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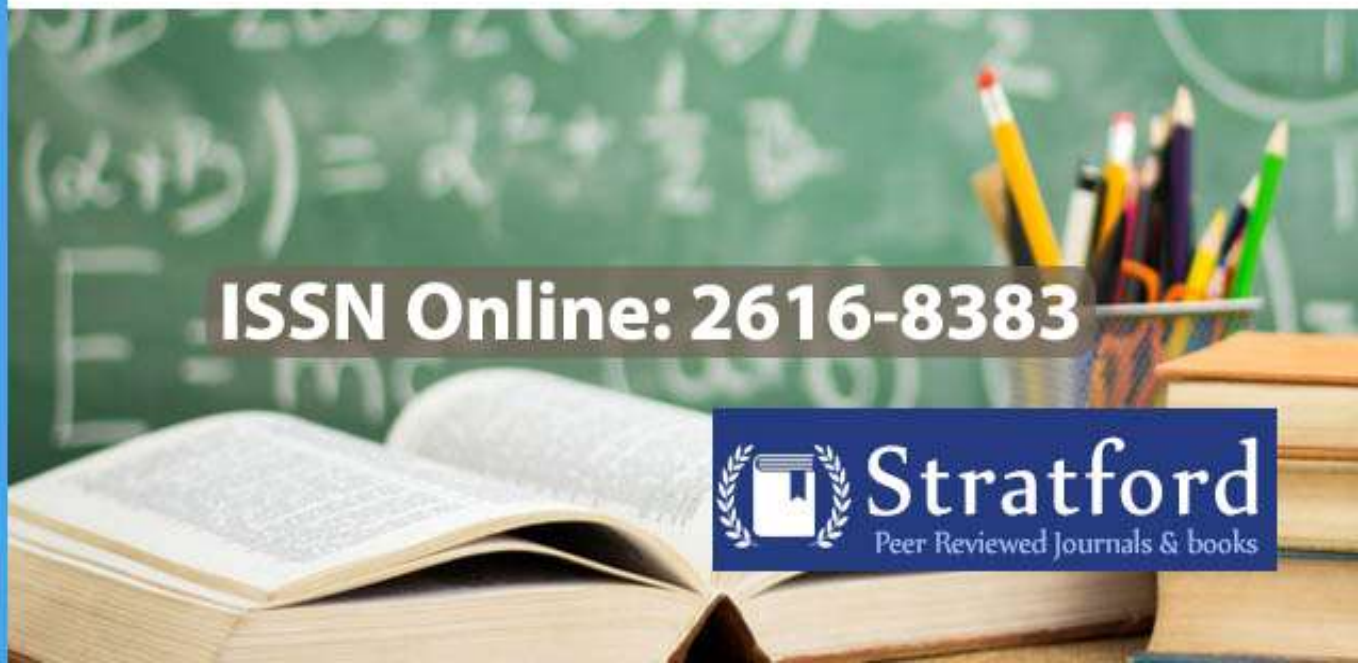

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Moris Matembu Kipuru & Maliko Kisembo

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Exploring the Engagement–Achievement Nexus: Behavioral and Emotional Pathways in Secondary Education in Wakiso District, Uganda

[*1]Moris Matembu Kipuru &[2]Maliko Kisembo

[1]Department of Foundations of Education, Mountains of the Moon University, P. O. Box 837 Fort Portal City, Uganda

[2] Department of Foundations of Education, Mountains of the Moon University, P. O. Box 837 Fort Portal City, Uganda

[*]Correspondent Author: https://orcid.org/0009-0004-0303-385X

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Abstract

This study investigates the extent to which academic engagement operationalized through students' sense of belonging and participation predicts academic achievement among secondary school learners in Wakiso District, Uganda. Anchored in multidimensional engagement theory (Fredricks et al., 2004) and Finn's (1993) participation–identification model, the research focused on how affective and behavioral engagement influence performance in arts and science subjects. A quantitative, cross-sectional correlational survey design was employed with 297 students randomly selected from four high-performing secondary schools using proportionate stratified sampling. Data were collected via a validated self-report questionnaire (CVI = .926), complemented by official school grades. Reliability testing indicated acceptable internal consistency (α = .73 for sense of belonging; α = .70 for participation). Pearson's correlations revealed that behavioral engagement (participation) significantly predicted achievement across the arts, sciences, and overall performance, whereas emotional engagement (belonging) showed weak, non-significant associations. The findings underscore the stronger predictive role of behavioral engagement, particularly in arts-related disciplines where interactive participation was more influential. Implications point to the adoption of participatory, student-centered pedagogies such as project-based learning, collaborative tasks, and digital interactivity while simultaneously fostering inclusive climates that nurture belonging and long-term persistence. This study contributes context-specific evidence from a resource-limited African educational setting, offering both theoretical and practical insights. It also recommends future longitudinal and mixed-methods studies to explore the mediating role of emotional engagement in academic success.

