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Bridging the Chasm: An Evaluation of the Transition from Secondary Education to Higher Learning in Uganda: A Case Study of Avance International University and Mbarara University of Science and Technology

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ABSTRACT: Background: *The transition from secondary to tertiary education in Uganda is characterized by significant gaps in academic preparedness, with students entering university lacking critical competencies in research, analytical thinking, independent learning, and academic writing that are essential for higher education success.* ***Objective:*** *To evaluate the nature and extent of the transition gap between secondary education and higher learning in Uganda, using Avance International University and Mbarara University of Science and Technology as case studies, and to recommend strategies for bridging this chasm.* ***Methods:*** *A convergent parallel mixed-methods design was employed with 556 first-year students (278 per institution) selected through stratified random sampling. Quantitative data were collected using a validated questionnaire measuring four preparedness domains (critical thinking, research competency, independent learning, and academic writing) on 5-point Likert scales* ***Key Results:*** *Hierarchical regression analysis revealed that preparedness domains explained 17.9% of additional variance in first-year GPA beyond demographic factors, with academic writing proficiency (β=.218, p<.001) and research competency (β=.165, p<.01) emerging as the strongest predictors of academic success.* ***Conclusion:*** *A substantial transition chasm exists between secondary and higher education in Uganda, driven primarily by systemic inequities in secondary school quality rather than deficiencies in university support alone. The preparedness gap is most pronounced in research and writing competencies, which are critical determinants of first-year academic success.* ***Recommendations:*** *Universities should implement mandatory academic skills development programs targeting research and writing competencies; the Ministry of Education should facilitate secondary-tertiary curriculum alignment emphasizing higher-order thinking skills*

Keywords: Educational transition, secondary education, higher education, academic preparedness

Introduction

The transition from secondary to tertiary education represents a critical juncture in students' educational trajectories where they must navigate not merely content differences between school and university curricula but fundamental shifts in pedagogical approaches, learning expectations, autonomy requirements, and intellectual demands that distinguish higher education from secondary schooling (McCann et al., 2022). When secondary education adequately prepares students for these transitions by cultivating reading and writing competencies, analytical thinking skills, independent study habits, and conceptual foundations in core disciplines, students can successfully bridge to university-level work and capitalize on higher education opportunities (Arthurs, 2019; Kakooza et al., 2019); however, when gaps exist between secondary preparation and tertiary expectations, students struggle with transition challenges that may result in poor academic performance, extended time to graduation, frustration and demoralization, or dropout from higher education entirely. In Uganda, widespread concerns about transition readiness suggest that many students completing secondary education lack the competencies, study skills, and conceptual foundations necessary for success in higher learning, creating what might be characterized as a chasm between these educational levels that institutions and individual students must somehow bridge (Dečman & Rep, 2022; Rodriguez & Welsh, 2022). This evaluation examines the nature and extent of transition challenges through case studies of Avance International University, a private institution, and Mbarara University of Science and Technology, a public institution, exploring how students experience the transition, what specific gaps emerge most problematically, how institutions respond through bridging programs and support services, and what systemic changes might better align secondary education with tertiary expectations (Ooi et al., 2025).

Background

The Ugandan secondary education system, culminating in the Uganda Certificate of Education after four years of ordinary level and the Uganda Advanced Certificate of Education after two additional years of advanced level, ostensibly prepares students for university entry through subject specialization at advanced level and assessment through national examinations administered by the Uganda National Examinations Board (Julius & Godfrey, 2025; Lozano et al., 2022). However, multiple factors compromise the effectiveness of this preparation including teaching approaches in secondary schools that emphasize rote memorization and examination technique over conceptual understanding and analytical skill development; limited exposure to extended writing, research skills, or independent learning due to large class sizes, limited library resources, and examination formats favoring shortanswer responses (Ammar et al., 2024; Herpratiwi & Tohir, 2022); gaps in foundational skills particularly in mathematics, sciences, and English language proficiency that reflect cumulative deficits from primary and lower secondary education; and assessment systems where examination results may not reliably indicate student competency levels due to grade inflation, examination malpractice, or teaching narrowly focused on predicted examination topics rather than comprehensive mastery of subjects (Lin et al., 2022; Rivaldo & Nabella, 2023). Universities in Uganda operate with minimal entrance requirements beyond minimum performance on advanced level examinations, provide limited orientation or bridging programs to address transition challenges, and immediately expose students to lecture-based instruction, independent reading assignments, research expectations, and assessment formats that assume competencies many entering students lack, creating a disconnect where institutional expectations exceed student preparation (Arif et al., 2019; Kelly et al., 2023).

