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Original Article

Achievement of Goal Orientation and Academic Engagement among Adolescents in Southwestern Uganda

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Enhancing academic engagement is essential for improving the educational experiences of adolescents. Guided by Social Cognitive Theory, this study explored the relationship between achievement goal orientation and academic engagement among 510 secondary school students in Southwestern Uganda. The study focused on two forms of goal orientation—mastery-approach and performance-approach goals—and examined the mediating and moderating role of academic self-efficacy. The results, derived from self-reported data, indicate that approach achievement goals (mastery and performance) positively predict academic engagement, independently. Moreover, academic self-efficacy plays a dual role: while it mediates the relationship between approach achievement goals (mastery and performance) and academic engagement, self-efficacy also moderates the relationship between performance-approach achievement goals and academic engagement. These findings underscore the importance of academic self-efficacy and achievement goal orientation in enhancing academic engagement among adolescent students, especially in low socioeconomic status communities. This research contributes to the understanding of factors like teacher-student relationship, external support offered by Compassion International program, goal setting skills training and predetermined external rewards can enrich the educational experiences of students in low resource education contexts.

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INTRODUCTION

The level of academic engagement demonstrated by adolescent students is a crucial indicator of their future academic accomplishments. Achievement goal orientation types have been identified as significant predictors of academic engagement. Achievement goals orientation (AGO) is conceptualised as an individual's set of beliefs that reflect the reasons why they approach and engage in academic tasks (Lin, 2021). Mastery approach orientation is where a student is motivated by the desire to learn, understand, develop competence and acquire knowledge for self-skill enhancement (Harackiewicz & Elliot, 1993). Students who are inclined to mastery approach goals orientation strive for personal growth, improvement, and mastery of the task or subject matter. Performance approach goal orientation is where individuals are primarily motivated by the desire to outperform their counterparts (Elliot & McGregor, 2001). They focus on achieving positive evaluations, recognition, and social comparison with others. Their goal is to demonstrate their ability and receive favourable judgments from others. Self-efficacy is defined as an individual's belief in their capabilities to exercise control over their level of functioning despite the variation in the environment within which they operate (Bandura et al., 1996). In the education context, self-efficacy is conceptualised as an individual's belief (conviction) that they can successfully achieve at a designated level on an academic task or attain a specific academic goal (Dogan, 2015; Dullas, 2018). In this study, self-efficacy is posited as a potential mediator and/or moderator on approach goal orientation (mastery & performance) and academic engagement.

ACHIEVEMENT GOALS AND SELF-EFFICACY

Previous research advanced by different scholars Lin (2021), Alhadabi and Karpinski, (2020),

Chang and Chien (2015), Cheng (2020) has established that achievement goals orientation and self-efficacy can independently predict academic engagement. However, some findings are contradictory and the interaction effect of achievement goals orientation and self-efficacy on academic engagement is underrepresented. For instance, a study conducted among university students in the United States indicated that students who adopted positive goals orientation (mastery and performance approach) demonstrated unwavering confidence in persistent learning even when faced with difficulty (Alhadabi & Karpinski, 2020). Similarly, a study done among Chinese college students revealed that approach goals were linked to high self-efficacy levels whereas avoidance achievement goals did not (Zhou & Kam, 2017). On the contrary, a study by Al-baddareen et al. (2015) among university students in Hashemite University in Jordan specified that mastery approach achievement goals were positively correlated with high self-efficacy while performance goals orientation (approach and avoidance) were negatively associated with self-efficacy. The study suggested that students who adopt mastery goals will have the confidence to engage academically while those who adopt performance goals may have less confidence in engaging in academic tasks that they deem difficult. The contradictions in study findings provide a diverse perception on how the adoption of achievement goals orientation types may be associated with self-efficacy differently due to context-specific factors that trigger motivational goals hence a research gap. So, the objectives of this study, was to establish the correlation between approach achievement goals orientation (mastery and performance) and academic engagement among adolescents in southwestern Ugandan schools.

Mediation Effect of Academic Self-efficacy on Approach Achievement Goal Orientation and Academic Engagement

As already noted, considerable research has established that self-efficacy independently influences academic outcomes across diverse environments though the majority population in the low resource community contexts are underrepresented (Azila-Gbettor et al., 2021; Dogan, 2015; Olivier et al., 2019). Specific attention to self-efficacy and academic engagement has also been advanced by some researchers. For example, a critical assessment of 26 researches on self-efficacy and academic engagement in elementary, secondary, and college students indicated positive relationships between self-efficacy and academic engagement (Chang & Chien, 2015). It has also been suggested that believing one can complete an academic activity enhances academic effort and commitment to higher academic objectives (Cheng, 2020). In a study of 407 Turkish adolescents, results revealed that self-efficacy levels predicted all aspects of academic engagement (Sökmen, 2021). Similarly, a study conducted by Camelo-lavadores et al. (2017) suggests that academic self-efficacy is a crucial predictor of academic engagement among Mexican college students.

However, to our knowledge, there is scanty literature on studies that explored academic self-efficacy as a potential mediator between various predictor variables and academic engagement mainly in the western contexts. For instance, Zhen et al. (2021) found that academic self-efficacy mediated the relationship between gratitude and academic engagement in Chinese middle school students. Chen et al. (2021) identified the mediating role of academic self-efficacy in the relationship between proactive personality and academic engagement, indicating an indirect effect of proactive personality on students' academic engagement through academic self-efficacy. Aldrup et al. (2018) observed that academic self-efficacy mediated the relationship between AGO and academic engagement among German college students. Similarly, Zhang et al.

(2022) showed that academic self-efficacy significantly mediated the relationship between approach AGO (mastery and performance) and academic engagement in Chinese undergraduate students. Honicke et al. (2020) revealed that academic self-efficacy mediated the relationship between approach achievement goals and academic achievement, with a more pronounced effect for mastery approach goals compared to performance approach goals. Despite the critical intermediate role that academic self-efficacy plays in explaining the mechanism underlying the relationship between approach achievement goals orientation and academic engagement, there is a notable dearth of research regarding academic engagement among adolescents in low-income countries like Uganda, presenting a significant gap in the scholarly landscape. This study addressed this gap by examining the mediation effect of academic self-efficacy on the relationship between approach achievement goals orientation (mastery and performance) and academic engagement among adolescents in southwestern Uganda secondary schools.