Keywords: *Academic Engagement, sense of belonging, participation, academic success*

1.0 Introduction

Academic engagement has emerged as one of the most pivotal determinants of student achievement, yet it remains most fragile during secondary education. Engagement is widely conceptualized as a multidimensional construct encompassing behavioral, emotional, and cognitive investment in learning (Delfino, 2019). While behavioral engagement captures students' active participation in school activities and routines, emotional engagement reflects their sense of belonging and affective connection to peers, teachers, and the wider school community, and cognitive engagement denotes the use of deep learning strategies, goal setting, and sustained mental effort (Masten et al., 2022). These dimensions are not isolated; rather, they function synergistically, shaping how students persist in learning environments, confront challenges, and sustain motivation over time. Collectively, they are strongly linked to academic performance, lower dropout rates, and the cultivation of lifelong learning dispositions (Rizwan et al., 2025).

Theoretically, engagement lies at the crossroads of psychological motivation, school culture, and relational pedagogy. Finn's (1993) participation–identification framework underscores belonging and involvement as essential for cultivating an academic identity, while self-determination theory (Deci & Ryan, 1985) situates autonomy, competence, and relatedness as foundational for intrinsic motivation. Contemporary studies extend these insights, demonstrating how relationship-centered and responsive teaching approaches sustain engagement across diverse learning contexts (Vastila, 2025; Ferrell, 2025). Yet, despite this robust theoretical base, a persistent challenge remains: student engagement declines significantly during adolescence. Willms et al. (2009) documented a sharp reduction in intellectual engagement at the secondary level, a trend compounded by rising academic demands, developmental transitions, and shifting peer dynamics. This decline is consequential, as disengagement correlates with emotional withdrawal, increased behavioral difficulties, and elevated risks of not only poor performance but also dropout.

A growing body of scholarship also critiques the overgeneralized strategies commonly used to address engagement. Many interventions fail to account for the heterogeneity of student experiences across social, cultural, and institutional contexts, thereby limiting their predictive and explanatory power (Brandisauskiene et al., 2021; Söderholm, 2025). Engagement must thus be understood as dynamic and context-contingent, influenced not only by curriculum design and teacher support but also by students' perceptions of relevance, fairness, and connectedness within the learning environment.

This argument is particularly salient in Sub-Saharan Africa, where educational systems contend with systemic challenges that shape how engagement translates into achievement. In Uganda, secondary school students, most of whom are educated in resource-constrained rural and peri-urban settings, face barriers such as large class sizes, rigid curricula, inconsistent teacher support, and limited access to learning materials (Fraser & Lockheed, 2021). While academic performance is routinely assessed through examination results, less attention has been directed toward understanding how behavioral and emotional pathways of engagement underpin achievement trajectories in such contexts. Given the urgent need to strengthen educational outcomes and reduce dropout rates, examining the engagement–achievement nexus in Uganda offers both theoretical and practical significance: theoretically, by interrogating whether widely used engagement models hold in resource-limited environments, and practically, by generating insights that inform tailored, equity-oriented interventions.

Accordingly, this study investigates the role of academic engagement in predicting students' academic achievement trajectories in secondary schools in Wakiso District, central Uganda. By focusing specifically on the dimensions of belonging and participation, the study aims to

uncover the behavioral and emotional mechanisms through which engagement contributes to achievement. In doing so, it seeks to generate context-specific evidence that not only enhances understanding of secondary students' learning experiences in Uganda but also contributes to broader debates on how engagement can be leveraged to support academic success in diverse educational landscapes.

1.2 Research Objectives

i. To determine the extent to which students' sense of belonging (emotional engagement) predicts academic achievement in secondary schools in Wakiso District.
ii. To examine the influence of students' participation (behavioral engagement) on academic achievement in arts, sciences, and overall performance.
iii. To analyze the comparative predictive power of emotional and behavioral engagement in explaining variations in academic performance.

2.0 Literature Review

Conceptualizing Student Engagement

Research on student engagement has increasingly shifted from institutional assumptions about participation toward examining what learners genuinely do within educational settings (Delfino, 2019). This turn emphasizes students' lived academic experiences, moving beyond surface compliance to capture how they invest attention, effort, and emotion in learning. Barkley and Major (2020) describe this as *productive engagement*, a process whereby students establish both emotional bonds with peers and faculty and cognitive connections to academic tasks, thereby fostering belonging, resilience, and intellectual growth.

Historically, engagement has been consistently linked to academic performance, persistence, and positive behavioral outcomes, but its salience is most pronounced during secondary schooling, where disengagement commonly accelerates (Rizwan et al., 2025; Willms et al., 2009). Early research often positioned engagement as a means of retaining socioeconomically disadvantaged students at risk of dropout. Over time, these interventions evolved into broader classroom-based strategies intended to promote participation and minimize alienation (Fredricks et al., 2004; National Research Council & Institute of Medicine, 2004). Despite these advances, many strategies remain overly generic, failing to adequately address the diverse needs of students in urban and rural contexts, where structural and cultural conditions shape how engagement is enacted. The decline in academic motivation from primary into secondary education (Willms et al., 2009) makes these shortcomings particularly consequential.

