From A-Level Success to College Achievement: The Mediating Effect of Academic Engagement on Cumulative Grade Point Average (CGPA) and Persistence among Undergraduate Students at Makerere University

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ABSTRACT

The transition from high school to university is an important phase in the educational journey of many students. This stage not only serves as an access for university enrollment but also equips students to handle the challenges at university. This study investigates the influence of prior academic performance, as measured by A-level grades, on university cumulative grade point average (CGPA) and persistence to graduation while also exploring how academic engagement mediates this relationship. Using a post-positivist lens, sequential explanatory mixed-methods research design was applied, with emphasis on quantitative analysis of data and followed up by a qualitative analysis of data to explain the statistically significant results. The targeted population included final-year students from four participating schools at Makerere University, totaling 1,273 students. The study utilized a simple random sampling technique, allowing all final-year students from the four schools an equal chance to participate, which caused the realization of the final sample of 754. SPSS V26 was utilized to conduct correlation and regression analyses to explore the relationships and predictive power of A-level grades on college CGPA and persistence. Additionally, a mediation analysis was performed to assess the indirect effect of academic engagement on the link between A-level performance and university CGPA. The correlation findings indicated that A-level grades have a significant impact on students' cumulative grade point average (CGPA) but do not significantly affect their persistence in university. Consistent with prior research, academic involvement was found to significantly influence both CGPA and persistence. Additionally, the analysis showed no significant correlation between A-level grades and academic engagement, as well as an insignificant indirect effect of academic engagement on the relationship between A-level points and CGPA. To gain further insight into these statistically significant results, qualitative data collection and analysis were conducted using a purposive sampling method. Fourteen students voluntarily shared their experiences to elucidate the relationships, leading to the emergence of several key themes. For example, strong study skills, motivation, and intellectual ability were identified as reasons why students with higher A-level grades tend to achieve higher CGPA in university. Additionally, a solid grasp of concepts and increased confidence were highlighted as factors explaining why academic engagement positively predicts both CGPA and graduation persistence. Based on the findings, the study concluded that both A-level grades and academic engagement were critical factors toward university success. Therefore, the study recommended that Makerere University and other higher education institutions uphold the current A-Level cut-off requirements for admission into different university programs as may be deemed so. Besides, faculty members should prioritize creating an engaging learning environment that promotes interactive and meaningful experiences, utilizing methods such as collaborative learning sessions, projects, peer-to-peer interactions, and class presentations. By fostering this culture, students are more likely to excel academically and persist in their studies until graduation, as they will perceive their learning as both meaningful and rewarding.

Keywords: A-Level Grades, Academic Engagement, Academic Persistence, College GPA

I. INTRODUCTION

For many students in Uganda, the primary goal after completing A-level is to gain admission to a university purposely to attain a degree. Indeed, this drive motivates many students to put in considerable effort to achieve the necessary academic requirements for their desired courses. As such, high school performance and overall experiences are pivotal milestones in the educational journey, acting as both a gateway to higher education and a foundation for the academic challenges that lie ahead at university (Geddes, 2023). Remarkably, even with a range of universities both public and private available, most A-level graduates in Uganda have their sights set on Makerere University. Consequently, Makerere attracts a wide array of students from various backgrounds, each with different levels of

academic preparation and experience (Kimoga, 2023). The disparities in not just their preparations but also in academic grades influence their university experiences and academic outcomes.

Research consistently highlights that prior academic performance is a significant predictor of outcomes in higher education (Kassaw & Demareva, 2024; Mohd Zaki et al., 2024). Specifically, research alludes that students with high A-level scores often demonstrate better readiness to meet the academic demands of university (Akimov et al., 2024; Kocsis & Molnár, 2024). In contrast, students with lower grades and poor experiences at the high school level frequently encounter challenges in adapting to the increased rigor of university studies, leading to lower academic performance, higher dropout rates, and extended time to graduation (Dyer et al., 2022; Frey, 2019; Amarzaya et al., 2024). This research underlines the importance of examining how high school performance, particularly A-level grades, influences university retention and academic performance, measured by CGPA.

According to both theoretical frameworks and empirical research, particularly Astin's (1984) development or involvement model, students' background factors, particularly prior academic performance, interact with institutional experiences, such as academic engagement, to shape academic success (Hasanov et al., 2021). Academic engagement, considered holistically or as a multidimensional construct encompassing emotional, cognitive, and behavioral aspects (Fredricks et al., 2004), has been strongly linked with improved grades and higher graduation rates. Astin (1984) defines engagement as the "quantity and quality of the physical and psychological energy that students invest in the college experience" (p. 528). This definition highlights the importance of students being fully involved in their learning process, reflecting the relevance of the three dimensions of engagement. Behaviorally, students must demonstrate a strong commitment to their studies; emotionally, they ought to value and actively participate in both academic and extracurricular activities at the campus; and cognitively, they must engage in meaningful academic tasks such as intensive personal study, discussions, etc. while fostering constructive interactions with faculty and peers. Ultimately, students who reach or achieve all three dimensions of involvement at university allegedly attain learning and personal development, which contributes to academic success, while insufficient engagement leads to lower performance and, in some cases, premature withdrawal from university (Yidana & Asare, 2021). Some researchers, such as Sá (2023) contend that engagement extends beyond academics, encompassing participation in campus life, which ultimately augments the overall university experience.

Given these considerations, in this study, we sought to examine the relationship between A-level grades and key educational outcomes, such as CGPA and persistence to graduation. Additionally, we aimed to explore the mediating role of academic engagement in the relationship between A-level grades and university CGPA and persistence.

1.1 Statement of the Problem

The transition from high school to university is an important monument for many students for good reasons. Every year, Makerere University welcomes a new cohort of students, each arriving with varying levels of academic readiness shaped by their different high school backgrounds and experiences (depending on the caliber of the school and its culture). It must be highlighted that some high schools provide comprehensive training and adequate resources to prepare students for university life, while others face significant challenges in these areas (Kidega et al., 2024). For instance, some students are products of affluent schools around Kampala with all resources at their disposal, while others are not (Obedling, 2024). These must, all the same, compete and meet university standards for entry at different Higher Institutions of learning. Moreover, persistent exam malpractice in some high schools tends to lead to students gaining admission to university programs for which they are ill-prepared academically (Odeng, 2022). These differences in preparedness create substantial challenges for higher education institutions, especially Makerere University, where many students struggle to adapt to the increased demands and complexities of university academics.

Yet once on campus, given the enormous freedom, the same students tend to display utmost laziness, often skipping lectures, neglecting their studies, and failing to make use of available resources crucial for academic success (Itaaga et al., 2013). Such behavior undoubtedly contributes to the decline in students' grades and overall persistence to graduation at Makerere University, despite efforts to retain all students. For example, in 2017, only 9 out of 247 law students graduated with a second-class upper degree, while 50 obtained pass degrees, and 188 graduated with second-class lower degrees (Ndyabahika, 2017). In 2022, Makerere University registered a drop in first-class degrees compared to the previous year (Nafula, 2022). Disturbingly, in 2019 alone, more than 1,800 students were discontinued for not meeting program completion standards (New Vision, 2019).

The severity of this challenge has not gone unnoticed. During Makerere's 74th graduation ceremony in 2024, the Minister of Education expressed concern over declining graduation rates, particularly among male students, and called for urgent measures to address the issue (Nagitta, 2024). Similarly, the Deputy Vice Chancellor for Academics highlighted the decline in academic excellence at the "Ivory Tower", pointing to stagnation in student achievement (Sserugo, 2024). High dropout rates, such as those observed in the Bachelor of Education program, where attrition ranges between 34.8% and 83.9% (Aguti et al., 2009), further underscore the magnitude of these challenges.

Emulating Input-Environment-Output (I-E-O) model by Astin (1984), which highlights the interplay between student characteristics and the educational environment, to comprehensively explore academic achievement, the study aims to investigate the relationship between prior academic performance, specifically A-level grades, and critical university outcomes such as CGPA and persistence. Additionally, it seeks to examine the mediating role of academic engagement in this relationship. In this framework, A-level grades represent the input, academic engagement reflects the educational environment and key outcomes include cumulative GPA (CGPA) and persistence. The findings are expected to provide valuable insights for students, faculty, and policymakers to enhance teaching quality, improve student experiences, and promote academic success in higher education

1.2 Research Objectives

i. To determine the predictive effect of A-level grades on academic engagement.
ii. To examine the influence of A-level academic performance on university outcomes, specifically focusing on cumulative grade point average (CGPA) and persistence.
iii. To establish the influence of academic engagement on cumulative grade point average and persistence.
iv. To determine the mediating role of academic engagement in the relationship between A-level performance and university outcomes, specifically on CGPA and persistence.