Moderation Effect of Academic Self-Efficacy

Few scholarly investigations have explored academic self-efficacy as a potential moderator of academic engagement predictor variables. For instance, Alhadabi and Karpinski (2019) found that academic self-efficacy moderated the relationship between grit and academic performance among university students. Honicke et al. (2020) reported that academic self-efficacy moderated the relationships between approach goals (mastery but not performance) and academic engagement among Australian university students. The moderation role of academic self-efficacy on the relationship between mastery approach achievement goal and academic engagement meant that academic self-efficacy influences the strength of the relationship between the aforementioned variables. In other words, academic self-efficacy affects the way mastery approach goals affect academic engagement by either strengthening or weakening the relationship. A positive significant moderation effect means that including academic self-efficacy

in the model strengthens the relationship and vice versa.

To our knowledge, not many studies have examined academic self-efficacy as a potential moderator of approach achievement goals and academic engagement. This critical dearth of literature regarding academic self-efficacy as a potential moderator of approach achievement goals (mastery and performance) and academic engagement provided a rationale for this study. The study sought to address this gap by investigating the influence of academic self-efficacy on the association between approach achievement goals (mastery and performance) and academic engagement in adolescents residing in the southwestern region of Uganda. Comprehending this relationship is imperative in devising efficacious interventions that can foster academic engagement and enhance academic results among adolescents in this locality.

Moreover, Social Cognitive Theory predicts that people tend to engage in activities that correspond with their established preferences and competencies. One of the limitations to our current understanding of adolescent academic engagement is whether, in low-income settings, approach achievement goals and self-efficacy influence academic engagement levels in the same manner as it has been documented in one of the systematic reviews done on studies in the western industrialised contexts (Salmela-Aro et al., 2021). Since cultural differences between Western industrialised sample populations and low-income country settings like Uganda may influence students' approaches to achievement goals, self-efficacy, and academic engagement differently, it is critical to examine these variables contextually.

Based on existing literature from the western context, students with strong approach goals orientation are expected to partake in academic tasks and endeavours if they have a high level of academic self-efficacy. To elucidate, a student who believes in their academic competence is more likely to be motivated to acquire new skills and achieve personal growth, resulting in increased levels of academic engagement (Zhang

et al., 2022). In contrast, students with low perceived levels of academic self-efficacy may be less motivated to engage in academic tasks and activities, regardless of their approach goals orientation (Honicke et al., 2020). This might be a similar problem particularly in low-income settings like Southwestern Uganda where adolescents' self-efficacy beliefs and academic engagement might already be more challenging.

It is not clear whether self-efficacy influences the relationship between achievement goals orientation and academic engagement, especially within low socioeconomic status communities. A recent Meta-Analysis review of 104 studies on academic engagement and its antecedents among adolescents did not include a single study from the African continent (Salmela-Aro et al., 2021). To bridge this literature gap, the primary purpose of this study was to examine the potential mediating and moderating effect of academic self-efficacy on the relationship between AGO adoption and academic engagement among secondary school students in Southwestern Uganda. Southwestern Uganda, specifically Kabale District, is one of highly populated areas in Uganda with majority of the youth exposed to poverty related adversity which may compromise their academic engagement potential (Nyakato et al., 2021). Adolescent students in southwestern Uganda experience challenges as they pursue education in low resource settings characterised by high control from teachers and parents, scarce role models regarding academic success and negative feedback from teachers and parents who are more anxious about students' examination scores than the learning process. Therefore, this study site was relevant to the study.

Among secondary school adolescent students in Southwestern Uganda, we tested the hypotheses that;

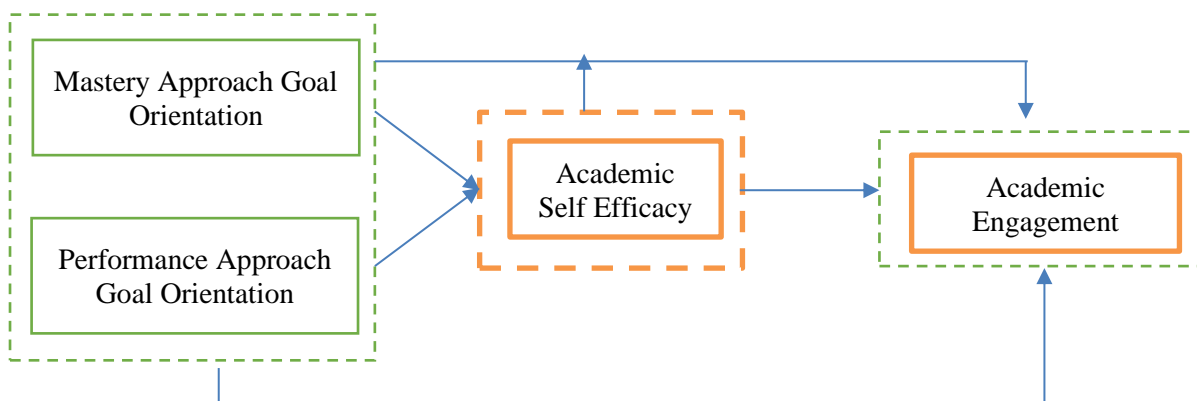
Hypothesis 1 (H₁): Mastery approach achievement goal orientation (MAP) and performance achievement goal orientation (PAP) does not significantly positively predict Academic engagement (AE) independently.

Hypothesis 2 (H₂): Academic self-efficacy (ASE) mediates students' approach achievement goals orientation (mastery and performance) and academic engagement (AE).

Hypothesis 3 (H₃): Academic self-efficacy (ASE) moderates approach achievement goals orientation (mastery and performance) academic engagement (AE).