Conceptually, engagement is best understood as multidimensional. Finn's (1993) participation–identification model integrates psychological and behavioral elements, suggesting that students' internalized sense of belonging and acceptance within school is central to their willingness to participate. Those who feel supported and valued are more likely to embrace institutional goals, whereas marginalized students often exhibit withdrawal or resistance. In practice, behavioral engagement is visible in attendance, task completion, class participation, and extracurricular involvement (Zhang et al., 2025). Complementary perspectives reinforce this multidimensionality: Ahmed (2025) emphasizes the alignment of student effort with academically meaningful activities; Egbe and Osuji (2025) describe engagement as a dynamic interaction between learners and their social and physical environments; and Wang et al. (2025) highlight enthusiasm, persistence, and affective investment as indicators of authentic engagement.

A psychological perspective provides further detail by linking disengagement to threats to autonomy, competence, and relatedness, the core needs identified in self-determination theory (Deci, 2017). Such threats can arise from unsupportive teaching, rigid curricula, or

exclusionary peer cultures, leading to boredom, anxiety, or depressive withdrawal. When unmet, these needs may also manifest in outward behaviors such as truancy, defiance, or eventual dropout. Accordingly, re-engagement requires environments that restore students' sense of agency, capability, and connectedness.

Empirical studies illustrate these dynamics. Engaged learners often display curiosity, initiative, and persistence in academic tasks, qualities that contribute to mastery and long-term achievement (Bhardwaj et al., 2025; Rehman et al., 2024). By contrast, disengaged students typically invest minimal effort, withdraw emotionally, or avoid academic challenges. These patterns can escalate into resistance toward teachers or social detachment from peers. Halstead et al. (2025) emphasize that effective re-engagement strategies must therefore not only target behavior but also dismantle motivational barriers.

The dominant framework in the field remains the three-dimensional model advanced by Fredricks et al. (2004), which distinguishes between behavioral, emotional, and cognitive engagement. Behavioral engagement encompasses participation in academic and extracurricular activities and is often the strongest predictor of persistence. Emotional engagement involves the quality of affective connections with teachers, peers, and the institution, shaping students' willingness to participate. Cognitive engagement reflects deeper investment through strategic thinking, goal orientation, and effortful learning.

Synthesizing these perspectives yields two critical insights for this study. First, engagement is developmental and layered: behavioral participation and emotional belonging often form the foundation for deeper cognitive commitment. Second, engagement is not simply the absence of dropout or disruption; rather, it represents a dynamic process of investment that requires responsive, context-sensitive environments. Students who are physically present but psychologically detached may comply with rules but fail to achieve meaningful academic growth. Thus, supporting students' emotional security and behavioral participation is a prerequisite for unlocking their full cognitive potential.

Engagement and Its Influence on Academic Performance

Student engagement has emerged as a central theme in contemporary educational research, widely acknowledged as a key determinant of academic success, persistence, and overall development. In their influential report, *What Did You Do in School Today?* Willms et al. (2009) documented the troubling decline in intellectual engagement as students progress through schooling. While many students maintain surface-level compliance or social and institutional participation, far fewer demonstrate the kind of deep cognitive and emotional investment required for higher-order learning. Their findings underscore the difference between being present in school life and being authentically engaged in intellectual pursuits, an important distinction for understanding achievement patterns.

Given its multidimensional character, engagement has been reconceptualized as more than academic compliance, encompassing behavioral, emotional, and cognitive domains that collectively shape student performance. Fredricks et al. (2004) caution that a narrow emphasis on academic standards risks alienating struggling students, highlighting the need to embed relational and socio-emotional dimensions into policy and practice. Echoing this, Reschly (2020) demonstrates that engagement not only predicts academic success but also mitigates dropout and disaffection. More recent studies expand on this view, with Prananto et al. (2025) identifying school climate as a key determinant of engagement, while Bhardwaj et al. (2025) show that engaged learners develop stronger self-concepts and sustained motivation. Conversely, disengagement is consistently associated with diminished perseverance and declining interest in learning (Rehman et al., 2024).

Empirical findings further reinforce engagement as a robust predictor of persistence and achievement**.** Peker (2024) and Rodríguez-Llorente et al. (2023) demonstrate that perseverance, intrinsic motivation, and task orientation are central to long-term academic attainment. Similarly, Chimwayange (2024) finds that engaged students actively seek learning opportunities beyond the classroom, sustaining curiosity and effort over time. Classroom conditions play a pivotal role: Fredricks et al. (2004) and Kaufman (2025) show that supportive teacher–student relationships, autonomy-supportive practices, and intellectually challenging yet flexible tasks significantly enhance engagement. In this sense, engagement is not limited to compliance but encompasses enthusiasm, optimism, and curiosity, all of which translate into better performance.