1.3 Research Hypotheses

H1: Higher A-Level grades positively predict greater levels of academic engagement in college.
H2: Higher levels of academic success in high school, as measured by Uganda Advanced Certificate of Education (UNEB) scores, are positively correlated with increased cumulative college grade point averages (CGPA) and higher possibility of student persistence in college.
H3: Higher levels of academic engagement are positively associated with higher cumulative grade point averages (CGPA) and increased student persistence in university.
H4: There is a significant indirect effect of A-level performance on CGPA through academic engagement

II. LITERATURE REVIEW

2.2 Theoretical Review

2.2.1 The Student Involvement Model (Astin, 1984)

Astin's (1984) Student Involvement Model is the underpinning theory guiding this study. It highlights the fundamental importance of student behavior at campus, that is, the active student involvement in the educational process as a determinant of academic success (i.e., CGPA and persistence). Astin defines academic involvement as "the quantity and quality of the physical and psychological energy that students invest in the college experience" (p. 528). Accordingly, students who are highly engaged invest significant energy in their studies, spend ample time on campus, actively join student organizations, and frequently connect with faculty and peers. Astin argues that student's academic success and personal growth are incumbent upon the degree of involvement in productive academic activities. Therefore, increased engagement in college is associated with better grades and a higher probability of graduation, provided other variables remain constant. Consequently, a student's low academic performance or decision to leave college early indicates a lack of sufficient involvement. According to Sá (2023), sufficient involvement includes student dedication to academic pursuits, participation in extracurricular activities, and interactions with faculty and staff.

Overall, the Student Involvement Model emphasizes the significance of student engagement in fostering academic achievement and personal growth. Astin's framework connects active participation in various elements of university life such as academic endeavors, extracurricular activities, and interactions with faculty and peers to improved university grades and greater commitment to completing one's degree. This model, along with the Input-Environment-Output (I-E-O) framework, is a useful foundation for the current study, which aims to investigate the relationship between A-level grades, student engagement, university performance (measured by CGPA), and persistence toward graduation. The theory highlights the significance of student behavior, particularly immersion in academic pursuits as a pathway to success. This study not only examines the impact of A-level performance on university grades and persistence but also identifies the mediating role that academic engagement plays in the relationship between A-level grades and both CGPA and persistence to graduation at university.

2.1.2 Relating A-Level Grades to Academic Engagement

Research regards high A-level scores as indicators of a student's preparedness for university, and this readiness can be concretized through academic involvement. This is in part because students who enter university college with high academic achievement tend to approach campus academic tasks with confidence in part because of a self-positive perception (Blaisdell, 2024). Even then, the impact of previous academic performance, often considered prior preparation, on academic involvement has received less attention in higher education compared to its influence on college performance particularly cumulative grade point average (CGPA). Nonetheless, some studies have indicated a potential relationship between high school grades and university experiences, particularly academic involvement. For instance, Kelly (1996) and Spady (1971) contented that performance in high school significantly affects a student's integration in university activities. Additionally, Ribeiro et al. (2019) and Rodriguez et al. (2019) found that previous academic achievements influence academic engagement, particularly regarding completing homework, managing time, and fulfilling academic responsibilities. Perhaps, this is plausible given that when students excel at high school, they tend to carry such practices into their further studies (Gomez, 2016).

Astin (1984) characterizes academic involvement as "the quantity and quality of the physical and psychological energy that students invest in the college experience" (p. 528). This definition encompasses regular class attendance, active participation, and engagement with faculty, all of which are linked to improved academic outcomes and persistence. In light of the debate about whether A-level performance shapes academic involvement, first, it can be considered that strong performance at A-level motivates students to maintain their academic standards at the university level. Additionally, success in high school is typically associated with a strong work ethic, which can lead to achieving better grades and a greater likelihood of graduation if the same (work ethic) is carried over into university studies (Thigpen, 2024). This perspective underscores how prior academic success cultivates diligence and engagement among students in higher education.

Furthermore, some research indicates that outstanding performance in high school can help alleviate challenges faced by students from low socio-economic backgrounds (Hauschildt et al., 2021). For example, the European Commission (2015) report highlighted that high-achieving students often possess skills that match the demands of their chosen university programs. This illustrates the case of Uganda, where we observe that national merit and district quota scholarships benefit academically capable but economically disadvantaged students. Once these students obtain scholarships that reduce financial pressures, such as tuition, they can dedicate more time to academic activities that improve their chances of success (Meyer, 2021; Weaver, 2024). This assertion holds, considering that financially challenged university students frequently take on jobs to support themselves, which can limit their time for classroom engagement and lead to lower academic performance (Aguti et al., 2009).

Numerous studies attribute the predictive power of A-level scores to the continued use of academic skills, such as reading and writing, fostered during high school. It should be noted that students who excel in A-level exams typically achieve this through significant effort, collaboration with classmates and teachers, participation in seminars, and extensive reading. Given that prior academic achievements are associated with college CGPA due to the transfer of work ethic into university environments, it is reasonable to conclude that higher A-level performance positively impacts academic engagement in higher education. However, while the theory and empirical studies pay a lot of focus on the actions of the students, it is important to note that sustainable academic involvement of students upon transitioning to campus depends on the members of the faculty or lecturers providing academically engaging environment, say through cognitive challenges, interactive or collaborative teaching and learning practices (Kuh et al., 2008; Xerri et al., 2018).

2.1.3 Linking High School Academic Success to College CGPA and Persistence

Evaluating entry qualifications and prior academic achievements as predictors of undergraduate success is crucial. Prior academic performance, including test scores and pre-university examinations, is deemed a strong indicator of future university achievement (Amarzaya et al., 2024; Mohd Zaki et al., 2024; O'Neill & Nielsen, 2024). Thanks to the quality of high school academic preparation and the rigor of the curriculum it can significantly impact nearly every aspect of postsecondary success (Glazer et al., 2021; Fitzgerald, 2024; Kuh et al., 2006). Interestingly, the relationship is intuitive because students who excel in high school, whether in A-level exams, SATs, or similar assessments, often maintain their academic standing at university, assuming other factors remain constant (Dyer et al., 2022; Frey, 2019). Typically, high school success is linked to a strong work ethic, which, if indeed sustained at university, can lead to higher grades and persistence (Thigpen, 2024).

Moreover, this argument earlier observed proceeds to include the fact that excellent high school preparation can offset the disadvantages of a low socio-economic background of certain students (Hauschildt et al., 2021). While academically well-prepared students perform well at university regardless of their financial circumstances (Mintz, 2024; Cooper, 2024; Cox, 2013). According to the European Commission Report (2015), well-prepared students achieve more when their abilities align with the demands of their chosen study programs. Such students may receive

scholarships that alleviate financial burdens, thereby easing their academic journey (Thelma, 2024; Yong & Liu, 2024). According to Aguti et al. (2009), at Makerere University, students faced with financial challenges usually resort to paying jobs to sustain their stay on campus, which disrupts study time.

Empirically, studies have established high school grades as robust predictors of college grades and persistence to graduation. For instance, Reason (2009), following an extensive literature review, concluded that academic preparation and performance are strong pre-college predictors of persistence and degree attainment. Similarly, Kleemola and Hyytinen (2019) found that prior academic achievement, measured by high school grades, had a significant total effect on the completion of an undergraduate degree. Kuh et al. (1997) similarly identified a small but significant positive effect of high school grades on persistence among males at baccalaureate-granting institutions, although they found that the overall effects of background characteristics on university gains were minimal across different institution types. Zhou (2010) also found that among student background characteristics, only GPA and enrollment status were significantly correlated with persistence. This finding aligns with Tinto's (1975; 1993) conclusion that prior academic performance is a key predictor of student retention. Zhou argued that high school academic performance positively influences college persistence, noting that better high school performance typically leads to a higher college GPA and a greater likelihood of remaining in college.

Additionally, Gomez (2016) identified high school performance as the only statistically significant predictor of college GPA, attributing this to the continued application of academic skills such as reading, writing, and mathematics learned in high school at university. This finding is consistent with Belfield and Crosta (2012) and Costa et al. (2024), who also found that high school performance is a consistent predictor of college success, as these academic skills are further developed in college. Mackenzie and Schweitzer (2001) similarly identified previous academic performance as the most significant predictor of university success, though they cautioned that university entry scores should be interpreted carefully. Lastly, Abdullah and Mirza (2019) discovered a positive correlation between prior examination scores and college CGPA, further supporting the predictive value of prior academic performance.

Although both theoretical perspectives and empirical research support the idea that high school grades can predict university success, primarily due to the ongoing application and transfer of skills acquired in high school, there is a lack of methodological evidence exploring students' subjective views on how prior A-level grades impact final university CGPA and persistence to graduation or completion of university. To gain a deeper understanding of how high school performance impacts college CGPA and persistence, a sequential mixed methods design was employed to gather insights from the personal experiences of final-year students.