Conceptual Model

Figure 1: The Associations among achievement goal orientation, academic self-efficacy, and academic engagement



The conceptual model has been constructed based on the aforementioned three hypotheses. The conceptual framework depicted in *Figure 1* illustrates the mechanism underlying the relationship between achievement goal orientation and academic engagement (AE). The learning motivation of students is comprised of their mastery approach goals and performance approach goals. Academic self-efficacy (ASE) is a constituent of the self-regulation process. Academic engagement (AE) is the embodiment of the cognitive process of learning. The attainment of Mastery approach goals and Performance approach goal exhibits a significant correlation with academic engagement (AE), and is also observed to have a direct impact on academic self-efficacy (ASE). The utilisation of MAP, PAP, and ASE can serve as a foundation for students' cognitive processes related to learning, as well as their motivation and self-regulation. Therefore, the academic achievement of students is enhanced.

MATERIALS AND METHODS

Participants

In this cross-sectional study, questionnaires were distributed to 520 adolescent students (231 males;) in two secondary schools in southwestern

Uganda (one private, one government-school). Participant age ranged between 13 - 21 years ($M = 17.09$ years, $SD = 1.72$ years). The inclusion criteria rationale for selecting two secondary school was based on a school being located in Southwestern Uganda and collaborates with Compassion International projects to admit financially deprived supported students at a reduced school fees cost to enable them access 'quality Education'. Stratified random sampling was used to form sampling frames of students according to; school type and socioeconomic status (compassion support beneficiary adolescents and non-compassion beneficiary). Using stratified random sampling for participants from government and private schools, as well as Compassion support beneficiaries and non-beneficiaries, ensured a representative and balanced sample that accurately reflects the diversity within the larger population. Basing on Morgan's table of sample determination (Bukhari, 2021), 188 participants were obtained from a population of 300 compassion beneficiaries whereas a sample of 322 participants was obtained from a population of 2000 non-supported adolescents for quantitative data collection. Therefore, a total sample of 510 adolescent students between 11 and 21 years were randomly

selected from two sampling frames (compassion support beneficiaries and non-beneficiaries) for quantitative data collection. Due to the effect of Covid-19 lockdown, most adolescents were much older than expected age categories for particular classes so instead of considering the age category of 12-19 as planned, the researchers considered 11-21 years in order to get representative students from both levels of secondary school education in Uganda.

Procedure

Using an on-site questionnaire, the investigation was conducted in February 2023 at two secondary schools in southwestern Uganda. Researchers and two trained research assistants (psychology students familiar with the questionnaire) collected data by requesting that students respond to the questionnaire independently and anonymously. Following verification, eight questionnaires were not carefully answered (irregular answers and multiple choices of two or more answers) and two were missing more than 10% of the questions. Therefore, these were eliminated, leaving 510 valid questionnaires with an effective rate of 98.0%.

Measures

Achievement Goal Questionnaire (AGQ-R) Scale

The achievement Goal Questionnaire (AGQ-R) Scale developed by Elliot and Murayama (2008) and adopted by Ng'ang'a, (Ng'ang'a, 2018) was used. The achievement goal questionnaire is made up of 12 items used to measure four sub-constructs scored on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. As required by the research, only two dimensions, MAP (e.g., "My goal is to fully understand the contents taught in class") and PAP (e.g., " My goal is to produce better work than other students"), were analysed in this study. Achievement goal orientation (AGQ-R) has been used in an African context and yielded good psychometric properties, for example Cronbach's alpha for the four subscales MAP $\alpha = 0.88$, PAV $\alpha = 0.95$, MAV $\alpha = 0.83$, and PAV $\alpha = 0.75$ in a

study done among Kenyan adolescents (Ng'ang'a, 2018). The Cronbach alpha for achievement goals orientation subscales in this current study was, MAP $\alpha = 0.79$, PAV $\alpha = 0.70$, MAV $\alpha = 0.76$, and PAV $\alpha = 0.78$.

Academic Self-efficacy Questionnaire for Children and Adolescents (SEQ-C)

The academic self-efficacy of adolescent students was measured using seven items adopted from Self-efficacy Questionnaire for Children and Adolescents (SEQ-C) developed by Muris in 2007. Each item was scored on a 5-point Likert scale ranging from 1 = not well to = very well. The academic self-efficacy sub-scale was adopted because it has been successfully used in other contexts, for example among Korean secondary adolescent students with a reliability index of $\alpha.83$ (Kim et al., 2017). For this study, the reliability index of the academic self-efficacy questionnaire was $\alpha.78$.

School Engagement Questionnaire (SEQ)

The Student Engagement Scale (SES) developed by Reeve (2013) was adapted to measure adolescent students' academic engagement. The SES consists of 21 items meant to measure middle and high school students' academic engagement embedded in four dimensions (cognitive, emotional, behavioural, and agentic engagement). The four subscales are scored on a five-point Likert scale ranging from never to very true. The SES theoretically fits the measurement of adolescent student engagement in this study because it embraces multiple factors embedded in academic engagement portrayed by self-determined behaviours as well as environmental aspects of an individual life (Reeve et al., 2018; Veiga, 2016; Wilcox et al., 2019). For this study, the reliability index of the academic engagement questionnaire was $\alpha = .86$.

Statistical Data Analysis

Statistical data in this study were analysed using version 20 of the Statistical Package for the Social Sciences (SPSS) and PROCESS macro 4.2 (Hayes & Rockwood, 2020). Before the analyses, diagnostic checks were done to ensure the choice

was appropriate. Regression Standardised Residual analysis yielded normal P-P plots indicating that data used in this study was fit for regression analysis. The assumptions of normality using normal P-P plots was realized and justifiable. Linearity of the study variables was done using Skewness and Kurtosis and values were within a range of -1 to +1 and -2 to +2 for skewness and kurtosis respectively which are considered acceptable (Orcan, 2020). First, the descriptive statistics using, mean, standard deviation and Pearson product-moment correlation analysis were conducted in the SPSS. Then, regression analysis using PROCESS MACRO Model 4.2 for SPSS (Hayes & Rockwood, 2020) was used to analyse the mediating and moderating role of academic self-efficacy.