The influence of engagement extends beyond academic scores, shaping the development of lifelong learning skills and social competencies. Carini et al. (2006) and Lee (2024) demonstrate clear associations between active participation in activities such as analysis, writing, and problem-solving, and higher levels of skill proficiency. The Australian Department of Education and Training (2010) echoes this in its *What Works* report, emphasizing engagement as foundational to higher education readiness and employability. Eswaran (2024) highlights intellectual engagement — characterized by critical thinking, collaborative knowledge building, and problem-solving — as the basis for deep learning. Yet, they caution that traditional performance-driven systems may inadvertently constrain opportunities for such engagement by privileging narrow achievement measures.

Quantitative evidence provides strong support for these claims. Truta et al. (2018) found positive correlations between overall engagement and achievement ($r = .166$, $p < .01$), with behavioral engagement showing the strongest association ($r = .208$, $p < .01$), followed by emotional ($r = .163$, $p < .01$) and cognitive ($r = .115$, $p < .05$). Complementary evidence from Lee (2014) reveals that perseverance and belonging significantly predict reading outcomes, with emotional engagement exerting its effect partly through sustained behavioral effort. Collectively, these findings suggest that emotional investment, while important, must be paired with consistent behavioral participation to maximize academic success.

With the growing prevalence of digital learning, scholars have expanded the engagement–achievement discussion into online contexts. Rujabalee et al. (2019) demonstrate that sustained participation in online modules significantly enhances outcomes, with high-achieving students remaining more consistently engaged. In a meta-analysis of 69 studies covering nearly 200,000 participants, Lei et al. (2018) confirmed strong positive relationships across all engagement dimensions and achievement. They also noted cultural and gender variations, highlighting that engagement's impact is context-sensitive and shaped by reporting practices. These findings reinforce the complexity of engagement as both a predictor and outcome of academic development.

Beyond academic achievement, engagement plays a protective role by reducing the likelihood of dropout and maladaptive behaviors. Assefa et al. (2025) provide evidence that academic engagement steers students toward positive educational pathways, consistent with Reschly's (2020) argument that engagement is a strong deterrent against early school leaving. Similarly, Davis and McPartland (2012) conceptualize the "good student" role, encompassing ambition, confidence, and resilience qualities cultivated through active engagement. Pham (2024) extends this perspective by demonstrating that engagement also nurtures socio-emotional growth and well-being, reducing disaffection and fostering holistic student development.

The role of the teacher is particularly crucial in fostering and sustaining engagement. Devito (2016) highlights that clarity of expectations and opportunities for active participation increase students' willingness to engage. Amerstorfer and Freiin (2021) further show that approachable,

interactive teachers who build trust and rapport are key to deepening student commitment. Instructional design, including the strategic use of technology, also positively influences engagement. As Weiss and Garcia (2015) argue, engagement offers a comprehensive framework that integrates academic, emotional, and social processes, making it indispensable for understanding and improving educational outcomes.

In sum, the evidence consistently supports student engagement as a multidimensional and dynamic construct that strongly influences achievement, persistence, and long-term development. Behavioral, emotional, and cognitive engagement interact to shape performance, while also preparing students with the resilience, skills, and motivation required for lifelong learning. Fostering engagement through supportive school climates, innovative pedagogy, and strong teacher–student relationships is therefore central to promoting academic excellence and holistic student success (Fredricks et al., 2004; Weiss & Garcia, 2015).

3.0 Methodology

This study employed a quantitative, cross-sectional correlational survey design to investigate the relationship between academic interest and academic performance among secondary school students in Uganda. Correlational survey designs are well-suited for exploring associations between psychosocial constructs and performance outcomes, as they allow for statistical testing without experimental manipulation (Creswell & Creswell, 2023; Kumar & Praveenakumar, 2025). Four high-performing secondary schools were strategically selected based on their strong national examination outcomes, ensuring the study captured insights from academically competitive contexts. Using Krejcie and Morgan's (1970) guidelines, supported by contemporary discussions on sample adequacy and representativeness (Omair, 2025), a total of 297 students was determined as an appropriate sample size. A proportionate stratified random sampling procedure was employed, with each school serving as a stratum, while simple random selection within strata guaranteed equitable representation.

Data were collected using a structured self-report questionnaire comprising three sections: demographic characteristics, academic engagement, and academic performance. The academic engagement was measured under two components: sense of belonging, consisting of 10 items adopted from (Willms 2003; Xuehui et al, 2007; Weiss & Garcia, 2012) and participation consisted of 9 items adopted from (Mitchell 2003; Willms 2003), measured on a standardized five-point Likert scale ranging from 0 (Never) to 4 (Always). Academic performance data were obtained from students' promotional grades documented in official school records, thereby ensuring reliability and reducing self-report bias. The survey instrument underwent expert validation by three academic reviewers, resulting in a strong content validity index (CVI = .926). This process aligns with best practices in survey construction, where validity and reliability testing are critical to ensuring the robustness of measurement instruments (Chowdhury, Oakkas & Ahmmed, 2022; Dubey & Kothari, 2022). Internal consistency was established using Cronbach's alpha, yielding coefficients of .73 for the sense of belonging scale and .70 for the participation scale, demonstrating acceptable reliability thresholds for educational research.

