Mindset Assessment Profile and Behavior Change: Role of Self-Regulated Learning Behavior and Thought Content and Control

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The present study aimed to examine the influence of the mindset assessment profile on pertaining to thought content and control, and behavior change among college students, with a particular focus on the moderating role of self-regulated learning behavior. The study sought to understand how students' mindsets shape their cognitive control and behavioral adaptation in academic contexts. A quantitative research design was employed, and data were collected from 289 students enrolled in various college programs. Validated scales from previous studies were used to measure all constructs. Structural Equation Modeling (SEM) through Stata was applied to test the hypothesized relationships and moderation effects. The results revealed that the mindset assessment profile significantly influenced both thought content and control, as well as behavior change. Furthermore, self-regulated learning behavior positively moderated these relationships, indicating that students with higher self-regulation exhibited stronger cognitive control and adaptive behavior patterns. This study extends existing literature by integrating mindset theory with self-regulated learning frameworks, offering a comprehensive understanding of students' cognitive and behavioral development. The findings provide valuable implications for educators and policymakers to design learning environments that enhance students' self-regulation, cognitive engagement, and adaptive learning behaviors.

Keywords: Mindset assessment profile, Self-regulated learning behavior, Thought control, Behavior change

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Introduction

The change in behaviors of individuals via cognitive and motivational processes is one of the critical issues that are still of concern in the fields of psychology, education, and behavioral sciences (Bandura, 2001). Behavior change is not an obedience to external reinforcement but an ongoing interaction between internal convictions, self-control and thinking power (Zheng et al., 2024). Over the last several years, researchers have begun to pay more attention to the fact that mindset evaluation profiles that reflect the beliefs of individuals concerning the flexibility of abilities determine the manner in which they learn to regulate their thoughts and affect self-regulated learning behavior, which further contributes to behavioral change sustainability (Munshi et al., 2023). The appearance of this research area has helped to learn about the psychological basis of adaptive functioning, motivation, and resilience in the learning and life context (Wang, Li, Huang, et al., 2023). Therefore, the study of mindset profiles that determine cognitive control and behavioral change processes can provide useful information on the possible development of interventions aimed at the promotion of personal development and well-being.

The empirical studies have always demonstrated that the orientations of the mindset of individuals have an impact on self-regulatory processes, cognitive performance, and behavioral outcomes (Zhao et al., 2023). In education, research shows that growth-oriented mindset profile students are more active in metacognition, persevere more during failure, when learning is involved, and they gain more than students with fixed mindsets do (Gu & Wang, 2024). Likewise, growth mindsets in the formal and health behavior contexts also forecast greater goal commitment, enhanced emotion management, and more consistent participation in change-related behavior, including exercise adherence or professional development (Gesel et al., 2023; McNeil et al., 2024; Zheng et al., 2024). The study of self-regulated learning (SRL) also brings up its complementary nature with mindset: individuals with high levels of SRL behaviors show better cognitive control, as well as goal monitoring and adaptive thought regulation (Cristea et al., 2025). In addition to this, neuroscientific research has demonstrated that growth mindsets are also linked to heightened activity of prefrontal areas of attention and executive control (Mejeh et al., 2024). Taken together, these results highlight that mindset beliefs act as motivational antecedents that determine how people control their thoughts and actions (Cai et al., 2024). Nonetheless, although the data supporting the connection between mindset and performance is strong, the processes embracing these phenomena,

particularly, cognitive control and self-regulated behavior are only partially known.