Ethics

The researchers received ethical approval from ethical review committee of Mbarara University of Science and Technology (MUST-2022-620) and the Uganda National Council for Science and Technology (SS1562ES). The inspector of schools Kabale District provided an introductory letter to enable the researchers to access the schools through administrators. Respondents who were 18 years of age or older at the time of data collection were given a formal consent form to

sign as evidence of their willingness to participate in the study. Underage respondents signed an assent form and school administrators consented on behalf of their parents as caregivers during school time since they were boarding students. Participants were given the assurance of confidentiality and the freedom to skip some questions or to withdraw from the study without facing any consequences if they found the procedure or the questions themselves to be uncomfortable. All participant data was kept anonymously, securely and confidentially. To ensure confidentiality, interviews were carried out in a secure environment with minimum interruption. After the participants had fully consented, the researchers engaged them in responding to questionnaires.

RESULTS

Descriptive Statistical Analysis

The first objective of this study was to determine the Pearson product moment correlations, means and standard deviations of mastery approach achievement goal orientation (MAP), performance approach achievement goal orientation (PAP), Academic self-efficacy (ASE) and academic engagement (AE). The results are presented in *Table 1*.

Table 1: Descriptive statistics (n = 510)

	M	SD	1	2	3	4
1. AE	3.7235	.60390	1			
2. MAP	3.9650	.86424	.367**	1		
3. PAP	3.9673	.84399	.305**	.502**	1	
4. ASE	3.6182	.69434	.572**	.286**	.260**	1

Note. MAP = mastery-approach goals; PAP= performance-avoidance goals; ASE = academic self-efficacy; AE = academic engagement; M = mean; SD = standard deviation. **Correlation is significant at 0.01 (two tailed).

Results in *Table 1* indicate a moderately significant correlation between mastery approach achievement goal orientation and academic engagement. Performance approach achievement goal orientation was also positively associated with academic engagement. Results further indicate that there was a strong positive correlation between academic self-efficacy and

academic engagement among adolescent students in Southwestern Uganda. This implies among the participants of this study, those who adopted approach achievement goal orientation (mastery and performance) were likely to have high levels of academic engagement. In addition, adolescents with high academic self-efficacy likely had high academic engagement levels.

Table 2: Mediational Effect of Academic Self-Efficacy (ASE) on the Relationship between Mastery Approach Achievement Goal Orientation (MAP) and Academic Engagement (AE) using PROCESS macro analysis

Model	DV	IV/MV	β	T	P	R	R ²	F	SE	Bootstrap LLCI	ULCI
1	ASE	MAP	0.23	6.72	<.01	0.29	0.08	45.20	0.14	0.16	0.30
2	AE	MAP	0.15	6.03	<.01	0.61	0.37	50.59	0.03	.104	0.21
		ASE	0.44	13.9	<.01				0.03	0.38	0.51
3	AE	MAP	0.26	8.89	<.01	0.37	.134	150.5	0.03	0.20	0.31
4	a*b		.101							0.07	0.14

Note. MAP= Mastery approach goal orientation, ASE= Academic self-efficacy, AE= Academic engagement.

Figure 3: The Mediating effects of academic self-efficacy on mastery approach goal orientation and academic engagement

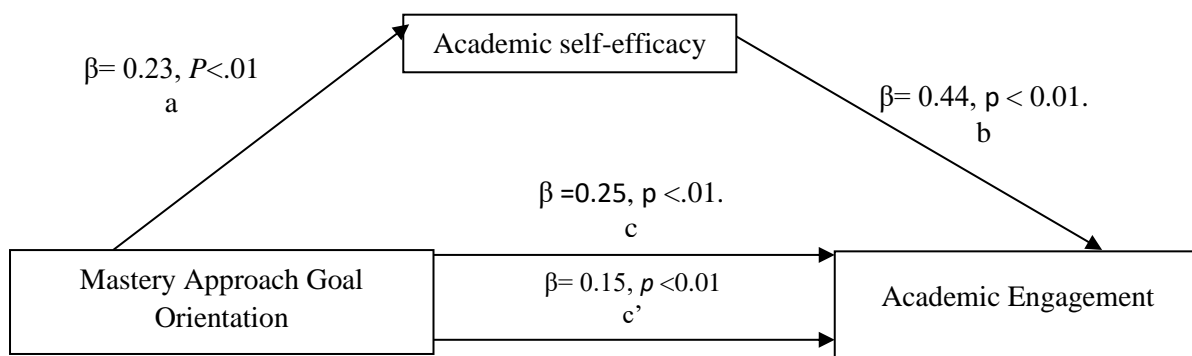


Table 3 and Figure 2 illustrate PROCESS macro regression analysis outputs of the mediation effect of academic self-efficacy on the association between mastery approach goal orientation and academic engagement among adolescent students in secondary schools in South-western Uganda. Mastery approach goal orientation explained 8.1% of academic self-efficacy's variation (Path a), $\beta = 0.229$, $t = 6.72$, $P < .01$ with $R^2 = 0.081$. Mastery approach goal orientation increased academic self-efficacy by 0.22 per unit ($t = 6.72$, $p < .01$).

Mastery approach goal orientation and academic self-efficacy significantly predicted academic engagement in the regression model (Paths c'), $\beta = 0.15$, $t = 6.03$, $P < .01$. (Path b) $\beta = 0.44$, $t = 13.86$, $p < .01$, $R^2 = 0.373$. The model explained 37.3% of academic engagement variance, according to R^2

value. When academic self-efficacy is not in the model, mastery approach goal orientation still predicted academic engagement (Path c), $\beta = 0.25$, $t = 8.89$, $p < .01$. Mastery approach goal orientation explained 13.4% of academic engagement variance, according to R^2 . Path c' had a lower mastery approach goal orientation beta coefficient. This suggests that adding academic self-efficacy to the model boosted the effect of mastery approach goal orientation on academic engagement and increased academic engagement variance from 13.4% to 37.3%. The indirect impact ($a*b$) was substantial since the bootstrap confidence interval does not contain a zero BootLLCI and BootULCI of 0.07 _0.141. This means that academic self-efficacy significantly impacted mastery approach goal orientation and academic engagement.