2.1.4 Influence of Academic Engagement on Cumulative Grade Point Average and Persistence

Academic engagement, often referred to as "involvement," is vital for understanding student outcomes in higher education (Milburn-Shaw & Walker, 2017; Nguyenová, 2024). It encompasses cognitive, affective, and behavioral dimensions, with behavioral engagement more often extensively studied due to its clear representation of students' commitment to their learning activities (Athens, 2018). This observable aspect often acts as a proxy for assessing cognitive and affective engagement (Vytasek et al., 2020), typically reflected in factors such as dedicated study hours, participation in campus activities, involvement in student organizations, and regular interactions with faculty and peers (Sá, 2023). According to Muñoz-García et al. (2021), the quality of effort that students dedicate to their academic pursuits significantly impacts both their persistence and academic performance.

Numerous studies have explored the link between engagement in purposeful educational activities and academic outcomes. The results consistently show that engaged students are more likely to cultivate a strong interest in their coursework, develop effective study habits, and demonstrate good time management skills (Burnette, 2017; Stephen, 2024), which cultivates higher CGPA and retention. Engaged students seek assistance from faculty, collaborate with academic advisors, and participate in study groups, which not only correlates with improved academic persistence but also increases their chances of achieving better grades (Andrade, 2023; Kuh et al., 2008; Reyes-de-Cózar et al., 2023). For example, Spitzig and Renner (2022) investigated the relationship between student engagement and retention among adult learners at community colleges, using a binary logistic regression analysis of five benchmarks from the Community College Survey of Student Engagement (CCSSE). Their findings indicated a positive relationship between engagement and retention, concluding that these strategies are particularly beneficial for adult learners in community college environments.

Nonetheless, the relationship between engagement and academic outcomes is not always straightforward. Engagement must be constructive, as some research has highlighted the potential drawbacks of excessive engagement, particularly when it leads to burnout or misalignment with academic goals. For instance, Buzzai et al. (2021) found that while engagement typically predicts positive academic outcomes, too much involvement in extracurricular activities can sometimes hinder academic performance. This aligns with Hu and Kuh's (2002) warning that while interactions with faculty can positively affect academic performance, these interactions must maintain an academic

focus. Social engagements that lack academic relevance may not significantly contribute to academic success, highlighting the need for a balanced approach to engagement that aligns with educational objectives.

While the literature acknowledges that engagement, when viewed holistically, can predict cumulative GPA (CGPA) and foster persistence, it often lacks context-specific studies on how different types of engagement influence academic success at the university level. The current study aims to address this gap by examining the effects of specific forms of engagement particularly interaction with faculty, active participation in class, and collaborative learning in enhancing CGPA and supporting persistence through to graduation.

2.1.5 Academic Engagement as a Mediator in the Connection between A-Level Performance and University Outcomes, Particularly Regarding CGPA and Persistence

According to research, high school academic performance is a vital predictor of future college outcomes, such as cumulative GPA (CGPA) and academic persistence (Allensworth & Clark, 2020; Barbera et al., 2020). Typically, students who achieve high marks in high school through A-Levels, SATs, or other similar assessments tend to maintain their academic success in university if other variables remain constant (Dyer et al., 2022). This assertion is based on the notion that high school success reflects a solid work ethic, which, when carried into university, can enhance both grades and persistence (Thigpen, 2024). However, though there is ample research establishing a direct connection between A-level grades and academic success, there is a scarcity of studies that have explored whether this relationship is partially mediated by factors such as academic engagement, at least by the survey of the literature. As already indicated, academic engagement, which encompasses physical and psychological investment of time in learning (Astin, 1984), might function as a key mediator linking previous achievements with positive college outcomes, including CGPA and persistence. That possibility is perhaps true given that empirical research indicates that students with strong A-level results often demonstrate higher levels of academic engagement (Hu & Kuh, 2002; Mitra, 2022) because they are motivated to maintain academic standards earlier attained. Thus, constructive engagement for such students is substantiated by the firm recognition that without sustained engagement, the advantages of their previous high A-level scores could diminish, leading to poorer performance in university and lower rates of persistence (Xerri et al., 2018), which can be shameful to them.

Empirical studies suggest that academic engagement can mediate the impact of A-level performance on college success. For example, Carini et al. (2006) found that engagement significantly contributes to variations in academic performance among high achievers. Similarly, Yu (2023) demonstrated that academic engagement amplifies the effects of A-level performance by sustaining student motivation on campus. These insights highlight the importance of academic engagement at university in that it not only solidifies the skills acquired during secondary education but also aids students in navigating the challenges of college life, making it vital for converting A-Level success into sustained academic achievement in higher education. Additionally, research conducted by Burnette (2017) and Stephen (2024) indicates that engaged students often develop a robust interest in their coursework, cultivate effective study habits, and demonstrate strong time-management skills, all of which contribute to higher CGPA and retention rates when applied in a university setting. Other scholars (such as., Andrade, 2023; Kuh et al., 2008; Reyes-de-Cózar et al., 2023) support these findings, observing that engaged students frequently seek help from faculty, collaborate with academic advisors, and participate in study groups, ultimately enhancing both academic persistence and performance.

Overall, though a myriad of empirical research demonstrates a direct model showing the connection between A-level grades and college CGPA and persistence, there exists a notable gap in studies examining the mediating role of particular types of academic engagement, such as interactions with lectures, collaboration, and active class participation within this relationship. Therefore, the current study aims to explore the mediating effect of these specific forms of academic engagement on the link between A-level performance and favorable outcomes in CGPA and persistence.

III. METHODOLOGY

3.1 Research Paradigm

A research paradigm refers to a philosophical perspective on the nature of reality and the approaches we use to comprehend it (Creswell & Creswell, 2017; Dawadi et al., 2021). It is essential to define the research paradigm for a study, as this influences the researcher's choices regarding methodology, data collection, analysis, interpretation, and presentation of results (Antwi & Hamza, 2015; Lim, 2024). As noted by Maksimovic and Evtimov (2023), failing to establish a paradigm from the outset can undermine subsequent decisions related to methodology, methods, literature, and research design. One gap this study aims to address is the previous lack of incorporation of participants' subjective experiences, which can enrich the understanding of the phenomena and clarify statistically significant findings. For this reason, we adopted a post-positivism paradigm for our research, because it supports integration of both positivist

and interpretivist perspectives. This approach supports an objective examination of phenomena through a combination of quantitative and qualitative data, or a mixed-methods strategy (Dawadi et al., 2021). Furthermore, we chose post-positivism because it emphasizes the importance of quantitative data, which is then supplemented and explained by qualitative insights (Tanlaka et al., 2019). Although our study primarily focuses on quantitative data, it enhances these findings with qualitative data through a triangulation process.

3.2 Research Design

In line with the post-positivism paradigm, we adopted a mixed-methods research design for this study. Mixed-methods research blends various approaches to either validate results mutually or to gain a deeper understanding of the topic through complementary findings (Kelle et al., 2019). The primary goal of our study was to explore the underlying meanings of statistically significant results.

In this mixed-methods framework, we placed a strong emphasis on quantitative data to analyze the correlation and predictive relationships between variables, for instance, A-level grades and educational outcomes, specifically CGPA and persistence. Subsequently, we incorporated qualitative data through participant interviews to provide context and explanations for the statistically significant findings.

To structure this approach, we employed a sequential explanatory mixed-methods design. After completing the quantitative phase, we engaged with participants again to delve into their perspectives, aiming to develop a deeper understanding and rationale behind the significant quantitative outcomes. This entire process is anchored in the post-positivist perspective, which values the integration of both quantitative and qualitative methodologies.

3.3 Study Population

The target population for this study was final-year students at Makerere University from four select schools totaling 1274. The inclusion of finalists was based on the strong recommendation of Altman (2017), who, in his monograph "Persistence and Achievement in Academics," advocated for focusing on finalists rather than first-year or sophomore students when studying academic achievement, particularly academic persistence. Altman argued that first-year or sophomore students are still relatively new to college or university and may not be able to provide data that adequately gauge their intention to persist to graduation, as graduation for this cohort is still distant. For this reason, the study concentrated on finalist students at Makerere University.

Furthermore, the population exclusively consisted of active students who were still enrolled in their study programs. The decision to restrict participation to actively enrolled students was based on the premise that if graduation is the ultimate goal for university students, then persistence is a positive outcome worth investigating (Blommel, 2024). Additionally, the objective of this investigation was to establish the correlation or interplay between students' backgrounds, institutional experiences, grades, and persistence to graduation. This focus was deemed most appropriate for studying students who were still actively engaged in their academic courses at the university.

Table 1

Target Population

School	Number
A	542
B	407
C	157
D	168
Total	1274

3.4 Sampling Design and Procedure

In this study, we employed both probability and purposive sampling techniques for the quantitative and qualitative phases, respectively. For the quantitative data collection, we adopted a probability sampling method, which is frequently recommended for such research (Althubaiti, 2023). We specifically used simple random sampling to ensure that all final-year students from the four participating schools had an equal opportunity for selection. This approach helped mitigate potential biases and addressed the common issue of low response rates in self-administered surveys (Kumar, 2024). A total of 1,200 questionnaires were distributed, resulting in 754 valid responses after thorough screening, which formed the sample for quantitative data analysis. This was way higher than the anticipated sample of 634, according to Krejcie and Morgan's (1970) table of determining sample size.