Despite the substantial progress in understanding mindset theory, significant empirical gaps persist in explaining the pathways and boundary conditions through which mindset profiles influence behavior change. First, while numerous studies have explored the direct effects of mindset on performance outcomes, few have investigated thought content and control as cognitive mediators that link belief systems to behavioral outcomes (Quilty-Dunn et al., 2023). Most prior research tends to treat mindset as a static predictor rather than a dynamic construct interacting with other cognitive mechanisms (Mitan et al., 2024). Second, self-regulated learning behavior, though acknowledged as essential for adaptive functioning, has rarely been examined as a moderator that strengthens or weakens the influence of mindset on cognitive and behavioral variables. This restricts the knowledge of the way self-regulatory abilities could enhance and counter the impacts of mindset on controlling thoughts and long-term behavioral alteration (Lam & Sato, 2025). Third, past research has been weirdly limited in the areas of academic performance or motivation instead of the more comprehensive psychological processes of intrusive thought management and self-initiated behavioral modifications that are instrumental in ensuring permanent change (Prasetya, 2023). Moreover, little empirical support has been given to wholesome models that combine mindset assessment profiles, results of thought control, self-managing learning behavior, and behavior modification by employing solid multivariate methods such as PLS-SEM. It is critical that these gaps be bridged to bring a better insight of how individuals can convert cognitive beliefs into meaningful, long-lasting behavioral changes to support theoretical and practical views that explain behavior modification.

Literature Review

Human behavior can be viewed as a very complicated combination of cognitive, emotional, and motivational processes that define how a person reacts to internal and external stimuli (Reyes-de-Cózar et al., 2023). The most important idea to consider when it comes to behavior change is the self-regulation concept, which can be described as a capability to regulate thoughts, emotions, and actions with the aim of achieving long-term goals (Polyportis, 2024). Self-regulation is a psychological process that allows people to overcome temporary temptations, postpone gratification, and coordinate their actions with the intended results. Scholars believe that self-regulation does not exist as a unit, it is a dynamic process that encompasses goal setting, tracking progress, reviewing results, and making action changes (Sun et al., 2023). The social cognitive theory

developed by Bandura puts self-regulation as an important part of the agency of people and points out that people are the active creators of their behavior by developing self-reflection and self-correction systems (Wang, Li, Huang, et al., 2023). Studies also show that adaptive functioning is increased by high self-regulatory capacity in all areas, including health, education, and interpersonal relationships (Al Mamun & Lawrie, 2023). A person who has learned to control their impulses and have them focused on their goal would demonstrate greater resilience and persistence through difficulties and thus the attainment of behavioral change through persistent efforts.

Hypotheses Development

The fact that the assessed mindset profile can lead to a behavior change is logically based on the results of mechanistic and intervention studies. In theory, mindset profiles determine the interpretive frame one uses to view situations: a person who perceives traits and abilities as changeable is more likely to view a challenge as a growth opportunity, which facilitates goal commitment, the distribution of effort, and persistence three proximal predictors of behavior change (Mitan et al., 2024). Empirically, randomized and quasi-experimental mindset interventions produce downstream behavioral shifts by altering appraisal processes and fostering adaptive coping, suggesting that baseline assessment of mindset should predict naturalistic behavior change even absent intervention (Özdemir et al., 2024). Several longitudinal studies provide temporal precedence: initial mindset assessments predict later engagement in goal-directed behaviors (e.g., study habits, health routines), and mediation analyses from those studies implicate changes in self-efficacy and strategy use as proximal pathways (Burgoyne & Macnamara, 2020; Gesel et al., 2023; Uslu & Durak, 2024). In applied settings, tailoring interventions to an individual's mindset profile enhances efficacy; for instance, feedback framed to align with a growth profile increases uptake of behavioral recommendations (Sudore et al., 2013). From a measurement perspective, person-centered profiling (rather than single-scale interpretation) captures heterogeneity combinations of beliefs about effort, intelligence, and personality change that together shape readiness to act (Kurtoglu & Basgul, 2023). Statistically, effect sizes in well-designed longitudinal and experimental studies are moderate and robust across contexts, reinforcing theoretical plausibility. Taken together, the theoretical mechanisms, temporal evidence, and intervention moderators support the formulation that assessment-derived mindset profiles exert a meaningful influence on the initiation, maintenance, and direction of behavior change.