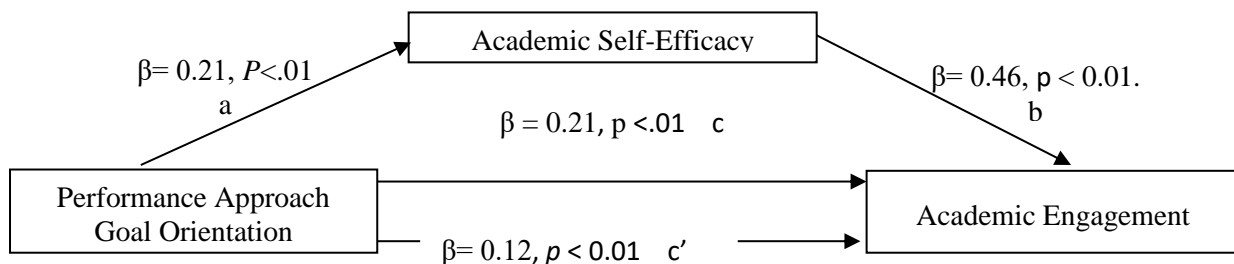
Table 3: Mediation effect of academic self-efficacy on the relationship between performance approach achievement goal orientation and academic engagement using PROCESS macro regression analysis

Model	DV	IV/MV	β	T	P	R	R ²	F	SE	Bootstrap LLCI	ULCI
1	ASE	PAP	0.21	6.08	<.01	0.26	0.07	36.91	0.05	0.14	0.28
2	AE	PAP	0.12	4.51	<.01	0.59	0.35	138.6	0.03	0.067	0.17
		ASE	0.45	14.3	<.01					.396	0.52
3	AE	PAP	.21	7.20	<.01	0.30	.093	51.96	0.03	.158	0.31
4	a*b		.098							.062	.137

Note. PAP= Performance Approach Goal Orientation, ASE= Academic Self-efficacy, AE= Academic Engagement.

The PROCESS macro regression results model of the mediation effect of academic self-efficacy on performance goal orientation and academic engagement are presented in *Figure 3*.

Figure 4: Mediation effect of academic self-efficacy on the relationship between performance approach achievement goal orientation and academic engagement



The findings presented in *Table 3* and *Figure 3* demonstrate the mediating role of academic self-efficacy in the association between performance approach goal orientation and academic engagement. The results for (Path a) revealed a significant predictive relationship between PAP and ASE (see *Table 3*). Performance approach achievement goal orientation accounted for 6.8% of the variance in academic self-efficacy. The results in the model presented the outcomes of the regression analysis that estimates academic engagement as a function of both PAP and ASE predictors. Upon the introduction of ASE into the model, PAP significantly predicted academic engagement (see *Table 3*). Additionally, academic self-efficacy significantly predicted academic engagement. Performance approach achievement goal orientation demonstrated a comprehensive impact on academic engagement through ASE. The coefficient of determination (R²) denotes that the model accounts for 35.0% of the variability observed in academic engagement.

In the absence of ASE in the model, it can be observed that PAP goal orientation has a weak significant predictive effect on academic engagement (path b, see *Table 3*). The coefficient of determination (R²) suggests that PAP goal orientation accounts for 9.3% of the variability observed in academic engagement. There is a discrepancy in the beta coefficients of PAP between paths c and c', with the latter exhibiting a comparatively reduced value. The aforementioned suggests that the inclusion of academic self-efficacy in the model results in a heightened impact of performance-approach goal orientation on academic engagement. Specifically, there is an increase in the explanation of variance in academic engagement from 9.3% to 35.0%. The statistical significance of the indirect effect (a*b) is established by the absence of zero within the bootstrap confidence interval, which is bounded by BootLLCI and BootULCI values of 0.062 and 0.137, respectively. Hence, it can be posited that academic self-efficacy serves as a mediator

between performance-approach goal orientation and academic engagement.

Table 4: The Moderation Effect of Academic Self-Efficacy on the Relationship between Mastery Approach Goal Orientation and Academic Engagement using PROCESS Macro Regression Analysis

Model	DV	IV/MV	β	SE	T	P	R ²	Bootstrap LLCI	ULCI
1	Model summary, F= 100.15, R² = .373, p<.01								
2	AE	MAP	0.16	.026	6.00	p < .01	0.373	.104	.206
		ASE	0.44	.032	13.75	p < .01		.379	.506
		Interaction	.004	.031	0.14	p = .88		-.057	.066

Note: MAP= Mastery Approach Goal Orientation, ASE= Academic Self-efficacy, AE= Academic Engagement.

Results in *Table 4* indicate that the model overall was a good fit for the data and explained a significant amount of the variance in the outcome variable (See *Table 4*). Results indicated that the regression of academic engagement and mastery approach goals orientation was statistically significant. Similarly, the regression of academic engagement and academic self-efficacy is statistically significant. These findings suggest that both mastery approach goals orientation and academic self-efficacy have a significant positive effect on academic engagement among adolescent students in southwestern Uganda. However, there was no evidence for a moderation effect of academic self-efficacy on the relationship

between mastery approach achievement goal orientation and academic engagement. Because confidence interval obtained through bootstrapping contained a zero-value indicating that the moderation effect may be zero or non-existent (see *Table 4*). Overall, the results suggest that mastery approach goals orientation and academic self-efficacy have a positive effect on academic engagement among adolescent students in southwestern Uganda, but academic self-efficacy does not moderate the relationship between mastery approach achievement goal orientation and academic engagement. The moderation effect is graphically presented in *Figure 4*.