In the qualitative phase, we utilized a purposive sampling technique, targeting participants who met particular criteria (Akkaş & Meydan, 2024; Das et al., 2022). Only students who had participated in the quantitative data collection and those who had extended durations in their academic programs were prioritized for interviews after the quantitative data analysis was completed. Importantly, only students who consented to participate in the interviews

were included. This resulted in a total sample of 25 participants across the four schools. This number was deemed sufficient for the qualitative phase, which aimed for an in-depth exploration of the explanations underlying each statistically significant finding from the quantitative analysis. Given that qualitative research typically involves smaller sample sizes (Tracy, 2024), a larger group could complicate the thorough analysis, as the focus was on capturing individual experiences rather than generalizing results.

Table 2

Sample Size

School	Number	Sample size	Simple random Size
A	542	217	754
B	407	196	
C	157	108	
D	168	113	
	1274	Sample size=634	

3.5 Data Collection Procedure

We gathered primary data for both the quantitative and qualitative phases from final-year students across the four schools at Makerere University, following approval from the Makerere University Social Sciences Research Ethics Committee (study protocol number MAKSSREC 10.2024.784). For the quantitative data collection, we used a questionnaire, while qualitative data were obtained through interviews guided by a specific interview framework. The questionnaire comprised four sections: demographic information, academic performance (including A-Level scores and university CGPA), academic engagement (as measured by the National Student Scale for Engagement or NSSE), and the persistence scale.

3.6 Data Validity and Reliability

According to Gong et al. (2024), validity refers to the extent to which a test or construct measures what it claims to measure, while reliability pertains to the stability over time and internal consistency of the measure. In quantitative research, it is emphasized that when using an existing instrument, the researcher should report the validity and reliability scores previously documented by the original author of the instrument (Creswell, 2009; Hirpassa, 2018). Creswell recommends reporting construct validity, predictive validity, content validity, measures of internal consistency, and test-retest correlation.

Academic engagement was measured using the National Survey of Student Engagement (Kuh, 2001). According to the US National Survey of Student Engagement (NSSE) report by Ewell (2010), the research team meticulously ensured that the engagement survey items were originally clearly worded, well-defined, and possessed high content and construct validity. To further ensure the instrument's validity, the team conducted cognitive interviews and focus groups, which revealed that only a few survey items were challenging for students to interpret as intended, such as the concept of a learning community or distinguishing between socializing and relaxing. These issues were subsequently addressed and corrected. Overall, the NSSE team concluded that, "*the five NSSE benchmarks are valid measures of the quality student engagement experiences" p.1.* Table 3 illustrates the alpha reliability for each scale as reported by the original authors.

Table 3

NSSE Test-Retest Coefficient Alpha

NSSE Benchmarks	2002	2005
Level of Academic Challenge	.74	.69
Active and Collaborative Learning	.74	.72
Student-Faculty Collaboration	.75	.70
Enriching Educational Experiences	.74	.74
Supportive Campus Environment	.78	.70
N	1226	1536

In the current study, we utilized a summative scale from the NSSE, comprising 19 items that measured student engagement with faculty, experiences with diverse others, and involvement in opportunities for active and collaborative learning. Originally, the NSSE scale showed a Cronbach's alpha coefficient for internal consistency of 0.818 when administered to first-year students and 0.836 for senior students. In the current study, which focused on seniors (finalist students), the scale produced a total Cronbach's alpha of 0.849, indicating a higher reliability than

originally reported. Overall, the current questionnaire exhibited the following Cronbach's alpha coefficients, as summarized in Table

The measures of persistence were a modified scale from the College Persistence Questionnaire by Lindheimer III (2011), which contained 5 items. All the items of the questionnaire were above the threshold of 70 percent.

3.7 Data Analysis

3.7.1 Quantitative Procedure

Quantitative data analysis was conducted using SPSS Version 26, following several key steps: data cleaning and screening, handling missing variables through imputation, reliability testing of scales, normality testing, and conducting descriptive and inferential statistics, including correlation, regression, and mediation analysis using Process Macro, Model 4.

3.7.2 Data Screening and Handling Missing Data

The data was carefully checked for errors, outliers, and missing entries. As noted by Collier (2020), imputation was employed to manage missing data, preventing significant data loss. Using SPSS v.26, we applied a series mean imputation technique, creating new columns for imputed indicators where necessary, thus preserving data integrity and facilitating the reliability testing and subsequent correlation, regression, and mediation analyses.

3.7.3 Qualitative Procedure

Qualitative analysis, an iterative process distinct from quantitative analysis, involves discarding, refining, and reformulating ideas. We used thematic analysis to identify and report patterns in the data, guided by Braun and Clarke's (2006) six phases: familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. This approach allowed for manual coding and categorization into themes, culminating in a coherent report supported by vivid interview examples.

Manually analyzing the data offered us several advantages over software tools. For instance, it enabled deeper engagement with the data, capturing subtle contextual nuances that automated systems might have overlooked (Bryda & Costa, 2023). This flexible process allowed codes and themes to evolve as new insights emerged (Lim, 2024). Additionally, manual analysis encouraged critical reflection and context-sensitive interpretive decisions instead of relying on computer software (Levitt et al., 2024). Although software could enhance data management efficiency, the manual approach produced richer, more nuanced interpretations aligned with the study's objectives, resulting in a cohesive and insightful narrative of the findings.

IV. FINDINGS & DISCUSSION

4.1 Demographic Factors of Participants

Table 4 shows the frequencies and percentages for participants' age, gender, and year of study. Although the study targeted final-year students, some programs lasted three years while others spanned four years, which is why the academic year is detailed.

Table 4

Descriptive Statistics for the Demographic Characteristics

Characteristics	Frequency	Valid %
Gender		
Male	313	41.5
Female	441	58.5
Total	754	100.0
Age group		
20-21	63	8.4
22-24	602	79.8
25-30	74	9.8
31-44	15	2.0
Total	754	100.0
Academic year of study		
Year 3	628	83.3
Year 4	126	16.7
Total	754	100.0

The findings revealed a pronounced demographic profile among the 754 participants, with a striking 58.5% being female. This gender distribution underscores the significantly higher enrollment of women. In contrast, male participants constituted 41.5% of the sample, marking a notable gender disparity. Age-wise, the data indicates that a dominant 79.8% of participants were within the 22-24 age bracket, which is typical for final-year students. The next largest cohort, aged 25-30, comprised 9.8% of the sample, while 8.4% fell into the 20-21 age range. A small minority, 2.0%, were aged between 31 and 44 years. Despite the study's focus on final-year students, a significant majority (83.3%) were in their third year, indicative of the three-year structure prevalent within the four schools. The remaining 16.7% were in their fourth year, these were primarily offering four-year Engineering courses. This variation in the academic year underscores the diversity in program lengths and the corresponding academic progression of the participants.

4.2 Correlation Between A-Level Scores and Academic Engagement

Table 5 shows the correlation analysis exploring the relationship between A-Level points and academic engagement.

Table 2

Correlation of A-level performance and academic Engagement

		Academic Engagement
A-Level points	ρ	-.004
	Sig. (2-tailed)	.914

N=754

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

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

Though we hypothesized that higher A-level grades positively influence academic engagement in college, which includes factors such as class participation, involvement in study groups, and use of available academic resources at university, on the contrary, the findings revealed no meaningful correlation between A-level scores and academic engagement. With a correlation coefficient (ρ) of -.04 and a significance level (sig. 2-tailed) of .91 well above the .05 threshold for statistical significance, there was no evidence of a linear relationship between these variables. The lack of association implies that high performance in A-level exams as shown by grades, may not necessarily lead to greater engagement of students in higher education settings or universities. Although previous studies have suggested a theoretical connection between prior academic grades and increased engagement (Astin, 1984) at college, our results indicate that other factors may significantly influence student engagement than A-level grades. Suggestively, the disconnect between A-level grades and academic engagement at university shows that students with prior strong academic foundations experience different motivations or may feel they are good enough not to engage so much as the academically challenged students. most importantly, this debate can best be highlighted if and when the higher institutions of learning and the members of the faculty create stimulating learning environments that foster academic involvement. This calls for colleges and members of the faculty to create stimulating environments that encourage and motivate students to be academically involved because sustained engagement requires continual academic challenges and opportunities for involvement (Ribeiro et al., 2019).

4.3 Correlation Between A-Level Performance and University CGPA and Persistence

Table 6 shows the relationship between A-Level points and academic outcomes, specifically CGPA and persistence to graduation

Table 6

Correlation of A-Level Performance and Academic Achievement

		CGPA	**Academic Persistence**
A-Level points	ρ	.256**	.036
	Sig. (2-tailed)	.000	.325

N=754

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

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

We proposed that higher academic achievement in high school, as measured by scores from the Uganda Advanced Certificate of Education (UNEB), correlates positively with both cumulative college grade point averages (CGPA) and student persistence in university. The analysis confirmed our hypothesis, revealing a significant positive

correlation between A-Level scores and university CGPA ($\rho = .256^{**}$, $p < .01$). This suggests that students achieving higher A-Level points are more likely to perform well academically in university. The qualitative data analysis and insight revealed key factors, namely, effective study skills, intrinsic motivation, and intellectual capacity that explained how prior academic grades (A-level) contribute to the academic success of students in university. These themes include.

