Journal of Education and Practice
ISSN 2222-1735 (Paper) ISSN 2222-288X (Online)
Vol.17, No.10, 2026

Regulate, Learn and Achieve: Examining the Predictive Power of Self-Regulated Learning on University Students' Academic Achievement

Eric Twum Ampofo[1*], Lebbaeus Asamani[2], Mark Owusu Amponsah[3], Eric Appiah-Twumasi[4]

1. Department of Educational Studies, University of Skills Training and Entrepreneurial Development, PO box 40, Asante Mampong Campus, Ghana
2. Department of Education and Psychology, University of Cape Coast, P.M.B. University Post Office, Cape Coast, Ghana
3. Department of Education and Psychology, University of Cape Coast, P.M.B. University Post Office, Cape Coast, Ghana
4. Department of Educational Studies, University of Skills Training and Entrepreneurial Development, PO box 40, Asante Mampong Campus, Ghana

*E-mail of corresponding author: etampofo@usted.edu.gh

Abstract

The study investigated the extent to which self-regulated learning predicted the academic achievement of students at the University of Skills Training and Entrepreneurial Development (USTED). The study was guided by one research question and seven hypotheses. A quantitative approach, employing a descriptive cross-sectional survey design, was adopted. A multistage sampling procedure involving purposive, stratified proportionate, and simple random sampling using a table of random numbers was employed to select 577 students from USTED. Data were collected using an adapted standardised self-regulated learning scale. The data were analysed using descriptive statistics, including means and standard deviations, as well as structural equation modelling (SEM). The findings revealed that self-regulated learning significantly predicted the academic achievement of USTED students. Specifically, goal setting, environmental structuring, and time management emerged as significant predictors of academic achievement, whereas task strategies, help seeking and self-evaluation did not significantly predict academic achievement. Overall, the findings underscore the importance of self-regulated learning in explaining academic achievement among USTED students. The study therefore recommends that lecturers and heads of academic departments should intentionally integrate self-regulated learning strategies, including goal setting, metacognition, environmental structuring, and time management into their teaching and instructional practices. Assessment approaches should likewise incorporate these strategies to encourage their consistent application among students and, consequently, enhance academic performance. Furthermore, future research should employ longitudinal designs to investigate how self-regulated learning develops and interacts with students' learning behaviours over time, and how these interactions subsequently influence academic achievement.

Keywords*:* Self-regulated learning, academic achievement, USTED students

DOI: 10.7176/JEP/17-10-04
Publication date: October 30th 2026

1. Introduction

Globally, one of the most prominent concerns in education is how students perform well academically. The transition of students from one educational level to another, particularly from senior high school to tertiary education, is of paramount importance (Timmis *et al*. 2024). Admission to tertiary institutions, predominantly universities, is typically contingent upon students demonstrating a satisfactory level of academic achievement in their final examinations. This underscores the critical role academic performance plays in shaping educational trajectories and opportunities for individuals as they progress through their academic journeys.

Universities in Ghana are undoubtedly responsible and mandated to provide the human capital of the nation. In view of this, the curricula of the universities in Ghana are structured in a manner that require each student to manage their academic life very well in order to become an asset to the nation (Agormedah *et al*. 2021). Indeed, students who have the ability to understand, control, and regulate their learning are well prepared to overcome setbacks and succeed academically (King & Ashkanasy 2026). Indeed, developing effective study habits and skills are essential for students to thrive amidst academic pressures to achieve their educational goals (Agormedah *et al*. 2021).

Poor academic performance, however, among students in technical and vocational education and training (TVET) institutions has become a growing concern globally (Boateng *et al*. 2024; Mahlangu & Mtshali 2024). Research highlights that this challenge is triggered by a variety of personal, institutional, and societal elements. For instance, Amponsah (2023) identified student-related factors including lack of motivation and weak study habits, along with inadequate parental support and poor teaching conditions as significant contributors of TVET students' poor academic performance in Ghana.

According to Oketch (2023), empowering technical training institutions is key to creating a workforce that participates in the achievement of a country's national agenda. Indeed, TVET emerges as a pivotal strategy to tackle challenges such as poverty, unemployment, limited technological advancement, and slow national development (Gyimah 2020). In response to these challenges, Akenten Appiah Menka University of Skills Training and Entrepreneurial Development (AAMUSTED), now University of Skills Training and Entrepreneurial Development (USTED), was established. Under this Act, USTED became the foremost public TVET university entrusted to chiefly provide higher education in technical, vocational, and entrepreneurial training to cultivate skilled manpower essential for job creation and economic advancement.

Zimmerman (2015) posited that self-regulated learning (SRL) involves learners' capacity to comprehend and shape their learning environment, encompassing intentional and proactive behaviours undertaken to improve learning outcomes. Practices of SRL are consistently linked with high academic performance (Steh & Saric 2020; Zhao *et al*. 2025; Zimmerman 2020). For example, Guntur & Purnomo (2024) discovered that students who actively participate in strategic activities including planning, setting of goals, and monitoring their studies progress generally achieve higher academic performance in relation to students who hardly employ these SRL techniques. Also, students who utilise self-regulated learning strategies tend to be more engaged and self-sufficient in their learning processes (Purarjomandlangrudi & Chen 2020; Vilkova & Shcheglova 2021).

Eslami & Sahragard (2021) conducted a study on learners' reading comprehension using a self-regulated scheme development (SRSD) approach and found that strategic-based training positively influenced the respondents' reading comprehension. However, this study focused specifically on reading as a subject and utilised an

experimental design. Also, Soydan & Akalin (2022) examined the behavioural self-regulation of primary learners and established that self-regulated learning predicted educational outcomes. Though, the findings from Soydan and Akalin's study established that self-regulated learning predicted higher academic skills, the study relied on direct observation and assessment from teachers and also, the respondents were observed for two years and they were primary school learners.

Given the scope, methods and setting of these studies, further research is necessary to determine whether self-regulated learning impacts overall student performance or is limited to specific aspects of their academic achievement and also, ascertain whether one-time data collection method and with a modified Barnard *et al.'s* (2009) SRL Scale would predict the academic achievement of university students. Hence, this present research aims to examine the impact of self-regulated learning on USTED students' academic achievement as measured by cumulative grade point average (CGPA) with descriptive cross-sectional as the research design.