Ethical considerations were rigorously observed throughout the research process. Approval was obtained from Makerere University's Directorate of Research and Graduate Studies, accompanied by an introductory letter from the Dean of the School of Psychology. Institutional consent was secured from participating headteachers, and data collection was scheduled collaboratively with school administrators to minimize disruption to academic activities. Participation was voluntary, and students were assured of confidentiality and informed consent prior to involvement. Completed questionnaires were reviewed for completeness, systematically coded, and entered into SPSS for analysis (Version 24). Following

recommended procedures in quantitative research (Creswell & Creswell, 2023; Dubey & Kothari, 2022), the analysis included reliability testing, descriptive statistics (frequencies and percentages), and Pearson's product-moment correlation to test hypothesized associations between student academic engagement and academic performance.

4.0 Findings and Discussion

This section presents the research findings and their corresponding discussion, interpreted in relation to existing literature and prior empirical studies.

Respondents' Perception of Sense of belonging in school

Below are the respondents' perceptions of Their Sense of belonging to their respective schools.

Table 1: Frequencies of respondents' sense of belonging in school

SN	How often do you experience/feel the following?	Never		Rarely+ Sometimes		Frequently + Always	
		N	%	N	%	N	%
1	Feel bored at school	25	7.1	256	72.7	71	20.2
2	Feel lonely at school	90	25.6	192	54.6	70	19.9
3	Feel awkward and out of place here at school	131	37.2	184	52.2	35	10
4	Feel like an outside or left out of things	131	37.2	183	52	35	10
5	Make friends easily at school	7	2.0	82	23.3	262	74.5
6	Feel like you belong at school	38	10.8	126	35.8	183	51.9
7	Liked by other students	5	1.4	87	24.7	258	73.3
8	Teachers listen to what you have to say.	28	8.0	148	42.1	172	48.9
9	Get extra work/help from your teachers	46	13.1	185	52.6	117	33.2
10	Most of your teachers treat you fairly.	27	7.7	126	35.8	197	55.9

The descriptive statistics presented in Table 1 provide a detailed overview of students' perceived sense of belonging, encompassing emotional, relational, and institutional aspects of social integration within the school environment. Overall, the data suggest a mostly positive social climate, with strong signs of peer support and teacher connection. At the same time, the presence of psychological discomfort and inconsistent academic support highlights key areas requiring strategic attention. These patterns resonate with earlier work noting that belonging operates as both an emotional anchor and an institutional resource shaping engagement trajectory (Finn, 1993; Fredricks et al., 2004).

A large majority of respondents reported strong signs of peer connection and social acceptance. Specifically, 74.5% indicated that they often or consistently find it easy to make friends, and 73.3% felt liked by their peers, suggesting high levels of social integration. Additionally, more than half (51.9%) expressed a consistent sense of belonging at school, while only 10.8% reported never experiencing such attachment. These results underscore the centrality of peer relationships in sustaining motivation and school connectedness, echoing evidence that positive peer ties act as protective factors against disengagement (Willms et al., 2009; Barkley & Major, 2020).

Institutional interactions, especially with teachers, showed a moderately positive trend. More than half of students (55.9%) agreed that most teachers treated them fairly, and 48.9% stated that teachers often listened to them. Such findings highlight a respectful teacher–student dynamic that supports engagement and persistence. However, only 33.2% of students reported

regularly receiving extra help or assignments, while most (52.6%) said this occurred only occasionally. This discrepancy suggests that fairness and recognition do not always translate into consistent academic scaffolding, mirroring findings that instructional support remains a crucial but uneven predictor of sustained academic effort (Fredricks et al., 2004; Kaufman, 2025).

Although these indicators are largely positive, the data also suggest an undercurrent of emotional disconnection and marginalization among a notable minority. For example, 20.2% of students reported feeling bored at school frequently or always, while 19.9% reported persistent loneliness. Around 10% consistently felt awkward, out of place, or excluded, while more than half experienced these emotions occasionally (52–52.2%). These findings align with evidence that boredom, alienation, and emotional withdrawal are significant risk factors for declining engagement in secondary education (Willms et al., 2009; Rehman et al., 2024).

Taken together, the results reveal a dual story: while most students experience strong peer networks and generally fair treatment from teachers, a significant proportion struggle with periodic or ongoing feelings of exclusion and limited academic support. This reinforces the view that belonging is not only relational but also institutional, requiring sustained teacher responsiveness and equitable learning opportunities to fully support engagement (Reschly, 2020; Fredricks et al., 2004).

Based on these findings, targeted interventions are recommended. Structured mentorship programs, enhanced teacher training in socio-emotional responsiveness, and peer-led inclusion initiatives could help address both emotional and academic needs, particularly for marginalized students. By bridging the relational and institutional gaps identified, schools can cultivate a more inclusive and engaging environment that supports both academic achievement and student well-being, in line with broader evidence on the engagement–achievement nexus (Weiss & Garcia, 2015; Lee, 2024).