Exemplary Study Skills; Students with elevated A-Level scores exhibited advanced study habits, such as collaborative learning, regular and thorough revision, efficient use of library resources, and a strong sense of self-discipline. These competencies, developed in high school, were consistently applied throughout their university careers. For instance, one participant shared their proactive approach to learning:

> *"During my A-Level studies, I recognized that merely attending classes was not enough; I had to take control of my learning. I created a study plan featuring clear weekly objectives, regular revision, and diverse resources, textbooks, and library archives. Collaborative engagement especially discussions with peers also enhanced my comprehension, especially in subjects I found difficult to understand on my own. These habits became fixed, and I have continued with the same even after transitioning to university. My persistent study routine and discipline have been vital in maintaining a strong academic performance."* (Q2A-RA)

Another participant echoed this sentiment, emphasizing the significance of collaborative learning in fostering effective study techniques:

> *"My high school experience underscored the importance of establishing solid study habits early. I was actively involved in various study groups, where we regularly challenged one another and discussed complex topics. I dedicated specific hours for intensive personal revision, frequently visited the library, and followed a disciplined study schedule. I have not deviated from that norm since coming to campus these practices have become second nature and assisted me throughout my campus stay in managing my university workload while achieving high grades."* (Q2A-RK)

Motivation; The findings also indicated that students who excelled in high school exhibited strong intrinsic motivation to succeed in university. This motivation stemmed from personal confidence, self-efficacy, and a desire to affirm their previous academic accomplishments. One participant articulated their inner drive:

> *"I have always been motivated by a great desire to fulfill my potential. My success in high school just instilled more sense of confidence and self-belief that I carried into university. I thus remained committed to upholding my academic performance, not for external recognition, but to demonstrate to myself that I can excel at a higher level just like I did in high school."* (Q2A-RI)

Another participant emphasized the sense of responsibility that came with their high school successes:

> *"Achieving top grades in high school instilled a powerful internal drive to maintain that level of performance in university. While I had confidence in my abilities, I also felt a duty to prove that my past success wasn't merely an accident. This motivation has kept me focused and disciplined, encouraging me to seek assistance when necessary and strive for excellence in my coursework."* (Q2A-RL)

Intellectual Capacity; The analysis also suggested that students with higher A-level scores displayed enhanced intellectual capabilities, such as critical thinking and academic curiosity. One participant described their intellectual journey:

> *"I chose to pursue Engineering not by coincidence; from an early age, I was naturally curious about how the world functioned. This led me to focus on mathematics and physics in high school. This curiosity, coupled with my critical thinking skills, has facilitated my ability to grasp complex topics quickly and build a robust foundation in my field."* (Q2A-RM)

Another participant underlined the importance of analytical skills developed during their A-Level studies:

> *"In high school, I cultivated strong reading skills, which were crucial to my A-Level success. I guess you know that to excel at an A-level, you must adequately prepare or else you fail. These skills have proven invaluable at university, enabling me to critically engage with academic material and perform well."* (Q2A-RL)

These findings collectively illustrate the significant impact of A-level performance on subsequent academic outcomes in university settings in terms of work ethic, motivation, and skills gained.

Our findings align with existing research that emphasizes the importance of prior academic success as a key predictor of college performance. The strong connection between A-level scores and CGPA reinforces Astin's (1984) involvement theory, which posits that a solid foundation in high school promotes engagement critical to academic achievement in higher education. These results are also supported by additional studies; for example, Mackenzie and Schweitzer (2001) highlighted prior academic performance as the most significant predictor of university success, while cautioning that entry scores should be interpreted with care. Abdullah and Mirza (2019) found a positive relationship between past examination scores and college CGPA, further confirming the predictive power of previous

academic performance. Moreover, the findings are consistent with research by Belfield and Crosta (2012) and Costa et al. (2024), who also identified high school performance as a reliable predictor of college success, as these academic competencies are further refined during university. Lastly, Gomez Jr. (2016) noted that high school performance was the only statistically significant predictor of college GPA, attributing this to the continued use of academic skills, such as reading and writing, developed in high school.

On the contrary, though, the results of the analysis indicated a non-statistically significant relationship between A-level scores and academic persistence ($\rho = .036$, $p = .325$), suggesting that while high school performance positively impacts academic performance in university, it may not significantly influence students' commitment to continue their studies over time. This disconnect seems to highlight an existential gap between initial academic preparedness and the ongoing engagement for students needed for persistence, echoing the assertion that sustained academic engagement serves as a mediator in the success trajectory of college students.

4.4 Correlation Analysis of Academic Engagement and Learning Outcomes

The analysis explored the connection between students' academic engagement and their academic success at the university, specifically focusing on CGPA and persistence to graduation. The results are detailed in Table 7.

Table 7

Correlation matrix for Academic Engagement and both Academic Persistence and CGPA

		Academic Persistence	CGPA
Academic Engagement	ρ	.428**	.137**
	Sig. (2-tailed)	.000	.000

N=754

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The statistical analysis revealed a positive correlation between academic engagement and academic persistence ($r = .428^{**}$, $p < .01$), as well as between academic engagement and CGPA ($r = .137^{**}$, $p < .01$). These findings suggest that students who actively participate in academic activities, such as attending lectures, studying diligently, and engaging in peer discussions are more likely to persist in their studies and achieve higher CGPAs. In support of the correlational findings, the qualitative analysis identified two key themes to explain the association between academic engagement and both CGPA and persistence: good comprehension and mastery of concepts, and learner confidence.

Good Comprehension and Mastery of Concepts: The analysis highlighted that students who actively engage in academic activities are more likely to attain higher CGPA and persist because of a deeper understanding and mastery of their subjects. This mastery of content is achieved through thorough exam preparation, discovery of new knowledge, and valuable feedback. Active participation in class activities—such as asking questions, engaging in discussions, and dedicating time to study significantly contributes to this comprehension, leading to better academic performance and persistence. The following narratives illustrate these experiences:

> *"Getting thoroughly involved in my academic work has been key to my success throughout my stay on campus. Right from year one, I have always made it a signature to attend every lecture, engage in discussions, and seek extra help when needed especially from my course mates. Understanding the 'why' behind every course material has always been crucial, and this approach has significantly improved my CGPA and kept me motivated through my program's challenges."* (Q3d-R-A)

Another respondent shared:

> *"From the start of campus, I have always prioritized attending all lectures and participating in class discussions. Joining study groups has further deepened my understanding of not just the course material but has contributed to my excellence. This proactive involvement has been driven by my desire to master concepts and excel academically, resulting in noticeable improvements in my CGPA and undoubtedly persistence to this date."* (Q3d-R-L)

These narratives highlight not just how but why students who invest considerable effort in constructive academic activities are more likely to perform well and persist at university.

Learner Confidence: The analysis also revealed that students who actively engage in their studies often develop greater confidence, fueled by connections with peers, reduced anxiety, and personal goal achievements. Factors like motivation, early preparation, and content mastery further bolster this confidence. As a result, these students are more likely to excel academically and remain committed to their studies. The following narratives reflect these experiences:

> *"I had always had anxiety issues, especially with exams, but since joining a study group at campus with course mates, this not just bolstered my confidence but also increased my performance and, in turn, CGPA. with my discussion group members, I always feel confident about the exams because I feel ready. Overall, the engagement reduced my anxiety and boosted my self-confidence. Meeting academic goals and improving my results even further increased my confidence." (Q3d-R-E)*

Another respondent noted:

> *"Being actively engaged in my studies has always kept me confident. Of course, I never miss lectures, participate in discussions, and prepare thoroughly for exams by making personal intensive reading. I have always gone for my papers full of confidence and certainty that I will excel." (Q3d-R-M)*

These narratives confirm that students who actively participate in purposeful academic activities are more likely to excel, attain higher CGPA, persist, and ultimately complete their studies.

The findings of the study are consistent with existing literature that emphasizes the significant role of academic engagement in higher education. As already noted, engagement encompasses not only student participation in coursework but also meaningful interactions with faculty and peers, consistent with Astin's (1984) involvement theory. The positive correlations found in this study between academic engagement, cumulative grade point average (CGPA), and student persistence reiterate the empirical assertion by Muñoz-García et al. (2021) that higher levels of quality effort that students dedicate to their academic pursuits significantly impact both their persistence and academic performance. Specifically, students who actively participate in educational activities such as attending lectures, contributing to discussions, and collaborating in study groups are more likely to achieve higher academic performance and demonstrate persistence in their studies, echoing the findings of Andrade (2023) and Kuh et al. (2008).