2. Purpose of the Study

The purpose of the study is to determine how self-regulated learning predicted academic achievement of university students. The specific objective and hypotheses of the study are as follows.

1. What is the level of self-regulated learning among USTED students?
2. Self-regulated learning will not significantly predict academic achievement of USTED students.
3. Goal setting will not significantly predict academic achievement of USTED students.
4. Environmental structuring will not significantly predict academic achievement of USTED students.
5. Task strategies will not significantly predict academic achievement of USTED students.
6. Time management will not significantly predict academic achievement of USTED.
7. Help seeking will not significantly predict academic achievement of USTED students.
8. Self-evaluation will not significantly predict academic achievement of USTED.

3. Theoretical and Conceptual Framework of the Study

Zimmerman's (2000) theory of self-regulated learning underpinned this study because it provides a comprehensive, empirically supported, and process-oriented explanation of how learners actively manage their academic behaviour. Zimmerman conceptualises learning as a cyclical process involving forethought, performance, and self-reflection, making it both theoretically robust and practically applicable. Grounded in social cognitive theory, it integrates cognitive, motivational, and behavioural factors while accounting for both personal influences such as self-efficacy and environmental factors such as feedback.

The dimensions of Zimmerman's (2000) recurring model begin with forethought phase. This is initial stage of SRL and focuses on how students approach a task. This involves analysing the task, assessing their ability to complete it successfully, and setting goals and plans to accomplish it. Task interest and goal orientation are key factors in ensuring effective planning and task performance. During this phase, students undertake two primary activities. Firstly, they evaluate the characteristics of the task by forming an initial understanding of how it should be approached. Secondly, they assess the task's significance to them, which influences their motivation, level of effort, and subsequent utilisation of self-regulatory strategies during task execution.

The second stage, called the performance phase, is where actual task execution takes place. Zimmerman & Moylan (2009) opined that two pivotal processes that occur in this phase are self-observation and self-recording. Effective self-observation by students can be achieved through two types of actions: cognitive action and external assistance. Cognitive action involves self-monitoring or metacognitive monitoring, where individuals evaluate their actions against predetermined criteria to assess the quality of their ongoing processes (Winne & Hadwin 1998). External assistance action aids in monitoring and fostering reflection upon task completion (Kostons *et al.* 2010). The second process is self-recording, which involves documenting the activities performed during the task. These strategies empower students to actively observe their own performance, facilitating self-awareness and metacognitive processes crucial for self-regulated learning.

In the final stage, the reflection phase, learners engage in judging their task and formulating explanations for their results. This process involves justifying their success or failure, which in turn elicits positive or negative emotions based on their attributional style, subsequently influencing their motivation and regulation in future tasks. Self-judgment, a crucial component of this phase, entails students assessing their performance through self-assessment and making causal attribution to their outcomes (Panadero 2017). Zimmerman's (2000) framework for self-regulation, based on Bandura's theory of social cognition, underscores how personal, behavioural, and environmental factors interact to influence individuals' functioning, as conceptualise in Figure1.

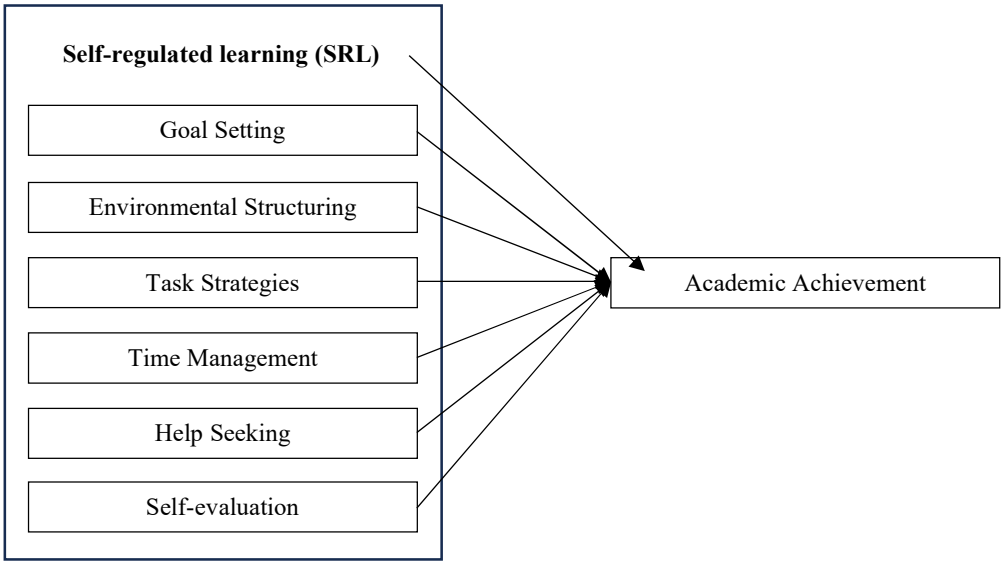


Figure 1. Conceptual framework of the study

4. Level of Self-Regulated Learning

Generally, many students are found to exhibit moderate to high levels of SRL, but this varies widely depending on aspects such as the educational environment, individual characteristics, and socio-cultural contexts (Robson *et al.* 2020). For example, Banson (2022) conducted an analysis of SRL practices across different settings and noted that students typically possess medium to high levels of cognitive and metacognitive strategies essential for effective learning. Equally, Segaran & Hasim (2021) identified three tiers of self-regulation among students: high, medium, and low, with a significant number of learners found to exhibit elevated self-regulated learning capabilities.

Elevated levels of SRL strategies are frequently seen among students who benefit from structured support or specific learning environments. For instance, Tempelaar *et al.* (2024) highlighted that students engaged in enquiry-based or problem-based learning often cultivate strong self-regulatory behaviours. Additionally, college students, especially those enrolled in advanced academic programmes, tend to exhibit more robust SRL strategies as they adopt a more autonomous approach to their studies (Lopez-Angulo & Saez-Delgado 2026). This emphasises the critical role that both the learning environment and instructional design play in promoting effective self-regulated learning practices among students.

