerian universities. The framework assumes that motivational goals and task-value beliefs influence the academic achievement of Electronics Technology students. The framework guided the formulation of the study hypotheses.



Figure 1: Conceptual Model

Theoretical Framework

This study is primarily grounded in two motivational theories: Achievement Goal Theory and Expectancy-Value Theory. Achievement Goal Theory (AGT) is a framework used to explain and examine academic motivation. The theory provides a perspective for understanding students' engagement in educational contexts. According to Achievement Goal Theory (Elliot & McGregor, 2001), students' motivation and academic behaviours are influenced by the goals they pursue. The model distinguishes goal orientations into mastery and performance goals, each comprising approach and avoidance dimensions, which have different implications for learning, effort, and achievement. Mastery goals are related to intrinsic motivation and effective learning strategies, whereas performance goals involve social comparison and tend to produce more variable outcomes (Maehr & Zusho, 2009). This theory relates to the present study as students' achievement depends on their intended goals and what motivates their

learning. It explains how individuals with a mastery goal orientation approach tasks, respond to feedback and setbacks, and how their motivation and performance are affected by these experiences. Similarly, individuals with a performance goal orientation set goals, seek feedback, and react to success or failure in their own characteristic ways. This theory provides a foundation for linking students' motivational goals to academic achievement in Electronics Technology.

The second theory that anchor this study is Expectancy-Value Theory. The theory was developed by Jacquelynne Eccles and others (Eccles & Wigfield, 2020; Wigfield & Eccles, 2002). The theory posits that achievement-related choices are predicted by two major beliefs. The first is expectancy for success; which is students' beliefs about how well they will do on upcoming tasks. The other is task-value beliefs; which is students' evaluation of the importance, usefulness, and cost of the task. Expectations for success and task value are distinct constructs (Wigfield & Cambria, 2010; Wigfield & Eccles, 2002), at the same time, the two factors are correlated. Expectancies for success tend to predict student's later task value. That is, student tend to value the domains in which they feel competent (Wigfield & Cambria, 2010; Wigfield & Eccles, 2002). However, both factors can predict achievement-related outcomes. Expectations for success are linked to performance. For example, a student who believes he/she will do well in a subject will tend to get higher grades than a student who does not expect to do well. Also, task values are tied to achievement-related choices. For example, a student who values a particular subject is more likely to take advanced courses in that subject, when compared to student who does not value the subject. This theory is related to this study because expectancy-value theory highlights the dual importance of expectations for success and subjective task values in explaining students' motivation. Student with positive task value beliefs will be aware of how their learning and activities connects to their future goals thereby creating a high expectation for success, this will in turn lead to the student putting much effort in the learning activities which will nurture great academic achievement. Considering that task-value beliefs influence motivation and persistence, this theory supports the examination of how Electronics Technology students' task-value beliefs influence their academic performance.

Achievement goal theory explains why students engage in learning whereas Expectancy-value theory explains what drives their persistence and effort based on how much value they assign to the learning tasks. Together, the two theories allow a comprehensive investigation of the relationships between motivational goals, task-value beliefs, and achievement outcomes in Electronics Technology education. This integrated framework guides the formulation of hypotheses positing that motivational goals and task-value beliefs predict academic achievement among Electronics Technology students in Nigerian universities.

Methodology

The study adopted a correlational survey research design, which was suitable for investigating the relationship between students' motivational goals, task-value beliefs, and their achievement in Electronics Technology in Nigerian universities. The study focused on all universities offering Electronics Technology education in south-west Nigeria. The sample comprised all 158 third-year (300 level) Electronics Technology students in universities in the south-western region of Nigeria. Students at this level were selected because they had already specialised in Electronics Technology education.

Instrumentation

Motivational goals were measured using the 2 x 2 Achievement Goal Questionnaire (AGQ) developed by Elliot and McGregor (2001). The scale was adapted to assess participants' achievement goal orientations. Task-value belief was measured by employing the task-value subscale of the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1993), which gauges how students perceive the value of the course content and learning tasks. The researchers adapted items from this scale to develop a thirty-item instrument tailored to the purpose of the study. Students' academic achievement was measured by collecting their previous results in electronic courses from the departments of their respective institutions.

Validation of the instrument was carried out by three experts: two lecturers from the Department of Industrial Technical Education and one lecturer from the Department of Guidance and Counselling Psychology, all based at Tai Solarin University of Education, Ijebu-Ode, Ogun State. Internal consistency was tested through a trial run of the instrument, and Cronbach's Alpha reliability method was used, yielding a reliability coefficient of 0.83. Data collected for the study were analysed using a correlation matrix (Pearson Product Moment Correlation, PPMC). The hypotheses were tested at the 0.05 level of significance.