Qualitative insights from the study enrich these findings by revealing two critical themes: effective comprehension and mastery of concepts, and increased learner confidence, both of which serve to explain why engaged students tend to excel academically. Students reported that their engagement led to a deeper understanding of course materials and enhanced their ability to navigate complex subjects, resonating with the conclusions of Hu and Kuh (2002). This deep engagement not only promotes content mastery but also fosters essential skills such as time management and the proactive seeking of faculty assistance. Additionally, the theme of learner confidence emerged as a vital aspect of academic engagement, reinforcing the importance of supportive networks in cultivating self-efficacy and reducing anxiety, as noted (Burnette, 2017). Most of all, the narratives shared by students indicate that their active involvement not only prepared them academically but also reinforced their confidence, facilitating their commitment to academic success.

Overall, these findings underscore the importance of academic engagement as a predictor of CGPA and persistence in higher education. Students who engage meaningfully in educationally purposeful activities are more likely to achieve better academic outcomes and remain dedicated to completing their studies. Therefore, it is crucial for educational institutions of higher learning to cultivate environments that promote and enhance student involvement, ensuring that diverse forms of participation align with academic goals.

4.5 Partial Mediation Analysis: A-Level Points and CGPA via Academic Engagement

Table 8 displays the results of a partial regression mediation analysis, investigating the direct, indirect, and total effects of A-level points on the CGPA of final-year university students, with academic engagement serving as a mediating variable.

Table 8

Bootstrap Estimates of Direct, Indirect, and Total Effects of A-Level Point Scores on University CGPA Mediated by Academic Engagement

Variable/Effect	***b***	***SE***	***t***	***p***	***95% Confidence Interval***	
A-Level Points→ CGPA	.0448	.0057	7.8259	.0000	.0336	.0560
A-Level Points→ Acad Engage	.0008	.0085	.0879	.9300	-.0160	.0175
A-Level Points→ Acad Engage→ CGPA	.0950	.0244	3.8901	.0001	.0471	.1430
Effects	***b***	***SE***	***t***	***p***	***95% Confidence Interval***	
Direct	.0448	.0057	7.8259	.0000	.0336	.0560
Indirect	.0001	.0009			-.0016	.0020
Total	**.0449**	**.0058**	**7.7657**	**.0000**	**.0335**	**.0562**

Based on 5000 bootstrap samples

Table: Mediation Analysis

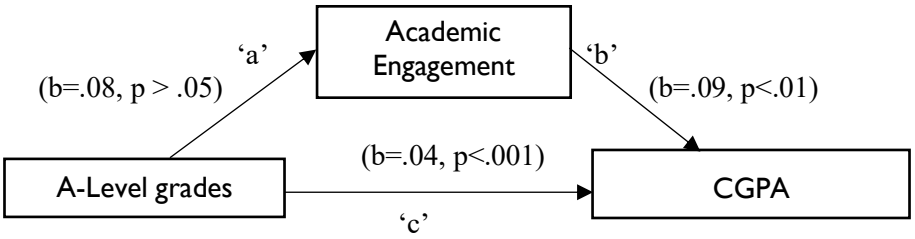

Figure 1
Standardized Mediational Pathway from A-Level to CGPA Via Academic Engagement

The analysis showed that A-level grades were positively associated with university CGPA (b=.04, p<.01), indicating that better performance in A-level exams leads to better performance at university. However, the indirect effect of academic engagement on the relationship between A-Level points and CGPA was not significant (p>.05). The direct effect of A-Level points on CGPA was significant (b=.0448, p<.001), suggesting that students with higher A-Level points are likely to have higher CGPA even when academic engagement is considered. The total effect was also significant (b=.0449, p<.01), showing that A-level points have a strong direct impact on CGPA.

The findings of this study reveal a significant direct relationship between A-level performance and university CGPA, suggesting that high school success directly translates into better academic outcomes in higher education. Specifically, the analysis indicates that students with higher A-level scores tend to achieve higher CGPAs, reinforcing the assertion found in previous research that strong high school performance is a crucial predictor of future academic success (Allensworth & Clark, 2020; Barbera et al., 2020). However, despite the positive association between A-level points and CGPA, the role of academic engagement as a mediating factor was not statistically significant in this analysis. This suggests that while engagement is undoubtedly important for sustaining academic performance and persistence, it may not serve as a necessary pathway through which A-level success influences CGPA. The fact that both theory and empirical studies affirm the positive effect of engagement on academic performance, the absence of a significant indirect effect certainly prompts a reconsideration of how various types of engagement such as peer collaboration, faculty interaction, and active class participation, integrate with prior academic achievements to support student outcomes. This gap necessitates the need for further research to investigate the intricacy of academic involvement including how it interacts with other factors in transitioning A-Level success into ongoing academic achievement in university settings.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The study highlights the complex relationship between prior academic performance, particularly A-level grades, university academic engagement, and overall success. While it was established that higher A-level scores positively influence students' cumulative grade point averages (CGPA), their impact on students' ability to persist to graduation was less pronounced. Academic engagement, aligned with Astin's (1984) framework, emerged as a significant factor affecting both CGPA and persistence. Therefore, promoting a culture of academic involvement through interactive learning experiences and constructive peer interactions can enhance performance and foster academic resilience. Interestingly, the analysis found no significant correlation between A-level grades and academic engagement nor an indirect effect of engagement on the relationship between A-level performance and university CGPA. These findings do not undermine the importance of academic involvement; rather, they suggest that other factors may play a role in shaping this relationship.

5.2 Recommendations

Based on the findings of this study, several recommendations are made to the effect of improving academic performance and graduation rates among university students. First, higher education institutions must recognize the varying academic experiences and levels of preparedness that students bring from high school. Consequently, universities should expand their orientation programs and academic advising offerings. While orientation is generally conducted as a one-time session, we recommend continuous academic advising to address the challenges that can influence both student performance and retention, particularly by promoting ongoing engagement. Besides, we recommend periodic workshops that focus on effective study strategies to help students efficiently utilize their time. This, we anticipate, can significantly motivate students and keep them actively involved in their academic journey while at university.

Additionally, acknowledging the critical role of academic engagement in achieving success and maintaining persistence, institutions of higher learning ought to implement strategies that encourage active participation in the learning process. To achieve this, faculty members should embrace teaching approaches that foster an interactive and engaging academic environment. This may include activities such as peer presentations and group projects, which not only enhance the learning experience but also motivate students to excel and remain dedicated to their education.

Lastly, students must be cognizant that given the enormous freedom at university, engagement levels in personal studies may diminish. Many of them tend to fall into the habit of missing classes and failing to utilize the resources at their disposal, which can result in poor academic performance and difficulties in persisting toward graduation. Therefore, students must take initiative and active role in their studies by participating in classes, making full use of academic resources, and engaging in collaborative learning experiences. By cultivating a culture of academic involvement supported by both institutional policy and faculty, there is a significant opportunity to enhance overall performance and improve retention rates in higher education.

REFERENCES

Abdullah, N. A., & Mirza, M. S. (2019). Predicting Academic Performance in Undergraduate Online Degree Programs from Previous Academic Achievement in Pakistan. *Pakistan Journal of Distance and Online Learning*, *5*(2), 209-222.

Aguti, J. N., Nakibuuka, D., & Kajumbula, R. (2009). Determinants of Student Dropout from Two External Degree Programmes of Makerere University, Kampala, Uganda. Malaysian Journal of Distance Education, 11(2).

Akimov, A., Malin, M., Sargsyan, Y., Suyunov, G., & Turdaliev, S. (2024). Student Success in a University First-Year Statistics Course: Do Students' Characteristics Affect Their Academic Performance? *Journal of Statistics and Data Science Education*, *32*(1), 24-35.

Akkaş, H., & Meydan, C. H. (2024). Sampling methods in qualitative sampling in multicultural settings. In A. Elhami, A. Roshan, & H. Chandan (Eds.), *Principles of conducting qualitative research in multicultural settings* (pp. 32-54). IGI Global. https://doi.org/10.4018/979-8-3693-3306-8.ch003

Allensworth, E. M., & Clark, K. (2020). High school GPAs and ACT scores as predictors of college completion: Examining assumptions about consistency across high schools. *Educational Researcher*, *49*(3), 198-211.

Althubaiti, A. (2023). Sample size determination: A practical guide for health researchers. *Journal of General and Family Medicine*, *24*(2), 72-78.

Altman, R. L. (2017). Persistence and Achievement in Academics. Electronic Theses and Dissertations, 1545. https://digitalcommons.georgiasouthern.edu/etd/1545

Amarzaya, A., Ankhbayar, J., & Narantuya, M. (2024). A Study of Factors Predicting Students' University Academic Achievement. *American Journal of Science Education Research. AJSER-187*

Andrade, M. S. (2023). Student Persistence in Higher Education: What is the Role of Learning? *College Teaching*, 1–7. https://doi.org/10.1080/87567555.2023.2228443

Antwi, S. K., & Hamza, K. (2015). Qualitative and quantitative research paradigms in business research: A philosophical reflection. *European journal of business and management*, *7*(3), 217-225.