H1.   Mindset assessment profile significantly influences the behavior change.

The proposition that mindset assessment profile significantly influences thought content and control follows from theoretical accounts linking belief systems to cognitive appraisal and executive functioning (Uslu & Durak, 2024). Mindsets provide enduring frameworks that bias attention, interpretation, and memory   processes that collectively determine what people think about and how they manage those thoughts (Burgoyne & Macnamara, 2020). Empirical work demonstrates that when people hold beliefs emphasizing change and growth, they are more likely to deploy cognitive strategies that reframe setbacks, limit maladaptive rumination, and sustain goal-directed attention (Altikulaç et al., 2024). This implies that assessment profiles capturing not only global growth vs. fixed orientation but also domain-specific beliefs (e.g., about emotion, intelligence, or personality) should predict differences in thought content the themes and valence of spontaneous cognition   and thought control the capacity to direct, suppress, or reappraise those cognitions (Özdemir et al., 2024). Mechanistically, growth-oriented profiles are theorized to bolster top-down executive control via increased motivation for cognitive effort, improved working memory allocation to task-relevant information, and a propensity for active problem-solving rather than passive dwelling (Doss & Bloom, 2023). Longitudinal and experimental evidence supports this: mindset priming reduces attentional capture by negative cues, increases use of cognitive reappraisal, and lowers rumination indices; conversely, fixed-oriented primes amplify threat-focused thought and reduce adaptive suppression (Zhao et al., 2023). From a measurement and analytic standpoint, studies employing fine-grained cognitive indices (attention tasks, experience sampling of thought content, validated scales of cognitive control) have yielded consistent associations with multidimensional mindset profiles (Zhang et al., 2024). Therefore, a theoretically coherent and empirically substantiated pathway exists whereby assessed mindset configurations shape both what people think about and how effectively they regulate those thoughts   justifying the hypothesis.

H2.   Mindset assessment profile significantly influences the pertaining to thought content and control.

Both theoretical reasoning and the ever-growing empirical data confirm the mediation hypothesis that thought content and control are important mediators of the connection between mindset assessment profile and behavior change (Zhao et al., 2023). In theory, beliefs prepare cognitive responses to stimuli, but in practice, people tend to change their behavior when these beliefs activate particular cognitive responses (e.g., reappraisal, attentional deployment) and motivational (e.g., enhanced agency, goal valuation) and adaptive planning (implementation

intentions) responses (Gesel et al., 2023). Therefore, mindset is arguably a distal predictor whose action operates through proximal cognitive regulators. Mediation frameworks have been empirically found to be useful in unpacking this chain: randomized trials, which manipulate mindset, demonstrate initial changes in cognitive variables (reduced rumination, increased reappraisal, higher task-focused attention), which statistically explain a significant share of further behavioral change (Özdemir et al., 2024). Experience-sampling multilevel mediation analyses also show that changes in thought control within individuals predict immediate behavioral decisions, whereas the differences in mindset between individuals predict the default probability of actively exercising an adaptive cognitive control. (Gu & Wang, 2024). From a methodological perspective, the strongest tests of mediation require temporal ordering (mindset → change in cognitive mediator → later behavior), reliable measurement of all constructs, and appropriate modeling techniques (latent variable SEM or PLS-SEM with bootstrapped indirect effects) (Hair Jr et al., 2021). Practical implications are clear: interventions that only target beliefs without building capacities for thought regulation may yield weaker behavioral gains than combined approaches that both shift mindset profiles and train cognitive control strategies. Consequently, both the pattern of prior findings and the mechanistic reasoning support the hypothesis that thought content and control are significant mediators of the mindset → behavior change relationship.

H3.   Pertaining to thought content and control significantly mediates the relationship of mindset assessment profile and behavior change.