5. Self-Regulated Learning and Academic Achievement

Numerous studies have consistently linked the utilisation of SRL techniques with substantial academic achievement (Steh & Saric 2020; *Zhao et al*. 2025; Zimmerman 2020). According to Guntur & Purnomo (2024), individuals who dedicate time to strategising, establishing objectives, and actively tracking their advancement typically attain superior educational achievements compared to their counterparts. King & Ashkanasy (2026) also highlighted the close association between social competence, which includes skills like goal-setting and self-control, and the implementation of SRL practices, which subsequently impacts academic success.

Vilkova & Shcheglova (2021) studied how SRL processes impact the educational attainment 123 college learners. The findings indicated a notable correlation between SRL processes and educational performance. In their study, self-regulated learning encompasses diverse skills like goal setting, empathy, task strategies, perceived social support, impulse control, self-monitoring, and the ability to manage aggression under social pressure, all of which contribute to academic success. Similarly, Purarjomandlangrudi & Chen (2020) examined how the use SRL mechanisms relates to academic achievement. The research findings indicated that educational outcomes were associated with effective time management and seeking assistance from teachers, with higher levels of success linked to these factors.

Yurdal & Toraman (2023) carried out an investigation to assess how strategies of self-directed learning and motivation predicted the educational attainment college learners. Surprisingly, the findings showed no significant link between strategies for self-directed learning and academic performance within the participant group. In a correlated investigation, Uus *et al.* (2021) explored how self-directed learning relates to scholastic attainment among learners in middle school. Unexpectedly, the analysis found no notable connections between SRL behaviours and scholastic attainment, contrary to initial expectations. The inconsistencies in previous studies findings have paved way to conduct a similar study specifically targeting university students to gain deeper insights into how SRL predict academic success.

6. Methods

6.1 Research Design

The study adopted a descriptive cross-sectional survey design. Descriptive cross-sectional surveys are designed to provide a systematic and accurate description of individuals, events, or situations as they exist at a particular point in time (Saunders *et al.* 2009). The design was considered appropriate for the present study because it enabled the researchers to obtain a comprehensive representation of the phenomenon under investigation and to collect data relevant to testing the study's hypotheses and addressing its research question. Additionally, the

cross-sectional nature of the design allowed data to be collected from the participants at a single point in time, thereby providing a snapshot of the variables of interest within the study population (Gay *et al.* 2009).

6.2 Population

The target population for the study comprised all undergraduate students of USTED, with a total enrolment of 30,109 students. The accessible population consisted of 4,805 regular final-year undergraduate students enrolled across the nine faculties of USTED during the 2024/2025 academic year (USTED, SRO, 2024). The study focused specifically on final-year students because Cumulative Grade Point Average (CGPA) was used as the measure of academic achievement, and final-year students had accumulated sufficient academic records to provide a reliable measure of their overall academic performance. Data in Table 1 present the faculties in USTED and their regular final-year undergraduate students' population.

Table 1. Faculties in USTED and their Students' Population

Faculty	Campus	Population
FASME	Kumasi	894
FVE	Kumasi	741
FBE	Kumasi	691
FECS	Kumasi	611
FTE	Kumasi	568
FASE	Asante Mampong	353
FEHSE	Asante Mampong	330
FSE	Asante Mampong	312
FEGS	Asante Mampong	305

6.3 Sample and Sampling Procedure

A multi-stage sampling procedure was employed, incorporating purposive, stratified proportionate, and simple random sampling techniques. Purposive sampling was initially used to identify regular final-year undergraduate students as the study population based on the predetermined inclusion criteria. As noted by Leedy & Ormrod (2005), purposive sampling involves selecting participants who possess characteristics relevant to the objectives of a study. This approach was considered appropriate because the study required participants who had reached their final year and, therefore, had established CGPAs that could be used to assess academic achievement.

Stratified proportionate sampling was employed to ensure adequate representation of students across the nine faculties and by sex. Each faculty was treated as a distinct stratum, and the proportion of male and female students within each faculty was determined based on their respective population sizes. This procedure ensured that students were selected from each faculty in proportion to their representation in the accessible population, thereby reducing the possibility of over- or under-representation of particular faculties or sexes in the sample.

The sample size was determined based on the guidelines provided by Krejcie & Morgan (1970). Based on the accessible population of 4,805 final-year students, a sample of 577 students was selected for the study. The sample was subsequently distributed proportionately across the nine faculties according to the number of final-year students in each faculty. For instance, in the Faculty of Applied Sciences and Mathematics Education (FASME), there were 894 final-year students, comprising 572 males and 322 females. The number of students to be selected from FASME was determined by dividing the faculty's population by the total accessible population and multiplying the resulting proportion by the overall sample size Thus, 107 students were selected from FASME. The sample was further disaggregated by sex to ensure proportional representation. The number of male students was calculated as: $572 \div 894 \times 107 = 68$ males while the number of female students was

calculated as: 322 ÷ 894 × 107 = 39 females. Consequently, 68 males and 39 females were selected from FASME, giving a total of 107 respondents. The same procedure was applied to the remaining eight faculties to determine their respective sample allocations based on faculty and sex.

Sampling frames were prepared separately for male and female students within each faculty. For example, to select the 68 male and 39 female students from FASME, a complete list of all 2024/2025 regular final-year students in the faculty was obtained from the USTED Registry. The students were then categorised into two sampling frames according to sex, comprising 572 males and 322 females. Each student within the respective sampling frame was assigned a unique identification number. A random numbers table was subsequently used to select the required number of participants. Random numbers ranging from 1 to 572 were used to select the 68 male students, while numbers ranging from 1 to 322 were used to select the 39 female students. Selection continued until the predetermined sample size for each sex was attained. The same procedure was followed across the remaining faculties until the total sample of 577 final-year undergraduate students was obtained. The distribution of the sample is illustrated in Table 2.