Astin, A. W. (1984) Student involvement: A developmental theory for higher education. *Journal of College Student Personnel,* 25 (2), pp. 297–308.

Athens, W. (2018). Perceptions of the persistent: Engagement and learning community in underrepresented populations. *Online Learning*, *22*(2), 27-57.

Barbera, S. A., Berkshire, S. D., Boronat, C. B., & Kennedy, M. H. (2020). Review of undergraduate student retention and graduation since 2010: Patterns, predictions, and recommendations for 2020. *Journal of College Student Retention: Research, Theory & Practice*, *22*(2), 227-250.

Belfield, C. R., & Crosta, P. M. (2012). Predicting Success in College: The Importance of Placement Tests and High School Transcripts. CCRC Working Paper No. 42. *Community College Research Center, Columbia University*.

Blaisdell, N. (2024). *An Investigation into Pathway Preparation and Student Motivation* (Doctoral dissertation, Northeastern University).

Blommel, N. (2024). *Most Likely to Succeed: Which Factors Influence College Students in Completing Their Two-Year Computer Degree and Graduating from College*. Dissertations, Theses, and Projects. 947. https://red.mnstate.edu/thesis/947

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Bryda, G., & Costa, A. P. (2023). Qualitative research in digital era: innovations, methodologies and collaborations. *Social Sciences*, *12*(10), 570.

Burnette, M. N (2017). *College Academic Engagement and First-Year Students' Intention to Persist*. Seton Hall University Dissertations and Theses (ETDs). https://scholarship.shu.edu/dissertations/2419

Buzzai, C., Sorrenti, L., Costa, S., Toffle, M. E., & Filippello, P. (2021). The relationship between school-basic psychological need satisfaction and frustration, academic engagement and academic achievement. *School Psychology International*, *42*(5), 497-519.

Carini, R.M., Kuh, G.D., & Klein, S.P. (2006) Student Engagement and Student Learning: Testing the Linkages. *Research in Higher Education, 47*(1), 1-32. https://doi.org/10.1007/s11162-005-8150-9

Collier, J. (2020). Applied Structural Equation Modeling using AMOS: Basic to Advanced Techniques (1st ed.). Routledge. https://doi.org/10.4324/9781003018414

Cooper, C. (2024). *Exploring College Readiness: Self-Perceptions of Students in Higher Education* (Doctoral dissertation, Lamar University-Beaumont).

Costa, A., Moreira, D., Casanova, J., Azevedo, Â., Gonçalves, A., Oliveira, Í., Azevedo, R., & Dias, P. C. (2024). Determinants of academic achievement from the middle to secondary school education: A systematic review. *Social Psychology of Education, 1-40*. https://doi.org/10.1007/s11218-024-09941-z

Cox, B. G. (2013). *Academic and social integration of the non-traditional college student: Does engagement affect retention* (Doctoral Dissertation, The University of North Carolina at Charlotte, Charlotte, NC).

Creswell, J. W. (2009). *Research design: Qualitative and mixed methods approaches*. London and Thousand Oaks: Sage Publications.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Das, B. K., Jha, D. N., Sahu, S. K., Yadav, A. K., Raman, R. K., & Kartikeyan, M. (2022). Concept of Sampling Methodologies and their Applications. In *Concept Building in Fisheries Data Analysis* (pp. 17-40). Singapore: Springer Nature Singapore.

Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-methods research: A discussion on its types, challenges, and criticisms. *Journal of Practical Studies in Education*, *2*(2), 25-36.

Dyer, K., Childers, G., & Odell, M. R. (2022). Predictors of academic achievement in dual credit students. *Journal of Advanced Academics*, *33*(2), 217-236.

European Commission: Directorate-General for Education, Youth, Sport and Culture, Wollscheid, S., Stensaker, B., Jongbloed, B., Vossensteyn, H., Cremonini, L., Hovdhaugen, E., Kaiser, F., & Kottmann, A. (2015). *Dropout and completion in higher education in Europe: main report*, Publications Office. https://data.europa.eu/doi/10.2766/826962

Ewell, P. T. (2010). The US National Survey of Student Engagement (NSSE). In D. Dill & M. Beerkens (Eds.), *Public policy for academic quality* (Higher Education Dynamics, Vol. 30, pp. 105–119). Springer. https://doi.org/10.1007/978-90-481-3754-1_5

Fitzgerald, B. D. (2024). *Assessing Secondary Curriculums' Impact on Postsecondary First Year Academic Performance Using Data Science Techniques* (Doctoral dissertation, Valdosta State University)

Fredricks. J. A, Blumenfeld. C. P, & Paris. H. A, (2004). School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research, 74*(1), 59-109. http://www.jstor.org/stable/3516061

Frey, M. C. (2019). What we know, are still getting wrong, and have yet to learn about the relationships among the SAT, intelligence and achievement. *Journal of Intelligence*, *7*(4), 26.

Geddes, L. (2023). *How to Successfully Transition Students into College: From Traps to Triumph*. Taylor & Francis. 1st Eds. Routledge, New York. https://doi.org/10.4324/9781003447252

Glazer, G., Stacy, K. E., Bankston, K., Pritchard, T., Fulton, K. K., Grimley, K., & Eason, K. (2021). Maximizing an urban secondary and post-secondary partnership to align educational expectations and student success. *Journal of Professional Nursing*, *37*(3), 544-552.

Gomez Jr, F. E. (2016). *Predicting academic performance: A commitment perspective* (Electronic Theses and Dissertations, No. 71). Stephen F. Austin State University. https://scholarworks.sfasu.edu/etds/71

Gong, A. J., Bolsegui, M. L., Lee, E. E., Mathai, S. C., & Weiss, C. R. (2024). Assessing the psychometric validity of the epistaxis severity score: internal consistency and test–retest reliability. *American journal of rhinology & allergy*, *38*(1), 38-46.

Hasanov, Z., Antoniou, P., Suleymanov, E., & Garayev, V. (2021). The impact of behavioural, cognitive and emotional dimensions of student engagement on student learning: the case of Azerbaijani higher education institutions. *International Journal of Knowledge and Learning*, *14*(1), 10-38.

Hauschildt, K., Gwosć, C., Schirmer, H., & Wartenbergh-Cras, F. (2021). *Social and economic conditions of student life in Europe: Synopsis of indicators. EUROSTUDENT VII 2018–2021.* W. Bertelsmann Verlag.

Hirpassa, M. (2018). Content validity of EFL teacher-made assessment: The case of communicative English skills course at Ambo University. *East African Journal of Social Sciences and Humanities*, *3*(1), 41-62.

Hu, S., & Kuh, G. D. (2002). Being (dis)engaged in educationally purposeful activities: The influences of student and institutional characteristics. *Research in Higher Education, 43*(5), 555–575. https://doi.org/10.1023/A:1020114231387

Itaaga, N., Mugagga, A. M., & Kaahwa, Y. T. (2013). Apathy among undergraduate education students at Makerere University: An analytical study of the causes and possible solutions. *International Journal of Educational Research and Development*, *2*(8), 203-210.

Kassaw, C., & Demareva, V. (2024, October). Predictor of low academic achievement among Dilla university students, southern Ethiopia. In *Frontiers in Education* (Vol. 9:1438322). Frontiers Media SA. https://doi.org/10.3389/feduc.2024.1438322

Kelle, U., Kühberger, C., & Bernhard, R. (2019). How to use mixed-methods and triangulation designs: An introduction to history education research. *History Education Research Journal*, *16*(1), 5-23.

Kelly, L. J. (1996). *Implementing Astin's IEO model in the study of student retention: A multivariate time dependent approach*. US Coast Guard Academy, Center for Advanced Studies.

Kidega, C., Song, Z., Ugochinyere, I. C., James, O. A., & Ndikubwimana, F. (2024). Confronting Challenges Facing Teachers in Implementing Competency-Based Curriculum in Uganda: A Case of Secondary Schools in Gulu City. *East African Journal of Education Studies*, *7*(2), 112-129.

Kimoga, J. (2023). Quality knowledge for a heterogeneous society: Experiences from Uganda's university changing directions. In B. K. Daniel & R. Bisaso (Eds.), *Higher education in Sub-Saharan Africa in the 21st century*. Springer. https://doi.org/10.1007/978-981-99-3212-2 12

Kleemola, K., & Hyytinen, H. (2019). Exploring the relationship between law students' prior performance and academic achievement at university. *Education Sciences*, *9*(3), 236.

Kocsis, Á., & Molnár, G. (2024). Factors influencing academic performance and dropout rates in higher education. *Oxford Review of Education*, 50(6) 1-19. https://doi.org/10.1080/03054985.2024.2316616

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement, 30*(3), 607–610. https://doi.org/10.1177/001316447003000308

Kuh, G. D. (2001). Assessing what really matters to student learning inside the national survey of student engagement. *Change: The magazine of higher learning*, *33*(3), 10-17.

Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The journal of higher education*, *79*(5), 540-563.

Kuh, G. D., Kinzie, J. L., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature* (Vol. 8). Washington, DC: National Postsecondary Education Cooperative.

Kuh, G. D., Pace, C. R., & Vesper, N. (1997). The development of process indicators to estimate student gains associated with good practices in undergraduate education. *Research in higher education*, *38*, 435-454.

Kumar, V. (2024). Survey Research. In *International Marketing Research: A Transformative Approach* (pp. 241-267). Cham: Springer Nature Switzerland.

Levitt, H. M., Hamburger, A., Hill, C. E., McLeod, J., Pascual-Leone, A., Timulak, L., Buchholz, M. B., Frommer, J., Fuertes, J., Iwakabe, S., Martínez, C., Morrill, Z., Knox, S., Langer, P., Muran, J. C., Weie Oddli, H., Řiháček, T., Tomicic, A., & Tuval-Mashiach, R. (2024). Broadening the evidentiary basis for clinical practice guidelines: Recommendations from qualitative psychotherapy researchers. *American Psychologist*. Advance online publication. https://dx.doi.org/10.1037/amp0001363

Lim, W. M. (2024). What Is Qualitative Research? An Overview and Guidelines. *Australasian Marketing Journal*, 32(3). https://doi.org/10.1177/14413582241264619

Lindheimer III, J. B. (2011). *The College Persistence Questionnaire: Developing scales to assess student retention and institutional effectiveness* (Unpublished master's thesis, Appalachian State University, Boone, NC).

Maksimovic, J., & Evtimov, J. (2023). Positivism and post-positivism as the basis of quantitative research in pedagogy. *Research in Pedagogy*, *13*(1), 208-218.

McKenzie, K., & Schweitzer, R. (2001). Who Succeeds at University? Factors predicting academic performance in first year Australian university students. *Higher Education Research & Development*, *20*(1), 21–33. https://doi.org/10.1080/07924360120043621

Meyer, L. A. (2021). Higher Education Institutional Preparedness for Diverse Student Communities. *Journal of Student Affairs, New York University*, *17*, 137-144.

Milburn-Shaw, H., & Walker, D. (2017). The politics of student engagement. *Politics*, *37*(1), 52-66. https://api.semanticscholar.org/CorpusID:148283825

Mintz, S. (2024). *The Learning-Centered University: Making College a More Developmental, Transformational, and Equitable Experience*. Johns Hopkins University Press.

Mitra, S. (2022). Does collaborative learning improve student outcomes for underrepresented students?: Evidence from an online bottleneck business course. *Journal of Education for Business*, *97*(3), 161-167.

Mohd Zaki, S., Razali, S., Awang Kader, M. A. R., Laton, M. Z., Ishak, M., & Mohd Burhan, N. (2024). Predicting students' performance at higher education institutions using a machine learning approach. *Kybernetes*. Advance online publication. https://doi.org/10.1108/K-12-2023-2742

Muñoz-García, A., & Villena-Martínez, M. D. (2021). Influences of learning approaches, student engagement, and satisfaction with learning on measures of sustainable behavior in a social sciences student sample. *Sustainability*, *13*(2), 541.

Nafula, J. (2022, May 23). Makerere registers slight drop in first-class degrees. *Daily Monitor*. https://www.monitor.co.ug/uganda/news/national/makerere-registers-slight-drop-in-first-class-degrees-3824218

Nagitta, D. (2024, January 30). Why male graduate numbers are decreasing at Makerere. *Daily Monitor*. https://www.monitor.co.ug/uganda/news/national/why-male-graduate-numbers-are-decreasing-at-makerere-4507846

Ndyabahika, D. (2017, February 14). 50 law students to graduate with pass degrees at Makerere. *Uganda Radio Network*. https://ugandaradionetwork.net/story/50-to-graduate-with-pass-law-degrees-at-makerere?districtId=729

New Vision. (2019, June 25). Universities: Student drop-out rates alarming. *New Vision*. https://www.newvision.co.ug/news/1502587/universities-student-drop-rates-alarming

Nguyenová, H. (2024). *Student engagement in sustainability through digital means* (Master's thesis, Tampere University).

O´Neill, L. D., & Nielsen, T. (2024). Admission testing, pre-academic exam self-efficacy, and retention. A prospective cohort study. *Studies in Educational Evaluation*, 83, Article 101383. Advance online publication. https://doi.org/10.1016/j.stueduc.2024.101383

Obedling, J. T. (2024). *School infrastructure utilization and students' academic performance in selected public secondary schools in Zombo district, Uganda* (Doctoral dissertation, Muni University).

Odeng, M. (Nov 29, 2022). Malpractice in UACE: Police probe 10 cases of Exam malpractice. https://www.newvision.co.ug/category/news/uace-police-probe-10-cases-of-exam-malpractic-NV 148593

Reason, R. D. (2009). An examination of persistence research through the lens of a comprehensive conceptual framework. *Journal of College Student Development*, *50*(6), 659-682.

Reyes-de-Cózar, S., Merino-Cajaraville, A., & Salguero-Pazos, M. R. (2023). Avoiding academic burnout: academic factors that enhance university student engagement. *Behavioral Sciences*, *13*(12), 989.

Ribeiro, L., Rosário, P., Núñez, J. C., Gaeta, M., & Fuentes, S. (2019). First-year students background and academic achievement: The mediating role of student engagement. *Frontiers in psychology*, *10*, 2669.

Rodriguez, R. J., & Koubek, E. (2019). Unpacking high-impact instructional practices and student engagement in a teacher preparation program. *International Journal for the Scholarship of Teaching and Learning*, *13*(3), 11.

Sá, M. J. (2023). Student Academic and Social Engagement in the Life of the Academy—A Lever for Retention and Persistence in Higher Education. *Education Sciences*, *13*(3), 269.

Spady, W. G. (1971). Dropouts from higher education: Toward an empirical model. *Interchange*, *2*(3), 38-62.

Spitzig, J., & Renner, B. J. (2022, November 16). Student Engagement and Retention of Adult Learners at Community Colleges. *Journal of College Student Retention: Research, Theory & Practice*, 152102512211380. https://doi.org/10.1177/15210251221138065

Sserugo, P. (2024, February 23). Authorities blame Makerere's performance decline on understaffing. *Daily Monitor*. https://www.monitor.co.ug/uganda/news/national/authorities-blame-makerere-s-performance-decline-on-understaffing-4534482

Stephen, J. S. (2024). Study Skills and Strategies. In *Academic Success in Online Programs: A Resource for College Students* (pp. 93-109). Cham: Springer Nature Switzerland.

Tanlaka, E. F., Ewashen, C., & King-Shier, K. (2019). Postpositivist critical multiplism: Its value for nursing research. *Nursing open*, *6*(3), 740-744.

Thelma, C. C. (2024). Student Retention in Higher Learning Institutions of Zambia. International Journal of Research Publication and Reviews, Vol 5(6), pp 433-441 June 2024

Thigpen, S. (2024). *Student-Identified Influences on Academic Success: A Qualitative Study of Alumni Descriptions of their Prior Experiences in a Central Ohio High School* (Doctoral dissertation, Franklin University).

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of educational research*, *45*(1), 89-125.

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.

Tracy, S. J. (2019). *Qualitative Research Methods: Collecting Evidence, Crafting Analysis, Communicating Impact* (2nd ed.). Wiley.

Vytasek, J.M., Patzak, A., Winne, P.H. (2020). Analytics for Student Engagement. In: Virvou, M., Alepis, E., Tsihrintzis, G., Jain, L. (eds) *Machine Learning Paradigms*. Intelligent Systems Reference Library, vol 158 (23-48). Springer, Cham. https://doi.org/10.1007/978-3-030-13743-4_3

Weaver, R. F. (2024). *Assessing Health Sciences College Faculty Preparedness to Support Early College Students' Academic Success and Transition to Higher Education* (Doctoral dissertation, Wingate University)

Xerri, M. J., Radford, K., & Shacklock, K. (2018). Student engagement in academic activities: a social support perspective. *Higher education*, *75(4),* 589-605.https://doi.org/10.1007/s10734-017-0162-9

Yidana, M. B., & Asare, P. Y. (2021). Preservice teachers' behavioural, emotional and cognitive engagement efficacy. *International Journal of Education and Research*, *9*(3), 233-248.

Yong, K. T., & Liu, M. (2024). *Academia's Billion-Dollar Roulette*. Taylor & Francis. London, Routledge. https://doi.org/10.4324/9781003476504

Yu, J. (2023). Constructing an ideal class to facilitate high learning engagement, performance, and affective commitments: a new blended learning model. *Asia Pacific Journal of Education, 43*(3), 1-20.

Zhou, J. (2010). *Impact of engagement on the academic performance and persistence of first-year college students at a four-year public institution* (Doctoral dissertation, Florida State University). Florida State University Libraries. https://api.semanticscholar.org/CorpusID:150967847