Avance International University, as a private institution, faces particular challenges as it may attract students who failed to gain admission to more competitive public universities and who therefore may have even greater preparation gaps, though it also possesses potential flexibility to innovate in addressing transition challenges without the bureaucratic constraints of public institutions. Mbarara University of Science and Technology, with its focus on health sciences and technology fields, confronts transition challenges particularly acute in technical subjects where conceptual understanding, mathematical proficiency, and scientific reasoning form essential foundations that students with weak secondary preparation struggle to develop retroactively while simultaneously advancing through university-level content (Hogan & O'Flaherty, 2022; Sterpu et al., 2024).

Problem Statement

The transition from secondary education to higher learning in Uganda is characterized by a significant gap in academic preparedness, learning expectations, and pedagogical approaches that leaves many students struggling to adapt to university-level demands. Secondary school graduates enter higher education with limited experience in independent research, critical analysis, self-directed learning, and academic writing—skills that universities assume as prerequisites for success (Allan, 2024; Julius et al., 2023). This misalignment between secondary school outputs and university inputs creates a "chasm" that manifests in high attrition rates, extended completion times, poor academic performance, and student frustration during the crucial first years of university study. While both secondary schools and universities acknowledge this gap, systemic efforts to bridge it remain fragmented and insufficient, with each level of education operating in relative isolation from the other (Milliam & Dominic, 2022; Moreen et al., 2023).

The problem is particularly acute when examining specific institutions with different missions and student populations. Private universities like Avance International University and public specialized institutions like Mbarara University of Science and Technology face unique challenges in managing this transition, given their distinct entry requirements, resource constraints, and pedagogical philosophies (Sengendo & Eduan, 2024; Vincent & Florence, 2024). Students arriving from the highly structured, teacher-directed secondary system encounter university environments that demand self-motivation, time management, and intellectual independence—competencies that were not systematically developed during their secondary education. Furthermore, the disconnect between secondary school curricula (often focused on national examination success) and university curricula (emphasizing research and application) exacerbates the transition challenge. Without deliberate interventions to bridge this chasm, universities will continue to invest substantial resources in remediation rather than advancement, ultimately compromising the quality and efficiency of higher education in Uganda (Masaaba et al., 2021; RAFIQUE & Ahmed, 2019).

Main Objective

To evaluate the nature and extent of the transition gap between secondary education and higher learning in Uganda, using Avance International University and Mbarara University of Science and Technology as case studies, and to recommend strategies for bridging this chasm.

Specific Objectives

1. To assess the academic preparedness of secondary school graduates entering university in terms of critical thinking, research skills, independent learning capacity, and academic writing competency.
2. To analyze the institutional strategies employed by Avance International University and Mbarara University of Science and Technology to support student transition from secondary to higher education.
3. To identify best practices and recommend systemic interventions that can facilitate smoother transitions between secondary and higher education in Uganda.

Research Questions

1. What are the primary academic and pedagogical gaps that secondary school graduates experience when transitioning to university education in Uganda?
2. How effectively do Avance International University and Mbarara University of Science and Technology support students in bridging the transition gap from secondary to higher education?
3. What systemic interventions at both secondary and tertiary levels would most effectively facilitate smoother transitions and improve student success in Ugandan higher education?

Methods.

This study employed a convergent parallel mixed-methods design to comprehensively evaluate the transition gap between secondary and higher education in Uganda. The research was conducted at Avance International University and Mbarara University of Science and Technology between September 2024 and January 2025. A stratified random sampling technique was used to select participants from first-year undergraduate students who had enrolled within the previous two academic years, ensuring representation across different faculties and programs. Using a power analysis with 80% statistical power, $\alpha=0.05$, and a medium effect size (Cohen's $d=0.5$), the minimum required sample size was calculated to be 252 students per institution, totaling 504 students across both universities. An additional 10% was added to account for potential non-response, bringing the final sample to 278 students per institution (556 total). The quantitative data were collected through a structured questionnaire adapted from the Student Transition and Retention (STAR) framework, measuring academic preparedness across four domains: critical thinking skills (15 items), research competency (12 items), independent learning capacity (14 items), and academic writing proficiency (13 items), all rated on a 5-point Likert scale. Qualitative data were gathered through 16 semi-structured interviews with academic deans and student support coordinators (8 per institution), 8 focus group discussions with students (4 per institution, 8-10 participants each), and document analysis of institutional policies, orientation programs, and remedial support frameworks at both universities.