Table 2. Respondents' Distribution based on Faculty and Sex

Faculty	Population			Sample		
	Male	Female	Total	Male	Female	Total
FASME	572	322	894	68	39	107
FVE	296	445	741	36	53	89
FBE	380	311	691	46	37	83
FECS	293	318	611	35	38	73
FTE	415	153	568	48	20	68
FASE	222	131	353	26	16	42
FEHSE	135	195	330	16	24	40
FSE	178	134	312	22	16	38
FEGS	92	213	305	11	26	37
Total	2,583	2,222	4,805	308	269	577

6.4 Data Collection Instrument

Barnard *et al.'s* (2009) Self-Regulated Learning Scale was adapted and used in this study. The instrument comprises 24 items with an overall Cronbach's alpha of .90. and it is distributed across six subscales, each assessed using a 5-point Likert-type scale, spanning from 1 (strongly disagree) to 5 (strongly agree). Internal reliability coefficients for the subscales are high, with goal setting at .95, environment structuring at .92, task strategies at .93, time management at .87, help-seeking at .96, and self-evaluation at .94 (Barnard *et al.* 2009). The sixth semester CGPA of the respondents was used to measure their academic achievement.

6.5 Validity and Reliability

Data obtained from the pilot study were subjected to Confirmatory Factor Analysis (CFA) using a covariance-based Structural Equation Modelling (CB-SEM) approach, following the procedures recommended by Hair *et al.* (2014). To enhance the robustness of the estimates, 1,000 bootstrap resamples were generated to cross-validate the results obtained from the pilot data. Items with factor loadings below 0.30 were considered inadequate and were removed before the administration of the instrument in the main study, in accordance with Pallant (2010). The results of the CFA are presented in Table 3.

Table 3. Item loadings, Average Variance Extracted, and Composite Reliability

Dimensions	Items	Loadings	AVE	CR	Alpha	Omega
Goal Setting	GOSE 1	.683	.24	.69	.67	.68
	GOSE 2	.593				
	GOSE 3	.233*				
	GOSE 4	.485				
	GOSE 5	.580				
Environmental Structuring	ENST 1	.672	.39	.75	.77	.77
	ENST 2	.751				
	ENST 3	.638				
	ENST 4	.361				
Task Strategies	TAST 1	.411	.32	.69	.70	.68
	TAST 2	.409				
	TAST 3	.787				
	TAST 4	.585				
Time Management	TIMA 3	.503	.39	.80	.79	.79
	TIMA 2	.654				
	TIMA 1	.702				
Help Seeking	HESE 4	.597	.16	.67	.65	.67
	HESE 3	.202*				
	HESE 2	.615				
	HESE 1	.212*				
Self-Evaluation	SEEV 4	.496	.35	.78	.78	.79
	SEEV 3	.574				
	SEEV 2	.707				
	SEEV 1	.586				

Items GOSE 3 and HESE 1, 3 in Table 3 were deleted due to their factor loadings being below .30, as per the criterion set by Pallent (2010). In Table 3, all of the AVE scores for the different dimensions were less than .50, suggesting a lack of convergent validity (Fornell & Larcker 1981). Despite this lack of convergent validity, the Composite Reliability (CR), Cronbach Alpha, and Omega Reliability values for these dimensions exceeded .50, suggesting that the dimensions remained reliable, as proposed by Roland & Idsoe (2001).

Additionally, discriminant validity was assessed using the Fornell & Larcker (1981) criteria. The results of the discriminant validity assessment are presented in Table 4.

Table 4. Discriminant Validity

Variable	GS	ES	TS	TM	HS	SE
Goal Setting	(.49)*					
Environmental Struct.	.83	(.62)*				
Task Strategies	.70	.30	(.57)*			
Time Management	.85	.54	.74	(.62)*		
Help Seeking	.82	.66	.57	.55	(.39)*	
Self-Evaluation	.77	.59	.64	.73	.89	(.60)*

**Values in parenthesis are square roots of Average Variance Extracted (AVE)*

All the intercorrelation values reported in Table 4 remained below the recommended threshold of .90, as advised by Hair *et al.* (2006) and Awang (2012, 2014). This observation indicates the absence of multicollinearity issues among the constructs. Consequently, each subscale of the self-regulated learning scale

was categorised according to its corresponding dimensions, leading to the establishment of discriminant validity (Fornell & Larcker 1981).

The model fit indices were calculated to evaluate whether the proposed model adequately represented the collected data. See Table 5 for specific details on the model fit indices.

Table 5. Goodness of Fit Indices of Self-Regulated Learning Scale

Fit Indices	Values (24-items)	Values (21-items)	Threshold
Chi-square ($\chi 2$)	321.536, p<0.000	248.895, p<0.000	> .05
CMIN/DF	1.357	1.430	≤ 2 or 3
Comparative Fit Index	.898	.899	≥.90
Normed Fit Index	.715	.745	≥.90
Incremental Fit Index	.905	.907	≥.90
Tucker-Lewis Index	.871	.866	≥.90
Root Mean Square Error of Approximation	.046	.050	≤ .08
Akaike Information Criterion	495.536	404.895	

Note: Minimum discrepancy/degrees of freedom (CMIN/DF), Comparative Fit Index (CFI), Normed Fit Index (NFI), Incremental Fit Index (IFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), Akaike Information Criterion (AIC).

Data in Table 5 demonstrate that the majority of model fit indicators for the 24-item model did not meet the expected criteria, potentially indicating model misspecification (Kline 2011). Only the CMIN/DF, IFI, and RMSEA fit indicators showed values that were marginally acceptable according to Schreiber *et al.* (2006), with values of 1.357, .905, and .046, respectively. In comparison to the original 24-item model, the model fit indices for the final 21-item model demonstrated an improvement. Additionally, the AIC index supported this improvement, with the 21-item model displaying a lower value (404.895) compared to the 24-item model (495.536). This lower AIC value indicates a closer approximation to reality and suggests that the 21-item model has achieved a better fit (Civelek 2018). Despite the improvement, the 21-item model failed to fully satisfy the agreed standards indicated by established researchers for model fit. Therefore, future researchers aiming to replicate Bernard *et al.'s* (2009) SRL Scale in Ghanaian contexts should consider utilising the final 21-item model instead of the original 24-item model.