Respondents' levels of participation in learning

Below are respondents' opinions when asked about their Participation and/or involvement in the learning process.

Table 2: Frequencies of respondents' participation level in learning

SN	How often do you experience/feel the following?	Never		Rarely+ Sometimes		Frequently + Always	
		N	%	N	%	N	%
1	Ask questions in class.	34	9.7	223	63.3	95	27
2	Make class presentation during the term.	75	21.3	199	56.6	72	20.5
3	Work with classmates outside of class to prepare assignments.	25	7.1	163	46.4	163	46.3
4	Consult teachers for clarification.	32	9.1	204	57.9	115	32.7
5	Learn the material yourself instead of being preached at	17	4.8	204	57.9	131	37.2
6	Work in groups in class in exchanging ideas	23	6.5	134	38.1	194	55.1
7	Come in class, take notes and that is all each day	106	30.1	157	44.6	86	24.4
8	Contribute to class discussions	17	4.8	142	40.3	193	54.8
9	Carry out homework	22	6.3	88	25	240	68.2

The Table provides a detailed overview of students' engagement in the learning process by measuring how frequently they participate in both collaborative and individual academic activities. The data emphasize a wide range of engagement behaviors, pointing to positive

trends in peer collaboration and self-directed learning, while also highlighting concerns about classroom passivity and the limited adoption of interactive teaching practices. This duality reflects earlier findings that student engagement is multidimensional and varies significantly across behavioral, emotional, and cognitive domains (Fredricks et al., 2004).

A key feature of the data is the strong participation in collaborative and dialogic forms of learning. More than half of the respondents (55.1%) reported regularly engaging in group work during class, while 46.3% consistently collaborated with peers outside class to prepare assignments. Similarly, 54.8% often participated in class discussions, and a substantial 68.2% habitually completed their homework. These patterns underscore the centrality of peer-mediated learning and affirm the role of cooperative engagement in academic life. Such behaviors not only enhance understanding through social interaction but also build accountability and critical thinking, echoing evidence that social learning processes significantly contribute to persistence and academic success (Carini et al., 2006).

Evidence of self-regulated learning and proactive help-seeking also emerged. About 37.2% of students reported taking the initiative to learn material on their own, while 32.7% frequently sought clarification from teachers. These results suggest an increasing sense of academic self-efficacy, consistent with findings that independent learning and teacher-directed support together strengthen student autonomy and motivation (Zimmerman, 2002; Reschly, 2020). In this way, the data highlight students' growing use of metacognitive strategies, which are crucial for long-term academic resilience.

Despite these positive indicators, the results reveal a concerning underuse of some key participatory behaviors. Only 27% of students reported regularly asking questions in class, and just 20.5% frequently engaged in presentations. Furthermore, 30.1% admitted to relying on minimal participation, restricted to note-taking and class attendance. These findings mirror earlier concerns that traditional, teacher-centered practices may inadvertently discourage inquiry, risk-taking, and deeper forms of engagement (Willms et al., 2009; Kaufman, 2025). The reliance on passive learning strategies points to an ongoing disconnect between classroom practices and the active learning behaviors that foster persistence.

In summary, the findings indicate that students are primarily engaged in peer collaboration and independent academic work, but notable gaps remain in verbal participation and active classroom involvement. The focus on passive behaviors highlights the need for more dynamic, student-centered instructional approaches that encourage questioning, dialogue, and learner expression. Prior studies similarly stress that engagement flourishes in environments that balance structure with autonomy and provide opportunities for student voice (Fredricks et al., 2004; Weiss & Garcia, 2015). Thus, while collaboration and independent work form a solid foundation, broadening opportunities for participatory engagement remains essential for sustaining meaningful learning.

Pearson correlation results for engagement and academic performance

The table below presents Pearson's correlation matrix for engagement and academic performance.

Table 3: Correlation Matrix for Engagement and Academic Performance

		S.O.B	P	O.E	A.P	S.P
Engagement -Sense of belonging (S.O.B)	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	333				
Engagement -Participation (P)	Pearson Correlation	.443**	1			
	Sig. (2-tailed)	.000				
	N	321	340			
Overall Engagement (O.E)	Pearson Correlation	.862**	.836**	1		
	Sig. (2-tailed)	.000	.000			
	N	321	321	321		
Arts Performance (A.P)	Pearson Correlation	.073	.211**	.170**	1	
	Sig. (2-tailed)	.192	.000	.003		
	N	325	332	313	344	
Science Performance (S.P)	Pearson Correlation	.007	.163**	.103	.687**	1
	Sig. (2-tailed)	.905	.003	.064	.000	
	N	332	339	320	344	351
Overall Performance (O.P)	Pearson Correlation	.034	.197**	.140*	.879**	.950**
	Sig. (2-tailed)	.540	.000	.013	.000	.000
	N	325	332	313	344	344