Figure 5: The moderation effect of social self-efficacy on the relationship between mastery approach goal orientation and academic engagement

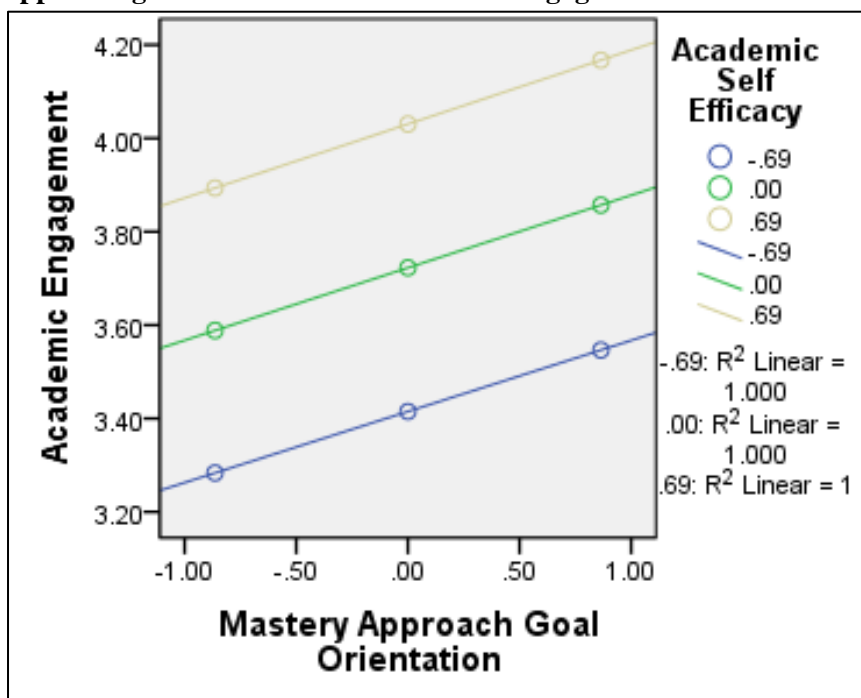


Table 5: Moderation Effect of Academic Self-Efficacy on the Relationship between Performance Approach Goal Orientation and Academic Engagement

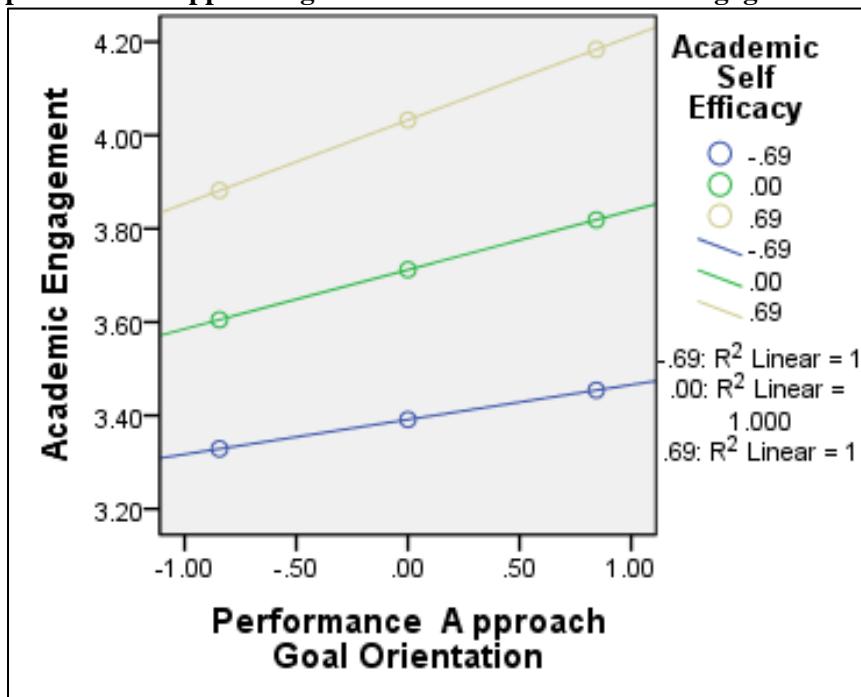
Model	DV	IV/MV	β	SE	T	P	R ²	Bootstrap LLCI	ULCI
1			Model summary, F= 94.63, R ² = .359, p= <0.01						
2	AE	PAP	.126	.026	4.76	p <0.01	.359	.074	.178
		ASE	.461	.032	14.40	p < 0.01		.398	.524
		Interaction	.075	.034	2.17	p = .030	.006	0.007	0.143

Note: PAP= Performance Approach Goal Orientation, ASE= Academic Self-efficacy, AE= Academic Engagement.

Results in Table 5, suggest that the model fits the data and can explain 35.9% of academic engagement variations. Model 2 demonstrates a significant relationship between academic engagement and performance approach goal orientation. The regression of academic engagement and academic self-efficacy is similarly significant. These findings suggest that academic self-efficacy and performance approach goal orientation positively predict academic engagement independently among southwestern Ugandan adolescents because bootstrapping confidence interval did not include a zero value (see Table 5). The results further indicated that academic self-efficacy moderates the association

between approach goal orientation (performance but not mastery) and academic engagement. This interaction effect is substantial since the bootstrapping confidence interval does not contain zero (see Table 5). Thus, the relationship between performance-approach goals orientation and academic engagement is stronger for students with high academic self-efficacy. Performance approach goals orientation conditional effect at different moderator levels is shown in Appendix 4. The link between performance approach goals (PAP) and academic engagement changes as a function of academic self-efficacy and the impact is substantial when academic self-efficacy is within a specified range (see table in Appendix 4).

Figure 6: The moderation effect of academic self-efficacy on the relationship between performance approach goal orientation and academic engagement



DISCUSSION

Academic engagement among adolescent students in low social economic communities like Uganda can be a challenge and students' motivation to engage in academic work largely depends on both internal and external factors. It has been suggested that students may have to adopt achievement goals orientation to enable them to thrive through secondary school education (Onzi et al., 2023). This study extends prior research by investigating student achievement goals among secondary school adolescents and their academic engagement. We focused on academic self-efficacy as one of the fundamental mechanisms that may conceivably mediate and moderate these constructs. Using regression analysis and bootstrapping, the results of this study largely supported the hypothesis that academic self-efficacy positively mediates the relationship between both Mastery approach goals (MAP) and performance approach goals (PAP) to academic engagement. Academic self-efficacy significantly moderates the relationship between performance-approach goal orientation and academic engagement but not mastery approach goal orientation and academic engagement.