6.6 Ethical considerations

Prior to data collection, ethical approval was obtained through an official ethical clearance letter, and a formal introductory letter was secured from the respective faculty. Informed consent was obtained from all respondents before their participation in the study. Participants were adequately informed about the purpose and procedures of the research, and their participation was entirely voluntary. The study also upheld participants' rights to privacy, anonymity, and confidentiality, while appropriate measures were taken to minimise any potential risk or harm arising from their participation.

6.7 Data collection and analysis

The questionnaire was administered to the selected respondents with the assistance of three trained field assistants. Each questionnaire was assigned a unique identification code, which facilitated the accurate matching of respondents' questionnaire responses with their corresponding academic achievement data.

Data relating to the research question were analysed using descriptive statistics, specifically means and standard deviations while all the hypotheses were tested using structural equation modelling (SEM) path analysis.

7. Presentation of results

Research Question: What is the level of self-regulated learning among USTED students?

This question aimed to assess the extent of self-regulated learning among students at USTED. The established mean score threshold of 3 was used, representing the average score of all participants' responses. This calculation involved aggregating the mean scores of individual items and dividing by the total number of responses to obtain the overall mean score. Scores exceeding 3 were construed as indicative of high self-regulated learning level, while those below 3 signified lower level of SRL. A detailed breakdown of SRL level is presented in Table 6.

Table 6. Respondents' Level of Self-Regulated learning

Sub-scales	No. of items	Mean	SD
Goal Setting	4	4.23	.746
Environment Structuring	4	4.36	.552
Task Strategies	4	4.03	.622
Time Management	3	4.29	.599
Help Seeking	2	4.18	.611
Self-Evaluation	4	4.28	.514
Mean of means		4.23	.607

Data in Table 6 provide an overview of self-regulated learning level. The established threshold mean and the overall mean of means for SRL were (Mean = 3) and (Mean of means = 4.23) respectively, indicating an elevated level of SRL among USTED students. Among the six dimensions of self-regulated learning, environmental structuring (M = 4.36, SD = .552) emerged as the most prevalent, closely followed by time management (M = 4.29, SD = .599). Conversely, task strategy (M = 4.03, SD = .622) was observed to be the least high. Overall, the findings suggest a high level of all the six dimensions of SRL among USTED students.

H₀1: *Self-regulated learning will not predict the academic achievement of students in USTED*.

The hypothesis was formulated to determine whether self-regulated learning significantly predicted the academic achievement of USTED students. The hypothesis was tested using SEM with 5,000 bootstrap resamples and bias-corrected and accelerated confidence intervals. SRL was specified as the exogenous predictor variable, while academic achievement, operationalised using students' CGPAs, served as the criterion variable. The results of the analysis are presented in Figure 2 and Table 7.

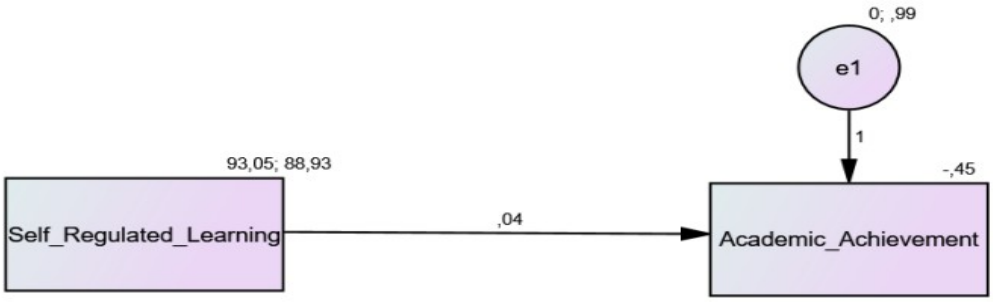


Figure 2. SEM results of the overall effect of SRL on academic achievement

The structural equation model depicting the relationship between the total construct of self-regulated learning and academic achievement is found in Figure 2. The model indicates that self-regulated learning had a positive influence on academic achievement. The coefficient results are presented in Table 7.

Table 7. Self-regulated learning and academic achievement

	B	SE	CR	P	95% CI
Intercept: Academic achievement	-.450	.413	-1.090	.276	[-1.261, .361]
Self-regulated learning → academic achievement	.041	.004	9.261	***	[.032, .050]

Note. B = unstandardized regression coefficient; SE = standard error; CR = critical ratio; 95%CI = confidence interval

Data in Table 7 that self-regulated learning significantly predicted academic achievement, B = .041, SE = .004, CR = 9.261, p = <.001, 95% CI [.032, .050]. The positive beta indicates that higher level of self-regulated learning was associated with higher level of academic achievement. This suggests that students who effectively plan, monitor, manage, and evaluate their learning are more likely to achieve better academic outcomes. In view of this, the null hypothesis was rejected in favour of the alternative.

To determine the predictive effect of each of the dimensions of SRL on academic achievement, a SEM analysis was performed. The analysis examined self-management, relationship management, social awareness, and self-awareness as predictors of students' academic achievement. The findings are presented in Figure 3 and Table 8.