Results

Hypothesis 1: There is no significant relationship between motivational goals and the achievement of Electronics Technology students in universities in Nigeria.

Table 1: Relationship between motivational goals and achievement of Electronics Technology students

Variables	M	SD	1	2
1. Motivational Goals	5.85	1.33	1	
2. Achievement	3.34	0.79	.509**	1

** . Correlation is significant at the 0.05 level (2-tailed).

From the table, it can be observed that a significant positive correlation ($r = 0.509$, $p < 0.05$) exists between motivational goals ($M = 5.85$, $SD = 1.33$) and achievement ($M = 3.34$, $SD = 0.79$) for Electronics Technology students in Nigerian universities. This indicates a moderate positive correlation, suggesting that students with stronger motivational goals tend to achieve higher academic scores. The presence of this correlation leads to the rejection of Hypothesis 1, demonstrating that motivational goals are indeed significantly related to students' academic achievement.

Hypothesis 2: There is no significant relationship between task-value beliefs and the achievement of Electronics Technology students in universities in Nigeria.

Table 2: Relationship between task-value beliefs and achievement of Electronics Technology students in universities in Nigeria.

Variables	M	SD	1	2
1. Task-Value Beliefs	6.16	0.39	1	
2. Achievement	3.34	0.79	0.154	1

** . Correlation is significant at the 0.05 level (2-tailed).

The table indicates a weak positive correlation ($r = 0.154$) between task-value beliefs ($M = 6.16$, $SD = 0.39$) and achievement ($M = 3.34$, $SD = 0.79$) among Electronics Technology students in Nigerian universities. This low correlation suggests a minimal relationship between task-value beliefs and academic achievement, which is not statistically significant ($p > 0.05$). Hence, Hypothesis 2 is retained, confirming

that there is no significant relationship between task-value beliefs and academic achievement in this group of students.

Discussion

The findings of this study reveal a moderate and significant relationship between motivational goals and the achievement of Electronics Technology students in Nigerian universities. This implies that, generally, students with higher levels of motivational goals tend to perform better academically compared with those with lower levels of motivational goals. This concurs with the theoretical assertion that motivational goal, (whether mastery-oriented, performance-approach, or performance-avoidance), directly influence how students approach learning tasks and the effort they invest. Moreover, students who set specific learning goals are more likely to persist through challenges, engage meaningfully with course materials, and exert the effort necessary to excel academically. These findings align with those of Soi et al. (2026), who discovered that goal setting positively affects student achievement. Similarly, the results support earlier research by Muenks et al. (2018) and Suhag et al. (2016), which established motivation as a critical factor in student success. Conversely, Azizollah et al. (2016) found no significant association between motivational goals and academic performance, a discrepancy possibly attributable to variations in cultural or institutional contexts and differences in instrument reliability.

Furthermore, the relationship between task-value beliefs and academic achievement was found to be weak and statistically insignificant. Although students generally reported high task-value beliefs, this did not significantly translate into better academic results. This indicates that perceiving a course as useful or important does not necessarily motivate improved academic performance. This contrasts with the expectancy-value theory, which posits that task valuation plays a major role in motivation and achievement. One explanation could be that, despite recognising the importance of Electronics Technology, factors such as poor teaching quality, insufficient practical opportunities, inadequate equipment, or assessments misaligned with taught content may prevent students from converting their positive perceptions into higher grades. This finding aligns with Hofer et al. (2014) and Oyuga et al. (2019), who emphasised that while task value is important, it must be accompanied by supportive learning environments and self-belief to impact academic achievement meaningfully.

Conclusion

This study demonstrates that motivational goals are a significant determinant of academic achievement among Electronics Technology students in Nigerian universities. Students who establish clear and purposeful goals tend to achieve higher academic success. However, although task-value beliefs were generally high among participants, they did not show a significant relationship with academic

achievement. This suggests that recognising the importance of a task alone is insufficient to enhance academic outcomes.

Recommendations

Based on the findings, the following recommendations are proposed:

1. Guidance counsellors should organise regular academic advisory sessions to assist students in understanding their academic goals and fostering a positive attitude towards their studies, thereby enhancing motivation.
2. Curriculum designers should frequently review and update Electronics Technology programmes to align with current industry standards and expectations, which will help students appreciate the relevance of their coursework.
3. Teachers should employ instructional strategies that promote mastery and performance-approach goals, including providing constructive feedback, recognising student effort, and encouraging collaborative learning.

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