Achievement Goal Orientation and Academic Engagement

The positive relationship between MAP and PAP goals and academic engagement shown here is supported by other numerous research findings. For example, a study done in Turkey among students in higher education institutions found that achievement goal orientation predicted both surface and deep learning (Soyer & Kirikkanat, 2019). Specifically, approach goals were associated with deep learning. Similarly, by Lin (2019) revealed that approach goal orientations were positively related with deep learning among International English second language learners in the United States of America. To our knowledge, no study has been done in Uganda examining the relationship between approach goals orientation (mastery and performance) and academic engagement. Our study advanced novel findings

regarding the phenomenon in the African context, particularly Uganda.

Most of the other studies focusing on achievement goal orientation and learning dynamics found significant positive correlations, though they were mainly focused on academic performance as the outcome. For example, a study of American university students showed that MAP goal orientation was positively associated with student academic performance (Alhadabi & Karpinski, 2020). Similarly, study done among 385 Kenyan adolescent students in 10 public secondary schools found significant correlation between approach goal orientation and academic achievement (Ireru et al., 2021). Another study of adolescent students in Kenya in twelve secondary schools revealed a significant relationship between achievement goal orientation and academic achievement (Ng'ang'a, 2018). The findings of the current study contribute to a growing body of research that emphasises the significance of promoting a mastery-oriented approach to learning as a means of promoting academic engagement, irrespective of the socioeconomic status of the individuals or communities being studied.

Academic Self-Efficacy Mediates and Moderates the Relationship between Mastery Approach and Performance Approach Goals Orientation

The PROCESS macro regression analysis indicated that ASE significantly mediated the relationship between approach goals orientation (mastery and performance) and academic engagement. Whereas mastery approach goal orientation explained 37.3% of variance in academic engagement when academic self-efficacy was introduced to the model, performance approach goal orientation accounted for 35.0% of the variability observed in academic engagement. The indirect impact of approach goals orientation (mastery & performance) on academic engagement through academic self-efficacy was substantial since the bootstrap confidence interval did not contain a zero. Hence, it can be posited that academic self-efficacy serves

as a mediator between approach goal orientation (mastery and performance) and academic engagement. A few previous research findings conducted among students in higher education institutions in the western context align with the current study's findings. In a study done by Aldrup, Klusmann and Lüdtke (2018), it was observed that academic self-efficacy played a mediating role in the connection between AGO and academic engagement in German college students. This observation is consistent with the results from a study by Zhang et al. (2022), which demonstrated that academic self-efficacy served as a significant mediator in the relationship between approach AGO (mastery and performance) and academic engagement among Chinese undergraduate students. Furthermore, Honicke et al.'s (2020) study findings supported the idea that academic self-efficacy acted as a mediator in the association between approach achievement goals and academic achievement and the effect was more pronounced for mastery approach goals compared to performance approach goals.

Other previous studies that have investigated self-efficacy as a mediator on the relationships between various predictor variables and learning outcomes are mainly limited to academic performance or achievement as the outcome variable. Alhadabi and Karpinski (2020) maintain that self-efficacy beliefs (SE) played both a mediation and moderation role on achievement goal orientation and students' academic performance. Particularly, SE positively affected the influence of mastery and performance-approach goals on academic achievement interpreted as Grade Point Average (GPA). Another study among Malaysian students in e-learning environment revealed that self-efficacy played a fundamental role in mediating time management and students' performance (Osman, 2018). Other studies have investigated the mediation role of self-efficacy on the relationship between teacher support and academic achievement and found that self-efficacy is a strong mediator variable (Honicke et al., 2020; Liu et al., 2022). The findings from previous

research stipulate that the stronger the belief an individual has in the ability to successfully achieve on an academic task, the more the likelihood of realising higher academic performance. Beliefs indirectly or directly determine how much effort an individual will put into academic tasks and how long they will persist in the face of challenges. High self-efficacy can create a self-fulfilling prophecy, in which a person believes that they can successfully achieve their academic goals, and they consequently do.

Results of this study contribute to the existing body of cross-cultural research in the area of adolescent students learning dynamics by revealing a clear picture of achievement goal orientation adoption and academic engagement dynamics within low socio-economic communities like Uganda. Students who are motivated by approach goals (both mastery and performance) tend to exhibit higher levels of engagement in the learning process, and a greater likelihood of achieving success, particularly when they possess a strong sense of confidence in their abilities. The adoption of approach goals by students may enable them to perceive difficult learning tasks as opportunities to improve their knowledge framework, enhance their competencies, and cultivate a sense of self-efficacy in tackling any learning challenge. The enhancement of academic self-efficacy (ASE) enables students to exhibit heightened psychological resilience and dynamism, thereby establishing the necessary conditions for effective engagement in learning activities. Students with high academic self-efficacy are more likely to increase their efforts and perseverance to effectively complete their academic work, and as a result, they may outperform their peers. Numerous learning engagement researchers (Alhadabi & Karpinski, 2020; Gimeno-Gilles et al., 2016; Sokmen, 2021; Wolverson et al., 2020) argue that self-efficacy is positively correlated with high academic outcomes.

The Moderation Effect of Academic Self-Efficacy on the Relationship between Achievement Goal Orientation and Academic Engagement

The present research results indicated that academic self-efficacy functioned as a complete moderator in the relationship between approach goals (performance but not mastery) and academic engagement among adolescents. The moderating role of academic self-efficacy has not been extensively examined by scholars. However, one recent investigation conducted among Chinese adolescents focused on self-efficacy as a predictor variable and revealed that academic self-efficacy played a moderating role in the association between self-esteem and academic engagement (Zhao et al., 2021). This implies that academic self-efficacy is a potential moderator of some academic engagement predictor variables. Findings of Zhao and colleagues stipulated that Chinese adolescents with high academic self-efficacy were likely to experience high academic engagement when they adopted mastery approach goal orientation while those who exhibited low self-efficacy, prioritising performance goals had low academic engagement levels. Conversely, our study results indicated that enhanced academic self-efficacy among adolescents in Uganda strengthened the relationship performance approach goal orientation (performance but not mastery) and academic engagement. This implies that in the Ugandan context, adolescent students who adopt performance approach goal orientation and possess a sense of assurance in their ability to succeed at given academic work could potentially experience high academic engagement levels. This is not surprising, given the fact that the examination scores and performance position are main determinants of an individual's academic progress and employability. So, students strive as much as they can to outperform their counterparts as their major drive for engaging in academic pursuit.