**. Correlation is significant at the 0.01 level (2-tailed)

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

The Pearson correlation matrix (Table 3) provides a distinctive view of the relationships among the key dimensions of student engagement —Sense of Belonging (S.O.B.) and Participation (P) —and their associations with academic performance in Arts, Science, and Overall achievement. To capture broader patterns, composite indices for Overall Engagement (O.E.) and Overall Performance (O.P.) were also included. A strong, statistically significant positive relationship emerged between S.O.B. and P ($r = .443$, $p < .01$), suggesting that students who feel more socially and emotionally connected to their school community are more likely to be actively involved in academic and institutional activities. Both indicators showed robust associations with Overall Engagement ($r = .862$ for S.O.B.; $r = .836$ for P; $p < .01$), confirming their central role in shaping students' holistic engagement profiles (Fredricks et al., 2004; Finn, 1993).

When considered in relation to academic outcomes, distinct disciplinary trends became evident. In the Arts domain, Participation displayed a modest but significant correlation with Arts Performance ($r = .211$, $p < .01$), with Overall Engagement showing a weaker yet still significant effect ($r = .170$, $p < .01$). In contrast, S.O.B. was weak and nonsignificant ($r = .073$, $p > .05$). This pattern underscores the salience of behavioral engagement over emotional belonging in predicting success within arts-related subjects, echoing prior evidence that active participation is a stronger predictor of achievement than affective connectedness (Truta et al., 2018; Peker, 2024). In Science, Participation again showed a small but significant positive correlation with performance ($r = .163$, $p < .01$), while S.O.B. was negligible ($r = .007$, $p > .05$). O.E. was weakly related to Science Performance ($r = .103$, $p = .064$), just missing conventional significance. This suggests that while participation retains predictive value, science achievement may rely more heavily on prior knowledge and structured instruction than on engagement factors alone (Eswaran, 2024; Chimwayange, 2024).

For overall academic success, O.E. was modestly but significantly associated with O.P. ($r = .140$, $p < .05$), while Participation demonstrated a stronger and more consistent link ($r = .197$,

$p < .01$). In contrast, S.O.B. remained weak and nonsignificant ($r = .034$, $p > .05$). These findings reinforce the argument that emotional aspects of engagement may not directly enhance performance, but instead function indirectly by supporting persistence, resilience, and motivation over time (Lee, 2014; Reschly, 2020). Notably, strong correlations were also observed among performance measures. Arts and Science Performance were each highly related to O.P. ($r = .879$ and $r = .950$, respectively; $p < .01$), and with each other ($r = .687$, $p < .01$), pointing to a shared underlying academic competence across domains (Carini et al., 2006).

Taken together, these results highlight the multifaceted and domain-sensitive role of engagement in student achievement. Behavioral engagement, particularly Participation, emerged as the more reliable predictor across outcomes, while affective belonging played a weaker, potentially indirect role. These findings align with multidimensional engagement theory (Fredricks et al., 2004) and support institutional strategies that prioritize participatory learning opportunities (e.g., collaborative problem-solving, project-based learning) while also cultivating inclusive environments that foster belonging as a long-term motivational resource (Willms et al., 2009; Davis & McPartland, 2012). The current findings provide valuable insights into the intricate relationship between student engagement and academic performance, extending and refining existing research. Engagement has long been conceptualized as multidimensional, spanning behavioral, emotional, and cognitive domains (Fredricks et al., 2004), and the present study reinforces this perspective by demonstrating the combined yet distinct roles of sense of belonging and participation. While sense of belonging reflects the emotional and relational ties that students develop within school contexts (Finn, 1993), participation captures their active involvement in learning processes and institutional life, both of which showed differential effects on achievement across subject domains (Lee, 2014; Lei et al., 2018).

Consistent with prior scholarship (Fredricks et al., 2004; Rehman et al., 2024), the evidence indicates that behavioral engagement, operationalized as participation, is more consistently and strongly predictive of academic outcomes than affective engagement. Participation displayed modest yet significant positive correlations with achievement in both the arts ($r = .211$, $p < .01$) and sciences ($r = .163$, $p < .01$), as well as overall academic performance ($r = .197$, $p < .01$). These results corroborate earlier findings that underscore the predictive role of active behavioral markers such as task persistence, class involvement, and effort in shaping student success (Peker, 2024; Truta et al., 2018).

In contrast, the sense of belonging, frequently associated with students' emotional connectedness, peer integration, and institutional identity (Finn, 1993; Barkley & Major, 2020), demonstrated consistently weak, statistically nonsignificant associations with achievement outcomes. While at first this may appear inconsistent with claims that emotional engagement predicts persistence and success (Willms et al., 2009; Fredricks et al., 2004), the evidence suggests that belonging may exert its influence indirectly, by scaffolding behavioral commitment and protecting against disengagement or dropout (Lee, 2014; Reschly, 2020).