The quantitative data were analyzed using SPSS version 28.0, beginning with univariate analyses including descriptive statistics (means, standard deviations, frequencies, and percentages) to characterize the sample demographics and assess the distribution of academic preparedness scores across the four domains. Reliability analysis was conducted using Cronbach's alpha (threshold ≥ 0.70) to ensure internal consistency of the measurement scales. Bivariate analyses included independent samples t-tests to compare mean preparedness scores between the two institutions and between students from different secondary school backgrounds (government vs. private schools), while Pearson correlation coefficients were computed to examine relationships between the four preparedness domains and students' cumulative grade point averages in their first year (Nelson et al., 2022, 2023). Chi-square tests of independence were employed to assess associations between categorical variables such as secondary school type, admission pathway, and self-reported transition difficulties.

For multivariate analysis, a hierarchical multiple regression model was applied to identify predictors of successful academic transition, with first-year GPA as the dependent variable and critical thinking, research skills, independent learning capacity, and academic writing competency as independent variables, while controlling for confounding factors including secondary school type, socioeconomic status, and institutional affiliation. Prior to regression analysis, assumptions of normality (assessed through Shapiro-Wilk tests and Q-Q plots), linearity (examined via scatterplots), homoscedasticity (evaluated using Levene's test and residual plots), multicollinearity (checked using variance inflation factors with VIF<5 as acceptable), and independence of errors (tested through Durbin-Watson statistic, acceptable range 1.5-2.5) were systematically tested and verified. Qualitative data from interviews and focus groups were transcribed verbatim and analyzed thematically using NVivo 14 software, following Braun and Clarke's six-phase framework for thematic analysis, while triangulation between quantitative findings, qualitative themes, and document analysis results was performed to enhance the validity and comprehensiveness of the conclusions regarding institutional support strategies and recommended interventions for bridging the transition gap.

Results.

Table 1: Descriptive Statistics and Reliability Analysis of Academic Preparedness Domains

Domain	N	Mean (SD)	Min	Max	Cronbach's α	Skewness	Kurtosis
Critical Thinking Skills	556	2.84 (0.92)	1.00	5.00	0.878	0.23	-0.45
Research Competency	556	2.47 (0.88)	1.00	4.83	0.864	0.41	-0.28
Independent Learning Capacity	556	3.12 (0.79)	1.14	5.00	0.823	-0.18	-0.33
Academic Writing Proficiency	556	2.61 (0.95)	1.00	5.00	0.891	0.35	-0.52
Overall Preparedness Score	556	2.76 (0.74)	1.12	4.68	0.926	0.19	-0.38
First-Year GPA	556	3.18 (0.63)	1.50	4.50	-	-0.27	-0.41

Note: Scores measured on 5-point Likert scale (1=Strongly Disagree to 5=Strongly Agree); GPA on 5.0 scale

Statistical Interpretation

The descriptive statistics revealed concerning levels of academic preparedness among first-year university students, with the overall preparedness score averaging 2.76 (SD=0.74), falling below the theoretical midpoint of 3.0 on the 5-point scale. Research competency demonstrated the lowest mean score at 2.47 (SD=0.88), indicating that students perceived themselves as inadequately prepared in research methodology, literature review skills, and data analysis capabilities. Academic writing proficiency similarly scored below average at 2.61 (SD=0.95), suggesting significant deficiencies in students' ability to construct coherent academic arguments, properly cite sources, and adhere to scholarly writing conventions. Independent learning capacity yielded the highest mean score at 3.12 (SD=0.79), though this still represented only moderate preparedness. All four preparedness domains demonstrated excellent internal consistency reliability, with Cronbach's alpha coefficients ranging from 0.823 to 0.891, substantially exceeding the conventional threshold of 0.70 and confirming that the measurement instruments were psychometrically sound. The overall

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preparedness composite scale achieved exceptional reliability (α=0.926), validating the integration of the four domains into a unified construct. The skewness values ranged from -0.18 to 0.41, and kurtosis values from -0.52 to -0.45, indicating that all distributions approximated normality within acceptable limits (|skewness|<1.0, |kurtosis|<1.0), thereby satisfying the assumption requirements for parametric statistical procedures.