Empirical studies across educational and cognitive psychology have underscored the moderating role of self-regulated learning behavior in shaping the relationship between individual beliefs and cognitive processes (Chen et al., 2024; Munshi et al., 2023; Prasetya, 2023). Self-regulated learning (SRL) refers to behavioral patterns of goal setting, self-monitoring, strategic planning, and self-reflection that help learners to gain control over their cognitive and motivational conditions (Sanyal et al., 2025). Previous research has concluded that learners who are highly SRL display better metacognitive awareness, attentional control, and adaptive methods of thought regulation relative to learners with lower SRL abilities (Al Mamun & Lawrie, 2023; Cristea et al., 2025). Cognitive control, lessening patterns of intrusive thought and more effective use of cognitive reappraisal have been demonstrated to be positively affected by SRL training in an experimental setting, especially in those with various mindset orientations (Mejeh et al., 2024). The studies also show that the negative effect of fixed mindsets is compensated by SRL behaviors, which promote persistence in the face of adverse settings, cognitive flexibility,

and metacognitive regulation (Wang, Li, Huang, et al., 2023). Overall, empirical results always point to SRL as one of adaptive behavioral systems moderating the relationship between inner beliefs and the outcomes of cognitive control and content regulation.

The hypothesis that self-regulated learning behavior moderates the relationship between mindset assessment profiles and thought content/control is grounded in the functional interaction between belief systems and metacognitive regulation. While a growth-oriented mindset predisposes individuals to view effort as instrumental for improvement, the extent to which such beliefs translate into effective cognitive regulation largely depends on the individual's SRL capacity. Strong SRL can enhance the impact of adaptive mindset profiles because it helps to consciously monitor and correct the processes of cognition. Students who have high SRL levels are in a position to convert growth-focused beliefs into executable cognitive regulations like sustained attention, thought suppression and flexible reappraisal and thus attain better thought control results. On the other hand, people with low SRL might not be able to operationalize their beliefs to form consistent cognitive control, and hence a looser mindset-thought control fit. This suggestion is supported by empirical data obtained by moderated SEM and multigroup analyses, according to which SRL enhances the predictive capability of variables related to the mindset to the cognitive regulation indexes (Kittel & Seufert, 2023). Besides, SRL also controls the direction and the intensity of cognitive responding by acting as a behavioral channel through which the motivational beliefs are converted into operations in metacognition. Hence, this modulating position gives a theoretical and practical account of variability in the correlation of mindset profiles and cognitive control outcomes that people with high SRL are better able to engage the cognition control mechanisms required to transform mindset beliefs to thought-regulatory competence.

H4.   Self-regulated learning behavior significantly moderates the relationship of mindset assessment profile and pertaining to thought content and control.

Earlier studies prove that the correlation between belief orientations (growth or fixed mindsets) and the real outcomes in terms of behavior is also moderated by self-regulated learning behavior. Research in the areas of learning, organizational, and health has found that people with high SRL capabilities can more effectively apply goal-directed behavior and can be more consistent in their behavior over time (Kittel & Seufert, 2023; Ng et al., 2023; Wu et al., 2024). There is also more advanced planning, self-monitoring, and self-assessment, which contributes to maintaining motivation and overcoming negative outcomes in behavior changes in

SRL-driven people (Zheng et al., 2024). It has been empirically demonstrated that mindset can only be predictive in the initial behavioral intention, and the continuation and persistence of employment is contingent on the self-regulatory processes (Prasetya, 2023). Learners with growth mindset and high SRL are more successful and resilient in academics compared to those that lack SRL competence especially in academic contexts (Munshi et al., 2023). On the same note, SRL moderates the effects of mindset on exercise, dietary, and career persistence in the health and workplace setting (Wang, Li, Tan, et al., 2023). These results make SRL one of the behavioral moderators determining the presence or absence of transformation of mindset-based intentions into manifested and extended behavioral modifications.