The subject-specific variations reveal further distinctions. Participation correlated more strongly with Arts Performance than with Science Performance, reflecting the pedagogical character of the arts, which emphasize collaborative, expressive, and interactive modes of learning (Chimwayange, 2024; Eswaran, 2024). In contrast, science achievement, though modestly linked to engagement, appeared to rely more on cognitive skills and structured instruction, factors that are less malleable through participatory engagement alone. These disciplinary differences echo broader debates about the context-specific role of engagement in shaping achievement trajectories.

When viewed holistically, Overall Engagement was significantly associated with both Arts ($r = .170$, $p < .01$) and Overall Performance ($r = .140$, $p < .05$), though its effect on science narrowly missed significance ($r = .103$, $p = .064$). This aligns with meta-analytic findings (Lei, Cui, & Zhou, 2018) showing that engagement generally enhances academic success, but its impact varies in magnitude across subject domains and institutional contexts. Importantly, the robust correlation between sense of belonging and participation ($r = .443$, $p < .01$), as well as their strong links to overall engagement ($r = .862$ and $r = .836$, respectively), reaffirms the interdependence of affective and behavioral pathways as theorized by Wang et al. (2025) and Deci (2017). This reflects Deci's (2017) argument that emotional security is a necessary condition for sustained behavioral effort and deeper cognitive engagement. This aligns with Fredricks et al. (2004), who argued that emotional and behavioral engagement often serve as precursors to deeper cognitive investment.

Taken together, these findings highlight the strategic importance of fostering participatory engagement through methods such as collaborative learning, project-based instruction, and formative feedback, particularly during secondary education when motivation tends to decline. While belonging may not directly boost grades, nurturing inclusive school climates that enhance trust, fairness, and recognition remains vital for sustaining long-term persistence and socio-emotional well-being (Davis & McPartland, 2012; Halstead et al., 2025).

Finally, the strong intercorrelations among achievement measures (e.g., $r = .950$ between science and overall performance) suggest the presence of a general academic competence underpinning subject-specific results. Yet the modest associations between engagement and performance remind us that engagement, while essential, is not a panacea. Rather, it operates in conjunction with cognitive abilities, prior preparation, and contextual factors to produce academic success.

Beyond the empirical findings, this study contributes to ongoing theoretical debates about the engagement–achievement nexus by clarifying the distinct yet interconnected functions of behavioral and emotional engagement. It suggests that while participation directly predicts achievement, belonging may serve as a resilience resource, sustaining students through challenges and preventing withdrawal from schooling (Reschly, 2020; Kahu, 2023). This duality reinforces the value of integrated engagement models (Fredricks et al., 2004) that balance immediate performance-focused strategies with long-term investments in students' socio-emotional development, thereby aligning educational practice with the dual goals of achievement and holistic growth.

5.0 Conclusion

The findings affirm that student engagement, particularly in its behavioral form, is a critical determinant of academic performance among secondary school learners. Participation consistently emerged as the strongest predictor of success across Arts, Science, and overall academic outcomes, underscoring the centrality of active involvement in academic and institutional life. In contrast, emotional engagement, measured through sense of belonging, showed limited direct associations with achievement. Yet its indirect role in sustaining motivation, resilience, and persistence suggests that belonging remains an essential foundation for long-term educational trajectories. These distinctions underscore the need for interventions that acknowledge the multidimensional nature of engagement rather than treating it as a unitary construct.

Beyond its immediate contributions, this study highlights the practical and theoretical importance of differentiating between behavioral and emotional pathways of engagement. For policymakers and educators, the results advocate for strategies that expand opportunities for

meaningful participation, such as collaborative learning, project-based tasks, and active classroom dialogue, while simultaneously fostering inclusive school climates that nurture belonging and psychological safety. Taken together, these findings advance the argument that educational success is best promoted when institutions integrate short-term performance-focused initiatives with long-term investments in students' socio-emotional development, thereby aligning achievement with broader goals of holistic growth and lifelong learning.

6.0 Recommendations

Based on the study findings, it is evident that strengthening student engagement requires a dual focus on behavioral and emotional dimensions. While participation directly predicts academic outcomes, a sense of belonging underpins resilience and persistence. Therefore, interventions must balance strategies that stimulate active involvement with those that cultivate inclusive and supportive school environments. The following recommendations are proposed:

i. Teachers and classroom practitioners should promote participatory learning approaches by integrating group work, project-based activities, interactive digital tools, and dialogic teaching that encourage students to actively contribute and collaborate.
ii. School leaders and administrators are urged to enhance teacher capacity through targeted professional development focused on interactive lesson design, formative feedback, and scaffolding strategies that sustain student engagement.
iii. School districts and boards of education should foster inclusive school climates that prioritize fairness, peer support, and student voice, thereby strengthening a sense of belonging as a foundation for motivation, persistence, and resilience.
iv. Ministries of Education and curriculum agencies need to develop integrated policy frameworks that align behavioral engagement strategies with socio-emotional supports, ensuring both short-term academic performance and long-term holistic student development.

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