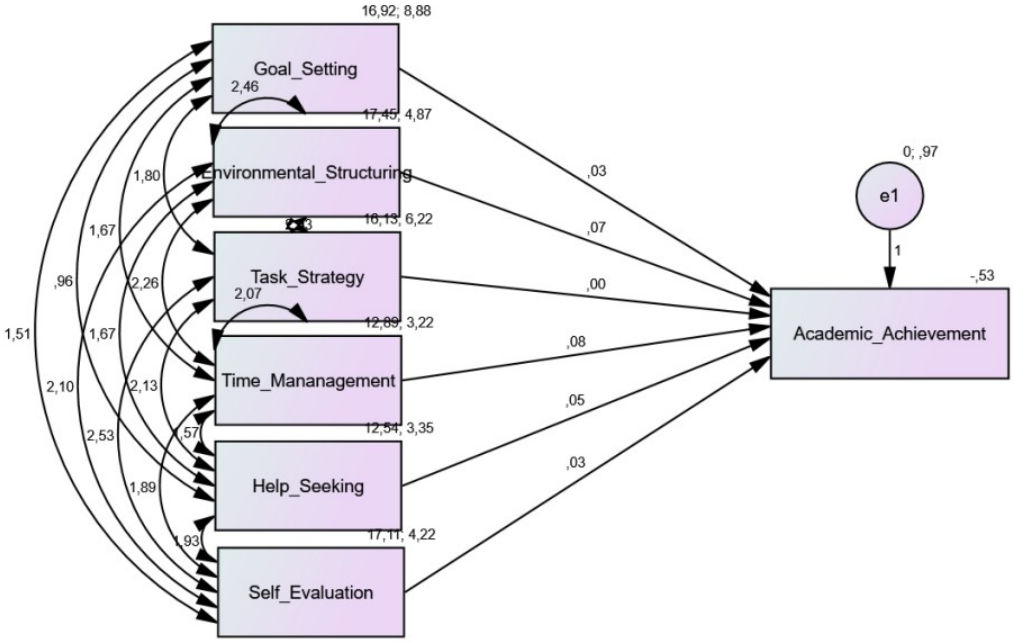


Figure 3. SEM results for the dimensions of SRL on academic achievement

Figure 3 presents the structural model examining the relationship between the dimensions of SRL (goal setting, environmental structuring, task strategy, time management, help seeking, and self-evaluation) and academic achievement. The model provides an overview of the direction and strength of the relationships between the dimensions and students' academic achievement. The coefficient results for these relationships are presented in Table 8.

Table 8. Dimensions of self-regulated learning on academic achievement

	B	SE	CR	P	95% CI
Goal setting → Academic achievement	.030	.015	1.970	.009	[.000, .060]
Environmental structuring →Academic achievement	.069	.025	2.810	.005	[.021, .118]
Task strategy → Academic achievement	.004	.021	-.190	.849	[−.045, .037]
Time management → Academic achievement	.084	.031	2.709	.007	[.023, .145]
Help seeking → Academic achievement	.053	.028	1.870	.062	[−.003, .109]
Self-evaluation → Academic achievement	.029	.026	1.093	.275	[−.023, .080]

Note: *B = unstandardized regression coefficient; SE = standard error; CR = critical ratio; 95%CI = confidence interval*

$H_0$2: *Goal setting will not significantly predict academic achievement of USTED students*.

As shown in Table 8, goal setting significantly and positively predicted academic achievement, B = .030, SE = .015, CR = 1.970, p = .009, 95% CI [.000, 0.060]. This indicates that higher levels of goal setting were associated with higher academic achievement. Based on the findings, the null hypothesis was rejected.

$H_0$3: *Environmental structuring will not significantly predict academic achievement of USTED students*.

Data in Table 8 revealed that environmental structuring significantly and positively predicted academic achievement, B = .069, SE = .025, CR = 2.810, p = .005, 95% CI [.021, .118]. This suggests that students who effectively organise and manage their learning environment are more likely to achieve better academic outcomes. Thus, creating a conducive and well-structured study environment supports students' educational outcomes. In view of these results, the study rejected the null hypothesis in support of the alternative hypothesis.

$H_0$4: *Task strategy will not significantly predict academic achievement of USTED students*.

As depicted in Table 8, task strategy did not significantly predict academic achievement, B = .004, SE = .021, CR = −.190, p = .849, 95% CI [−.045, .037]. This implies that the use of specific task strategies alone may not necessarily translate into improved academic performance, possibly because their effectiveness depends on how appropriately and consistently students apply them. Based on the findings, the study failed to reject the null hypothesis.

$H_0$5: *Time management will not significantly predict academic achievement of USTED students*.

As shown in Table 8, time management significantly and positively predicted academic achievement, B = .084, SE = .031, CR = 2.709, p = .007, 95% CI [.023, .145]. This points towards the fact that students who effectively allocate and manage their study time are more likely to achieve better academic outcomes. Hence, the null hypothesis was rejected.

$H_0$6: *Help seeking will not significantly predict academic achievement of USTED students*.

Data in table 8 established that help seeking had a positive but non-significant relationship with academic achievement, B = .053, SE = .028, CR = 1.870, p = .062, 95% CI [−.003, .109]. Although the positive coefficient suggests that students who seek academic assistance tend to perform better, the evidence was insufficient to establish a statistically significant effect. Following from this, the study failed reject the null hypothesis.

$H_0$7: *Self-evaluation will not significantly predict academic achievement of USTED students*.

As represented in Table 8, self-evaluation did not significantly predict academic achievement, B = .029, SE = .026, CR = 1.093, p = .275, 95% CI [−.023, .080]. This result implies that students' ability to assess and reflect on their own learning did not independently translate into significantly higher academic performance. The study, therefore, did not reject the null hypothesis.

8. Discussion of Findings

The main objective of the study was to examine the extent to which self-regulated learning and its dimensions (goal setting. Environmental structuring, task strategies, time management, help seeking, and self-evaluation) predict academic achievement among USTED students. The study discovered that USTED students had an elevated level of SRL. Besides, the study established that self-regulated learning and its dimensions such as goal setting, environmental structuring, and time management significantly predicted USTED students' academic achievement. Nevertheless, task strategies, help seeking and self-evaluation were found to be nonsignificant predictors the academic achievement of USTED students. These findings largely confirm Zimmerman's SRL Theory by showing that students with higher SRL tend to achieve better academically. The significant effects of goal setting, environmental structuring, and time management support Zimmerman's view that effective planning, organization, and regulation of learning activities contribute to academic success. However, the nonsignificant effects of task strategies, help-seeking, and self-evaluation suggest that not all SRL processes contribute equally to academic achievement in the USTED context.