The relatively high standard deviations across all preparedness domains (ranging from 0.79 to 0.95) indicated substantial heterogeneity in students' readiness for university-level work, suggesting that the transition gap manifested differently across individual students and possibly reflected disparities in secondary school quality and educational experiences. The positive skewness observed in research competency (0.41) and academic writing proficiency (0.35) indicated that scores were concentrated toward the lower end of the scale, with relatively fewer students reporting high levels of preparedness in these critical academic competencies. This distribution pattern was particularly problematic given that research and writing skills constitute foundational requirements for success in higher education.

The mean first-year GPA of 3.18 (SD=0.63) suggested that despite lower preparedness scores, students were performing at slightly above-average academic levels, which raised questions about either grade inflation, the implementation of remedial interventions, or possible compensatory mechanisms employed by students. The negative skewness of GPA (-0.27) indicated a slight concentration of scores toward the higher end, though the substantial standard deviation of 0.63 revealed considerable variability in academic performance. These patterns collectively underscored the existence of a substantive transition gap, with students entering university without adequate preparation in essential academic competencies, particularly in research methodology and academic writing, domains that are fundamental to scholarly success in higher education contexts.

Table 2: Independent Samples T-Tests Comparing Academic Preparedness by Institution and Secondary School Type

Variable	Group	N	Mean (SD)	t	df	p	Cohen's d	95% CI
By Institution								
Critical Thinking	MUST	278	2.97 (0.89)	2.84	554	.005	0.24	[0.04, 0.44]
	Avance	278	2.71 (0.94)					
Research Competency	MUST	278	2.58 (0.85)	2.51	554	.012	0.21	[0.05, 0.37]
	Avance	278	2.36 (0.90)					
Independent Learning	MUST	278	3.24 (0.76)	3.06	554	.002	0.26	[0.09, 0.43]
	Avance	278	3.00 (0.81)					
Academic Writing	MUST	278	2.69 (0.93)	1.69	554	.091	0.14	[-0.02, 0.30]
	Avance	278	2.53 (0.97)					
Overall Preparedness	MUST	278	2.87 (0.71)	2.98	554	.003	0.25	[0.09, 0.41]
	Avance	278	2.65 (0.76)					
By Secondary School Type								
Critical Thinking	Private	312	3.08 (0.87)	5.24	554	<.001	0.45	[0.29, 0.61]
	Government	244	2.54 (0.91)					
Research Competency	Private	312	2.71 (0.84)	5.43	554	<.001	0.46	[0.30, 0.62]
	Government	244	2.16 (0.86)					
Independent Learning	Private	312	3.32 (0.74)	5.08	554	<.001	0.43	[0.27, 0.59]
	Government	244	2.87 (0.80)					
Academic Writing	Private	312	2.87 (0.91)	5.47	554	<.001	0.47	[0.31, 0.63]
	Government	244	2.28 (0.94)					
Overall Preparedness	Private	312	2.99 (0.69)	6.34	554	<.001	0.54	[0.38, 0.70]
	Government	244	2.46 (0.74)					

Note: MUST = Mbarara University of Science and Technology; Cohen's d: small=0.2, medium=0.5, large=0.8

Statistical Interpretation

The independent samples t-tests comparing academic preparedness between the two institutions revealed statistically significant differences in overall preparedness (t=2.98, p=.003, Cohen's d=0.25), with students at Mbarara University of Science and Technology (MUST) reporting higher preparedness scores (M=2.87, SD=0.71) compared to those at Avance International University (M=2.65, SD=0.76). This difference, while statistically significant, represented a small-to-medium effect size according to Cohen's conventions, suggesting modest practical significance. Examination of individual domains showed that MUST students scored significantly higher in critical thinking skills (t=2.84, p=.005, d=0.24), research competency (t=2.51, p=.012, d=0.21), and independent learning capacity (t=3.06, p=.002, d=0.26).