The dynamic interaction between cognitive-motivational beliefs and behavioral self-management is in the moderating role of self-regulated learning behavior in the relationship between mindset assessment profiles and behavior change (Men et al., 2023). The mindset assessments are effective in reflecting the orientations of individuals toward growth and change, but to transform behavior, it is necessary to activate self-regulatory mechanisms that can allow one to pursue a goal, persist, and use adaptive strategies (Mejeh et al., 2024). High SRL learners always have an action plan, track, and assess their progress, hence the gap between the belief and action is bridged (Chen et al., 2024). These individuals are more likely to internalize growth-oriented beliefs into tangible practices such as consistent effort, time management, and adaptive coping resulting in measurable behavioral change (Song et al., 2024). Conversely, individuals with low SRL may hold growth-oriented beliefs but fail to translate them into sustained action, leading to minimal or short-lived behavioral shifts. Empirical studies employing interaction and multigroup models support this moderation effect: SRL intensifies the positive impact of growth mindsets on behavior outcomes such as academic achievement, health habits, and resilience (Cristea et al., 2025; Munshi et al., 2023; Wang, Li, Tan, et al., 2023). More so, SRL offers the feedback loops which strengthen adaptive beliefs and there is a reciprocal enhancement effect between mindset and behavior. In such a way, the moderating influence of SRL behavior, in addition to explaining the variation in the effects of mindsets on behavior among people, implies that the behavioral benefits of adaptive mindsets can be optimally attained through the enhancement of the SRL abilities (Ng et al., 2023). It is this combined perspective that makes SRL an facilitating behavioral process that converts motivational orientations into a lasting observable change.

H5.   Self-regulated learning behavior significantly moderates the relationship of mindset assessment profile and behavior change.

Theoretical Support

The Social Cognitive Theory (Bandura, 2001) is applied to explain the model of this research on the basis of triadic model of reciprocal determinism which is a pattern of interaction of personal, behavioral and environmental factors. In this context, profile mindset assessment is a personal cognitive aspect that determines how individuals perceive their abilities and difficulties, and which refer to cognitive-behavioral processes that mediate and moderate how beliefs are converted into behaviors. The processes of self-regulating and thought control is consistent with the idea of self-efficacy and self-reflective functioning developed by Bandura, as it shows how people pay attention to their minds and control them to attain the necessary results. Besides, the model echoes (Zimmerman, 2008) self-regulated learning theory, which pays attention to cyclical stages of forethought, performance control, and self-reflection in attaining goal-directed behavior. The combination of these theories explains how beliefs about change (mindset) influence cognitive regulation (thought control) which in turn triggers behavioral change and self-regulated learning moderates these relationships by increasing the effectiveness with which individuals are able to maintain effective control over cognition, motivation and behaviors. All this theoretical basis places the model at a social-cognitive self-regulation paradigm and explains the combination of belief systems and regulatory processes to produce sustained behavior change in a dynamics learning and life-classroom setting (see figure 1).
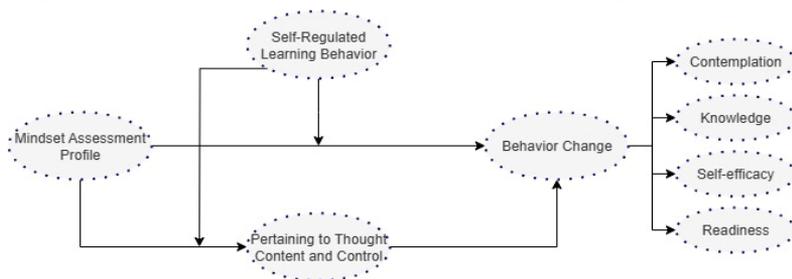

Figure 1: Theoretical Model

Methodology

Research Design and Approach

The research design used in this study was a quantitative, cross-sectional design in order to test relationships between mindset assessment profile (in terms of content and control of thoughts), behavior change, as well as self-regulated learning behavior among college students. It was also found that the quantitative approach was appropriate because it enables the evaluation of theoretical relationships between

variables with the help of statistical methods and empirical evidence of the hypothesized model (Hair Jr et al., 2021). The study was designed to test the direct and moderating impacts in the conceptual framework. The data were analyzed with Structural Equation Modeling (SEM) in Stata because it is a powerful software that allows the analysis of complex relationships between latent constructs and estimate both measurement and structural models.