The present research adds to the limited body of literature by clarifying the critical necessity for enhancement of academic self-efficacy as a means to strengthen academic engagement levels among

adolescent students prone to adopting performance approach goals to fit in the curriculum demands within their contexts.

CONCLUSIONS

The present investigation indicates that both mastery and performance approach goal orientation exhibited a direct and positive association with academic engagement. Furthermore, both the mastery and performance approach goals orientation had an indirect positive impact on academic engagement through the mediating effect of academic self-efficacy. Academic self-efficacy strengthened the relationship between approach goals orientation (performance but not mastery) and academic engagement by playing a moderation role. In summary, this research illustrates the effectiveness of approach goal orientations for students. There is a need to broaden the scope of this research to encompass diverse student populations and to adopt a more refined approach to gain a deeper comprehension of the mechanisms through which these goals orientation impact academic engagement. The findings of this study have significant implications for promoting academic engagement among students through academic self-efficacy that is based on achievement goal orientation. Furthermore, the results suggest that teachers and academic institutions should explore ways to improve academic self-efficacy among students to enhance their academic engagement.

Recommendations

The findings of the research indicate that adolescents who adopt approach goals orientation exhibit a greater propensity to participate in academic activities and strive towards their objectives, thereby resulting in improved academic outcomes. The aforementioned discovery bears significant consequences for both educators and policymakers as it underscores the significance of fostering approach achievement goals (mastery and performance) toward education. This is especially crucial in countries with low socio-economic status, where achieving academic success may pose greater

challenges. It is therefore recommended that teachers and educational stakeholders emphasize the importance of approach achievement goal orientation for improving academic engagement among adolescent students in southwestern Uganda.

Additionally, interventions that aim to enhance academic self-efficacy may be beneficial for improving academic engagement. Education stakeholders can use the findings of this research to inform their practices and interventions aimed at improving academic engagement among students. They can focus on fostering academic self-efficacy beliefs among students as this was found to be a strong and significant predictor of academic engagement. For students who adopt performance approach goal orientation, enhancement of academic self-efficacy is specifically critical since it was found to be a significant mediator and moderator of performance approach goals (PAP) and academic engagement. This can be achieved through various means such as providing students with challenging yet achievable tasks, positive feedback, and encouragement to help build their confidence in academic activities.

The results of this investigation can provide educators with insights into tailoring their instructional approaches to accommodate the varying needs of students with distinct goal orientations. This may involve creating a diverse range of learning activities to optimise each student's academic growth and success.

Research Limitations

This research exhibits two limitations. For feasibility reasons, participants were chosen from two schools that partner with Compassion International (to admit students at subsidised school fees) in the southwestern region of Uganda to cater for homogeneity in terms of socio-economic status. It remains uncertain whether the outcomes of the research can be applied to schools in other regions of Uganda or to educational institutions in other nations. This study solely focused on analysing the mediating and moderating impact of academic self-efficacy

concerning the correlation between MAP, PAP, and academic engagement. To enhance the comprehensiveness of the four goal dimensions, scholars may endeavour to authenticate the influence of mastery-avoidance goals and performance-avoidance goals on AE. In subsequent studies, a blended approach of qualitative and quantitative research may be employed to establish a foundation for the elucidation of causality via classroom observations and comprehensive interviews, thereby mitigating potential measurement bias. Additional analysis may entail investigating whether the relationship among achievement goal orientation, academic self-efficacy (ASE), and academic engagement (AE) varies over time.

DATA AVAILABILITY STATEMENT

The data in this study are available from the corresponding authors on request.

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Conflicts of Interest

The authors declare no conflict of interest.

Author Contributions

All authors contributed to this manuscript by conceptualizing the methodology, drafting and revising the manuscript.

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Declaration of Conflicting Interests

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APPENDIX

Appendix 1: Conditional Effect of Academic Self-Efficacy on Performance Approach Goal and Academic Engagement at Different Moderator Level

ASE	Effect	se	t	p	LLCI	ULCI
-2.190	-0.038	0.077	-0.496	0.620	-0.190	0.113
-2.011	-0.025	0.071	-0.348	0.728	-0.165	0.116
-1.833	-0.011	0.066	-0.173	0.863	-0.140	0.118
-1.654	0.002	0.060	0.035	0.972	-0.116	0.120
-1.475	0.016	0.055	0.285	0.776	-0.092	0.123
-1.297	0.029	0.049	0.589	0.556	-0.068	0.126
-1.118	0.043	0.044	0.962	0.337	-0.044	0.129
-0.940	0.056	0.039	1.421	0.156	-0.021	0.133
-0.766	0.069	0.035	1.965	0.050	0.000	0.138
-0.761	0.069	0.035	1.981	0.048	0.001	0.138
-0.583	0.083	0.031	2.647	0.008	0.021	0.144
-0.404	0.096	0.028	3.385	0.001	0.040	0.152
-0.225	0.110	0.027	4.103	0.000	0.057	0.162
-0.047	0.123	0.026	4.663	0.000	0.071	0.175
0.132	0.137	0.028	4.965	0.000	0.083	0.191
0.310	0.150	0.030	5.022	0.000	0.091	0.209
0.489	0.164	0.033	4.919	0.000	0.098	0.229
0.668	0.177	0.037	4.740	0.000	0.104	0.250
0.846	0.191	0.042	4.540	0.000	0.108	0.273
1.025	0.204	0.047	4.345	0.000	0.112	0.296
1.203	0.217	0.052	4.167	0.000	0.115	0.320
1.382	0.231	0.058	4.009	0.000	0.118	0.344