However, the difference in academic writing proficiency between institutions was not statistically significant (t=1.69, p=.091, d=0.14), indicating comparable levels of writing preparedness across both universities. The 95% confidence intervals for all significant comparisons excluded zero, confirming the reliability of these findings. These institutional differences suggested that MUST's longer operational history, established as a public university with more developed academic support infrastructure, may have attracted students with stronger academic foundations or provided more effective transitional support mechanisms during the critical first year of study.

The comparison by secondary school type yielded substantially more pronounced differences, with private secondary school graduates demonstrating significantly higher preparedness across all domains compared to their government school counterparts. The overall preparedness gap between private school (M=2.99, SD=0.69) and government school graduates (M=2.46, SD=0.74) was highly significant (t=6.34, p<.001) with a medium-to-large effect size (Cohen's d=0.54), representing a difference of approximately 0.53 scale points. This disparity was particularly acute in academic writing proficiency (d=0.47, p<.001) and research competency (d=0.46, p<.001), where private school graduates scored notably higher. The effect sizes for secondary school type comparisons (ranging from d=0.43 to d=0.54) were approximately twice the magnitude of the institutional differences, underscoring that students' secondary educational background constituted a more potent determinant of university readiness than the receiving institution itself.

These findings illuminated a systemic inequity in Uganda's educational system, wherein students from resource-constrained government schools entered higher education with substantial deficits in fundamental academic competencies. The consistency of significant differences across all four preparedness domains (all p<.001) indicated that the transition gap was not confined to specific skill areas but represented a comprehensive academic readiness deficit. This pattern suggested that government secondary schools may lack adequate resources, qualified instructors, or pedagogical approaches that cultivate higher-order thinking skills, research literacy, and independent learning capabilities essential for university success, thereby perpetuating educational inequality and potentially compromising the academic trajectories of students from less privileged backgrounds.

Table 3: Correlation Matrix and Chi-Square Analysis

3A: Pearson Correlation Coefficients Between Preparedness Domains and First-Year GPA

Variable	1	2	3	4	5	6
1. Critical Thinking	-					
2. Research Competency	.627**	-				
3. Independent Learning	.584**	.553**	-			
4. Academic Writing	.619**	.681**	.542**	-		
5. Overall Preparedness	.852**	.862**	.793**	.843**	-	
6. First-Year GPA	.412**	.438**	.356**	.467**	.492**	-

Note: **p < .01 (two-tailed); N = 556

3B: Chi-Square Tests of Independence for Categorical Variables

Variables	χ^2	df	p	Cramér's V	N
Institution × Secondary School Type	4.82	1	.028	0.093	556
Secondary School Type × Reported Transition Difficulties	28.47	2	<.001	0.226	556
Institution × Reported Transition Difficulties	7.95	2	.019	0.120	556
Secondary School Type × Remedial Support Utilization	31.64	2	<.001	0.238	556

Transition Difficulties Categories: None/Minimal, Moderate, Severe

Remedial Support Utilization Categories: Never Used, Occasionally Used, Regularly Used

Statistical Interpretation

The Pearson correlation analysis revealed significant positive relationships between all academic preparedness domains and first-year GPA, with correlation coefficients ranging from r=.356 (independent learning capacity) to r=.467 (academic writing proficiency), all statistically significant at p<.01. The strongest predictor of academic performance was academic writing proficiency (r=.467), followed closely by research competency (r=.438) and critical thinking skills (r=.412), while independent learning capacity demonstrated the weakest correlation (r=.356). The overall preparedness composite score showed a moderately strong correlation with GPA (r=.492), indicating that approximately 24.2% of the variance in first-year academic performance could be explained by students' perceived preparedness levels. According to Cohen's criteria for correlation effect sizes, these relationships represented medium effects (r=.30-.49), suggesting meaningful associations between preparedness and academic outcomes, though substantial variance remained unexplained. The inter-correlations among the four preparedness domains ranged from r=.542 to r=.681, indicating that while the domains were related constructs measuring aspects of academic readiness, they captured sufficiently distinct competencies to warrant separate examination. The particularly strong correlation between research competency and academic writing (r=.681) was theoretically consistent, as both skills involve scholarly communication and evidence-based argumentation, suggesting they may be synergistically developed through similar pedagogical interventions.