The study's verdict goes to give credence to other previous studies that have established very similar findings (Lopez-Angulo & Saez-Delgado 2026; Tempelaar *et al.* 2024). For example, Banson (2022) conducted an analysis of SRL practices across different settings and noted that students typically have medium to high levels of intellectual and metacognitive tactics essential for effective learning. In addition, Segaran & Hasim (2021) identified three tiers of self-regulation among students: high (active learning management), medium (reactive approaches), and low (dysregulation), and maintained that a significant number of students exhibit high SRL abilities. On the contrary, the findings of this investigation do not support Dent & Koenka's (2021) study which suggested that students generally demonstrate moderate level of SRL.

The present findings align with prior research which identified a correlation between SRL and educational outcomes of learners (Eberhart *et al.* 2025; Guntur & Purnomo 2024; King & Ashkanasy 2026; Steh & Saric 2020; Yu *et al.* 2022; Zimmerman 2020). For example, in their 2022 study, Yu *et al.* found a favourable association between SRL and learners' educational outcomes. Similarly, Hayer (2022), in a meta-analysis, confirmed the predictive capability of SRL regarding learners' educational outcomes. Again, Vilkova & Shcheglova (2021) investigated how SRL processes influence the scholastic accomplishment of learners. Results revealed a significant correlation among self-regulated learning processes and scholastic accomplishment. These results could stem from the belief that engaging in SRL practices guarantee an improved academic achievement and as well, foster psychological wellbeing and positive behavioural development (Zhao *et al.* 2025; Zimmerman 2020).

The result of this study, however, challenges previous research that failed to uncover a link between SRL and educational attainment among learners (Batool *et al.* 2019; Uus *et al.* 2021). For instance, Yurdal & Toraman (2023) investigated the predictive roles of self-regulated learning strategies and academic motivation on the academic achievement of university students. Surprisingly, the findings did not reveal any significant linkage

between SRL practices and academic achievement among the participants. Also, Uus *et al.* (2021) delved into the connection between SRL and scholastic attainment among learners in secondary schools. Contrary to expectations, the analysis revealed insignificant associations among SRL behaviours and scholastic performance. These results could be due to the relatively small sample sizes (119 and 89) that were used in their respective studies.

9. Conclusions

The purpose of this investigation was to examine the extent to SRL and its dimensions predicted the academic achievement of USTED students. The study had one research question and seven hypotheses. The conclusion is that USTED learners who engage in self-regulated learning practices do not only improve their academic achievement but also, foster their psychological wellbeing and positive behavioural development. Specifically, the significant effects of goal setting, environmental structuring, and time management underscore the importance of these competencies in promoting students' academic success. However, the nonsignificant effect of task strategies, help seeking, and self-evaluation indicate that the various dimensions of SRL do not contribute equally to academic achievement of students.

10. Recommendations

Based on the findings and conclusions of the study, it is recommended that lecturers and heads of departments should deliberately integrate self-regulated learning strategies, such as goal-setting, metacognition, self, and self-evaluation, into their teaching practices. Assessment methods should also reflect these strategies to reinforce their consistent use, thereby enhancing students' academic performance. Moreover, future research should adopt longitudinal approaches to examine how SRL can be integrated into learning behaviours over time and how these interactions influence students' academic achievement.

Funding: The study received no external funding.

Acknowledgements: The authors declare no acknowledgements.

Conflicts of Interest: The authors declare no conflict of interest.

Data availability: In accordance with established ethical standards and the terms of the informed consent agreement, all study data will be treated as confidential and securely maintained. However, further information may be obtained from the corresponding author upon reasonable request.

Reference

Agormedah, E. K., Britwum, F., Amoah, S. O., Acheampong, H. Y., Adjei, E. & Nyamekye, F. (2021), "Assessment of time management practices and students' academic achievement: The moderating role of gender", *International Journal of Social Sciences and Educational Studies* 8(4), 171-188.

Amponsah, J. (2023), "Determinants of poor academic performance of students in senior high technical schools: The case of Dunkwa Obuasi Municipality", *Journal of Business and Strategic Management* 4(1), 1-24.

Awang, Z. (2012), *Structural equation modeling using Amos graphic*, University Technology MARA Press.

Awang, Z. (2014), *Research methodology and data analysis* (2nd ed.), UiTM Press.

Banson, J. (2022), "Co-regulated learning and online learning: A systematic review", *Social Sciences and Humanities Open* 6(1), 100376.

Barnard, L., Lan, W. Y., To, Y. M., Paton, V. O. & Lai, S. L. (2009). "Measuring self-regulation in online and blended learning environments", *The Internet and Higher Education* 12(1), 1-6.

Batool, S., Noureen, G., & Ayuob, M. (2019). "Impact of self-regulated learning behaviour on the academic achievement of university students", *Pakistan Journal of Education* 36(2), 123–138.

Boateng, C., Ackon, F., & Nyarko, I. K. (2024). "Factors influencing students' choice of technical and vocational education and training (TVET) pathway in the Central Region of Ghana", *African Journal of Empirical Research* 5(4), 1826-1838.

Civelek, M. E. (2018), *Essentials of structural equation modelling*, University of Nebreaska.

Dent, A. L. & Koenka, A. C. (2021), "The relation between self-regulated learning and academic achievement across adolescence: A meta-analytic review", *Contemporary Educational Psychology* 65, 111-129.

Eberhart, J., Ingendahl, F. & Bryce, D. (2025), "Are metacognition interventions effective? Evidence from meta-analyses", *Metacognition and Learning* 20(1), 1–25.

Eslami, M. & Sahragard, R. (2021), "Investigating the effect of self-regulatory strategy development on Iranian EFL learners' metadiscoursal writing skill", *Language Teaching Research Quarterly* 21, 54-65.

Fornell, C. G. & Larcker, D. F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research* 18(1), 39–50.

Gay, L. R., Mills, G. E. & Airasian, P. (2009)*, Educational research: Competencies for analysis and application,* Merrill/Pearson Education.

Guntur, M. & Purnomo, Y. W. (2024), "A meta-analysis of self-regulated learning interventions studies on learning outcomes in online and blended environments", *Online Learning* 28(3), 563–584.

Gyimah, N. (2020), "Assessment of TVET on the development of the world's economy: Perspective of Africa, Asia and Europe", *Journal of Vocational Behaviour* 12(3), 194–217.