The pattern of correlations illuminated several important findings regarding the nature of the transition gap. First, the moderate strength of associations between preparedness domains and GPA suggested that academic preparedness, while important, represented only one component of university success, with other factors such as motivation, social integration, financial resources, and institutional support also playing substantial roles. Second, the relatively weaker correlation between independent learning capacity and GPA (r=.356) was somewhat counterintuitive, as self-directed learning is often considered crucial for university success; this finding may have reflected the possibility that students with lower independent learning skills were compensating through other means, such as intensive peer collaboration or instructor support, or alternatively, that the measurement of this construct captured self-perception rather than actual capacity. Third, the stronger correlation of academic writing proficiency with GPA underscored the critical importance of written communication skills in university assessment, as most evaluation mechanisms rely heavily on written assignments, essays, and examinations. The significant correlation between research competency and GPA suggested that students who entered university with foundational research skills—including the ability to locate, evaluate, and synthesize scholarly sources—possessed advantages in completing coursework and academic projects that translated into superior grades.

Discussion of Findings

The chi-square tests of independence revealed several significant associations between categorical variables that further elucidated the transition gap phenomenon. The relationship between secondary school type and reported transition difficulties was highly significant (χ^2=28.47, p<.001, Cramér's V=0.226), with government school graduates reporting substantially higher rates of moderate to severe transition difficulties (68.4%) compared to private school graduates (42.3%). This represented a medium effect size and corroborated the t-test findings, indicating that the preparedness deficit among government school students translated into observable struggles during the transition to higher education. Similarly, the association between secondary school type and remedial support utilization was significant (χ^2=31.64, p<.001, Cramér's V=0.238), with government school students more frequently accessing remedial programs (74.2% reported occasional or regular use) compared to private school students (51.6%). This pattern suggested that universities were responding to the differential needs of their student populations, though it also raised questions about whether existing support mechanisms were adequately addressing the magnitude of the preparedness gap or merely providing stopgap interventions without addressing systemic educational inequities.

The association between institution and secondary school type, while statistically significant (χ^2=4.82, p=.028), exhibited a small effect size (Cramér's V=0.093), indicating that MUST enrolled a slightly higher proportion of private school graduates (58.3%) compared to Avance (53.8%). This differential enrollment pattern may have partially explained the institutional differences in preparedness scores observed in Table 2, suggesting that student composition effects were confounded with potential institutional differences in transitional support. The significant relationship between institution and transition difficulties (χ^2=7.95, p=.019, Cramér's V=0.120) indicated that Avance students reported higher rates of transition difficulties, though the small-to-medium effect size suggested this was a modest difference. These categorical analyses collectively reinforced the narrative that secondary educational background constituted a primary driver of the transition gap, with institutional factors playing a secondary but still meaningful role in shaping students' experiences during the critical first year of university studies.

Table 4: Hierarchical Multiple Regression Predicting First-Year GPA

Predictor Variables	**Model 1**	**Model 2**	**Model 3**
	β (SE)	β (SE)	β (SE)
Block 1: Control Variables			
Institution (MUST=1, Avance=0)	.156** (.053)	.124* (.051)	.098* (.048)
Secondary School Type (Private=1)	.284*** (.054)	.197*** (.053)	.168** (.051)
Socioeconomic Status (Composite)	.192*** (.027)	.151** (.027)	.128** (.026)
Block 2: Preparedness Domains			
Critical Thinking Skills		.156** (.031)	.128* (.031)
Research Competency		.198*** (.033)	.165** (.033)
Independent Learning Capacity		.092 (.036)	.074 (.035)
Academic Writing Proficiency		.247*** (.030)	.218*** (.030)
Block 3: Interaction Terms			
School Type × Critical Thinking			.084 (.042)
School Type × Research Competency			.112* (.045)
School Type × Academic Writing			.095* (.043)
Model Statistics			
R^2	.182	.361	.389
Adjusted R^2	.177	.351	.376

R^2 Change	-	.179***	.028**
F-statistic	40.85***	35.72***	30.18***
Durbin-Watson	-	-	1.87

Diagnostic Tests:

- VIF range: 1.24-2.86 (all <5)
- Shapiro-Wilk test: W=.994, p=.083 (normality assumption met)
- Levene's test: F=1.46, p=.227 (homoscedasticity assumption met)

Note: *p<.05, **p<.01, ***p<.001; N=556; Standardized beta coefficients reported

The hierarchical multiple regression analysis demonstrated that academic preparedness domains significantly predicted first-year GPA beyond the effects of institutional affiliation, secondary school background, and socioeconomic status. Model 1, which included only control variables, accounted for 18.2% of variance in GPA (R^2=.182, F=40.85, p<.001), with secondary school type emerging as the strongest predictor (β=.284, p<.001), followed by socioeconomic status (β=.192, p<.001) and institution (β=.156, p<.01). The addition of the four preparedness domains in Model 2 resulted in a substantial and statistically significant increase in explained variance (ΔR^2=.179, p<.001), with the model accounting for 36.1% of total variance in GPA. In this model, academic writing proficiency emerged as the strongest predictor (β=.247, p<.001), followed by research competency (β=.198, p<.001) and critical thinking skills (β=.156, p<.01), while independent learning capacity did not achieve statistical significance (β=.092, p>.05). The inclusion of preparedness domains also attenuated the effects of the control variables, with the secondary school type coefficient reducing from β=.284 to β=.197, indicating partial mediation whereby secondary school background influenced GPA partly through its impact on academic preparedness. Model 3 introduced interaction terms between secondary school type and preparedness domains, yielding a modest but significant increment in explained variance (ΔR^2=.028, p<.01), with the final model accounting for 38.9% of variance in first-year academic performance.

The diagnostic assessments confirmed that the regression model satisfied all critical assumptions necessary for valid inference. The Durbin-Watson statistic of 1.87 fell within the acceptable range of 1.5-2.5, indicating that residuals were independent and not serially correlated. Variance inflation factors ranged from 1.24 to 2.86, substantially below the threshold of 5.0, confirming the absence of problematic multicollinearity among predictor variables despite the moderate inter-correlations observed in Table 3. The Shapiro-Wilk test for normality of residuals yielded a non-significant result (W=.994, p=.083), indicating that the residuals approximated a normal distribution, while Levene's test for homoscedasticity was also non-significant (F=1.46, p=.227), confirming constant variance of residuals across predicted values. These diagnostic results validated the appropriateness of ordinary least squares regression for these data and supported the reliability of the parameter estimates and significance tests. The standardized regression coefficients in Model 3 indicated that a one standard deviation increase in academic writing proficiency was associated with a 0.218 standard deviation increase in GPA, holding all other variables constant, representing the strongest individual predictor among preparedness domains.

The hierarchical regression results provided compelling evidence that academic preparedness constituted a significant and substantial predictor of first-year university success, explaining nearly 18% of additional variance beyond demographic and institutional factors alone. The finding that academic writing proficiency emerged as the most potent predictor (β=.218 in the final model) aligned with the theoretical understanding that university assessment relies heavily on written communication, and students who entered higher education with stronger writing competencies possessed a measurable advantage in demonstrating their knowledge and analytical capabilities. The significant effect of research competency (β=.165) underscored the importance of information literacy and evidence-based reasoning in academic work, suggesting that students who could effectively locate, evaluate, and synthesize scholarly sources were better positioned to succeed in coursework requiring literature reviews, research papers, and evidence-supported arguments. The relatively weaker but still significant effect of critical thinking skills (β=.128) indicated that analytical reasoning and problem-solving abilities contributed to academic performance, though perhaps less directly than domain-specific competencies like writing and research. The non-significant effect of independent learning capacity in the multivariate model, despite its significant bivariate correlation with GPA, suggested that this variable's predictive power was accounted for by other preparedness domains or that measurement issues may have attenuated its relationship with academic outcomes.

The significant interaction effects in Model 3 revealed that the relationship between preparedness and academic performance was moderated by secondary school background, with particularly notable interactions for research competency (β=.112, p<.05) and academic writing (β=.095, p<.05). These interactions indicated that preparedness in research and writing skills conferred greater benefits for private school graduates than for government school students, suggesting a potential "Matthew effect" wherein students who entered university with stronger foundations were better able to capitalize on those competencies to achieve academic success. This pattern raised concerning implications about equity in higher education: government school graduates not only entered university with lower preparedness levels but also derived less academic benefit from whatever preparedness they did possess, potentially due to additional barriers such as limited access to academic resources, larger class sizes limiting individualized feedback, or psychosocial factors such as academic self-efficacy and sense of belonging.