Hair, J. F., Hult, G. T., Ringle, C. M. & Sarstedt, M. (2014), *A primer on partial least squares structural equation modeling* (PLS-SEM), Sage Publications.

Hayer, A. D. (2022), "Meta-analysis of self-regulated learning strategies and academic achievement", *International Journal of Multidisciplinary Educational Research* 11(4), 1-8.

King, J. B., Li, Y. & Ashkanasy, N. M. (2026), "Emotional intelligence training improves stress regulation and performance in high-stress occupations", *Scientific Reports* 16, 6673-6695.

Kline, R. B. (2011), "Convergence of structural equation modeling and multilevel modeling", In M. Williams & W. Paul Vogt (Eds.), *Sage Handbook of Innovation in Social Research Methods* (pp. 1–28), Sage Publications.

Kostons, D., van Gog, T. & Paas, F. (2010), "Self-assessment and task selection in learner-controlled instruction: Differences between effective and ineffective learners", *Computers and Education* 54(4), 932-940.

Krejcie, R. V. & Morgan, D. W. (1970), "Determining sample size for research activities", *Educational and Psychological Measurement* 30(3), 607-610.

Leedy, P. D. & Ormrod, J. E. (2005), *Practical research: Planning and design* (8th ed.), Merrill/Pearson.

Lopez-Angulo, Y. & Saez-Delgado, F. (2026), "Self-regulation of learning and its implications for academic performance and well-being of university students in health sciences: A systematic review", *Journal of Health Professions Education* 5(2), 34-59.

Mahlangu, S. M. & Mtshali, T. I. (2024), "A deflating quality TVET education in Gauteng technical, vocational education and training colleges", *International Journal of Research in Business and Social Science* 13(3), 441-447.

Oketch, M. (2023), "The role of technical and vocational education and training (TVET) in human development: Evidence from Sub-Saharan Africa", *International Journal of Educational Development* 99, 773-792.

Pallent, J. (2010), *SPSS survival manual: A step-by-step guide to data analysis using SPSS program* (6th ed.), McGraw-Hill Education.

Panadero, E. (2017), "A review of self-regulated learning: Six models and four directions for research", *Frontiers in Psychology* 8, 422-422.

Purarjomandlangrudi, A. & Chen, D. (2020), "Exploring the influence of learners' personal traits and perceived course characteristics on online interaction and engagement", *Educational Technology Research and Development* 68(5), 2635-2657.

Robson, D. A., Allen, M. S. & Howard, S. J. (2020), "Self-regulation in childhood as a predictor of future outcomes: A meta-analytic review", *Psychological Bulletin* 146(4), 324-334.

Roland, E. & Isdoe, T. (2001), "Aggression and bullying", *Aggressive Behaviour* 27, 446-462.

Saunders, M., Lewis, P. & Thornhill, A. (2009), *Research methods for business students*, Pearson Merrill Prentice Hall.

Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A. & King, J. (2006), "Reporting structural equation modeling and confirmatory factor analysis results: A review", *The Journal of Educational Research* 99(6), 323-338.

Segaran, M. K. & Hasim, Z. (2021), "Self-regulated learning through ePortfolio: A Meta-analysis", *Malaysian Journal of Learning and Instruction* 18(1), 131-156.

Soydan, S. B. & Akalin, N. (2022), "The moderating effects of a child's self-regulation skills in the relationship between a child's temperament and the behaviour of the parents", *Early Child Development and Care* 192(2), 263-277.

Steh, B. & Saric, M. (2020), "Enhancing self-regulated learning in higher education", *Revija Za Elementarno Izobrazevanje* 13(special), 129-150.

Tempelaar, D. T., Batori, A. & Giesbers, B. (2024), "Understanding self-regulation strategies in problem-based learning through dispositional learning analytics", *Frontiers in Education* 9, 138-155.

Timmis, M. A., Hibbs, A., Polman, R., Hayman, R. & Stephens, D. S. (2024), "Previous education experience impacts student expectation and initial experience of transitioning into higher education", *Frontiers in Education* 9, 167-193.

Uus, O., Mettis, K., Valjataga, T. & Ley, T. (2021), "Differences in self-directed learning: Middle-school students' autonomous outdoor studying", *Frontiers in Education* 6, 718-741.

Vilkova, K. & Shcheglova, I. (2021), "Deconstructing self-regulated learning in MOOCs: In search of help-seeking mechanisms", *Education and Information Technologies* 26(1), 17–33.

Winne, P. H. & Hadwin, A. F. (1998), "Studying as self-regulated engagement in learning", In D. Hacker, J. Dunlosky, & A. Graesser (Eds.), *Metacognition in Educational Theory and Practice,* (pp. 277–304), Erlbaum.

Yu, J., Huang, C., He, T., Wang, X. & Zhang, L. (2022), "Investigating students' emotional self-efficacy profiles and their relations to self-regulation, motivation, and academic performance in online learning contexts: A person-centred approach", *Education and Information Technologies* 27(8), 11715–11740.

Yurdal, M. O. & Toraman, C. (2023), "Self-directed learning, academic achievement and motivation: A meta-analytical study", *Educational Policy Analysis and Strategic Research* 18(3), 1–20.

Zhao, Y., Li, Y., Ma, S., Xu, Z. & Zhang, B. (2025), "A meta-analysis of the correlation between self-regulated learning strategies and academic performance in online and blended learning environments", *Computers and Education* 230, 279-291.

Zimmerman, B. J. (2000), "Attaining self-regulation: A social cognitive perspective", In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39), Academic Press.

Zimmerman, B. J. (2015), "Self-regulated learning: Theories, measures, and outcomes", *International Encyclopedia of the Social & Behavioural Sciences* 2(21), 541–546.

Zimmerman, B. J. (2020), "Attaining self-regulation: A social cognitive perspective", In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (2nd ed., pp. 13–39), Academic Press.

Zimmerman, B. J. & Moylan, A. R. (2009), "Self-regulation: Where metacognition and motivation intersect", In D. J. Hacker, J. Dunlosky, & A. C. Graesser (Eds.), *Handbook of Metacognition in Education* (pp. 299–315), Routledge.