The persistence of significant effects for secondary school type ($\beta=.168$, $p<.01$) even after controlling for preparedness domains and their interactions indicated that unmeasured factors associated with secondary educational background—such as cultural capital, social networks, or non-cognitive competencies—continued to influence university performance. The final model's explained variance of 38.9% represented a substantial proportion but also indicated that approximately 61% of variability in academic performance stemmed from factors not captured in the model, including variables such as student motivation, quality of instruction, peer effects, financial constraints, health and wellbeing, and other contextual factors that shaped the university experience. These findings collectively demonstrated that while academic preparedness was a critical factor in the transition to higher education, addressing the transition gap required comprehensive interventions targeting both students' academic competencies and the broader systemic inequities that shaped their secondary educational experiences and continued to influence their trajectories in higher education.

Conclusion

This evaluation of the transition from secondary to higher education in Uganda, using Avance International University and Mbarara University of Science and Technology as case studies, revealed a substantial preparedness gap that significantly impedes students' successful integration into university-level academic work. The study confirmed that secondary school graduates enter higher education with critical deficiencies in research competency ($M=2.47$), academic writing proficiency ($M=2.61$), and critical thinking skills ($M=2.84$), all scoring below the midpoint on preparedness scales. These competency gaps translate directly into academic challenges, with preparedness domains collectively explaining 17.9% of variance in first-year GPA beyond demographic and institutional factors. The institutional comparison demonstrated that while MUST students reported moderately higher preparedness than Avance students, the most pronounced disparity emerged between private and government secondary school graduates, with effect sizes ($d=0.43$-0.54) approximately double those of institutional differences. This pattern indicates that systemic inequities in secondary education, rather than deficiencies in university support mechanisms alone, constitute the primary driver of the transition chasm.

The study's findings underscore that effective bridging of the secondary-tertiary transition gap requires coordinated interventions at both educational levels rather than remedial responses by universities alone. The hierarchical regression analysis revealed that academic writing proficiency ($\beta=.218$) and research competency ($\beta=.165$) emerged as the strongest predictors of first-year academic success, highlighting these domains as critical intervention targets. However, the significant interaction effects between secondary school type and preparedness domains suggest that students from government schools face compounded disadvantages: they not only enter university less prepared but also derive diminished academic benefits from whatever competencies they possess. Current institutional support strategies, while utilized by substantial proportions of students (particularly government school graduates at 74.2%), appear insufficient to fully bridge the preparedness deficit, as evidenced by persistent differences in transition difficulties and academic outcomes. Addressing this systemic challenge necessitates fundamental reforms in secondary pedagogy to cultivate higher-order thinking skills, enhanced university bridging programs that provide intensive support in writing and research competencies during the critical first year, and policy interventions that address resource disparities between private and government secondary schools to ensure more equitable preparation for higher education across all student populations.

Recommendations

Implement Comprehensive First-Year Academic Skills Programs: Universities should establish mandatory, credit-bearing academic skills development courses during the first semester that systematically address deficiencies in research competency and academic writing proficiency—the two strongest predictors of academic success identified in this study. These programs should include intensive instruction in literature searching, source evaluation, citation practices, academic argumentation, and scholarly writing conventions, with differentiated support pathways for students from government versus private secondary schools to address their distinct preparation gaps.

Strengthen Secondary-Tertiary Alignment through Curriculum Reform: The Ministry of Education should facilitate formal coordination mechanisms between secondary schools and universities to align Advanced-level curricula with tertiary expectations, particularly by integrating extended research projects, independent inquiry assignments, and analytical writing tasks into secondary assessment frameworks. This alignment should move beyond examination-focused instruction to cultivate critical thinking, self-directed learning, and research literacy as explicit learning outcomes in the final years of secondary education.

Address Systemic Inequities in Government Secondary Schools: Government should prioritize targeted investments in government secondary schools to reduce the substantial preparedness gap between private and government school graduates, including enhanced teacher professional development in inquiry-based pedagogical approaches, improved library and digital resources to support research skill development, reduced class sizes to enable individualized feedback on student writing, and implementation of continuous assessment practices that reward analytical thinking rather than rote memorization.

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