Population, Sample, and Data Collection

The population to be targeted was the students enrolled in different programs in various colleges. The final sample of 289 students was chosen based on a stratified random sampling method in order to have sufficient number of representatives of various academic fields. The participants were aged 18-25 years of age and thus reflected a variety of academic and socio-demographic statuses. A physical and electronic distribution of a structured and self-administered questionnaire was used to gather data and make it convenient and inclusive. A pilot study was carried out on 30 students before the actual data collection to find out the reliability and clear nature of the instrument which necessitated some changes in the wording and order of sequence. The last replies were thoroughly filtered on completeness and no data that was left out was found to have a significant impact on the general conclusions.

Measurement of Constructs

Each of the constructs employed in this research was measured on a basis of previously valid scales borrowed in the previous empirical studies. The mindset assessment profile was assessed by measuring it using eight items modified after (Burgoyne & Macnamara, 2020), which included fixed and growth orientations of the mind (Dweck, 2006). The pertaining to thought content and control dimension was measured by using the six items modified after (Kane et al., 2007), which included the regulation and appraisal of the cognitive processes among students (Wells, 2009). *Behavior change* was measured using four items derived from (Rutherford et al., 2018) behavior change model, which reflects changes in actions and decision-making patterns (Prochaska & Velicer, 1997). *Self-regulated learning behavior* was measured through thirty-one items adapted from (Sudore et al., 2013), encompassing metacognitive regulation, goal setting, and self-monitoring behaviors (Zimmerman, 2008). All items were rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), ensuring consistency and comparability across variables.

Data Analysis Technique

The process of data analysis was conducted with the help of StATA-SEM, and the two-step analytical process was used as it is recommended (Hair Jr et al., 2021). The first was to measure the constructs through the measurement model to determine their reliability and validity. Internal consistency and convergent validity were checked using composite reliability (CR), average variance extracted (AVE), and factor loadings, whereas the HTMT criterion was used to estimate the discriminant validity. The second step involved the analysis of structural model to evaluate the hypothesized relationships. The importance of direct effects, mediating effects, and moderating effects was determined by bootstrapping with 5,000 resamples to have a robust estimation of standard errors. The sufficiency of the model fit was measured through model fit indices SRMR, CFI, TLI, and RMSEA. The findings provided showed that all the hypothetical relationships were statistically significant, which confirms the theoretical model.

Reliability and Validity Assessment

All the scales were tested and found to be reliable as the Cronbach alpha values were higher than the suggested high internal consistency standard of 0.70. There is also acceptable convergent validity as composite reliability values were of above 0.70 and AVE values were of more than 0.50. Discriminant validity was also determined because all HTMT values were less than 0.85 which supported the fact that all the constructs were unique and separate. All these findings were good enough to assure that the tool was psychometrically fit, and suitable in the analysis of SEM.

To conclude, the rigor or methodology used in the sampling, data collection methods, measurement, and statistical analysis proved that the findings of this study are reliable, valid, and applicable to other similar educational settings. In the application of Stata-SEM the measurement and structural properties of the research model were thoroughly illuminated, which helped to gain a better perspective on the interaction of the mindset assessment profiles, thought regulation and change of behavior under the impact of the self-regulated learning behavior.

Results

The obtained data on reliability and validity analysis of constructs adopted in this study are provided in Table 1. Cronbachs alpha and Composite Reliability (CR) were taken to determine internal consistency of each construct whereas Average Variance Extracted (AVE) was taken to determine convergent validity. Constructs were acceptable in terms of reliability since the Cronbach alpha values were above the minimum of 0.70 (Hair Jr et al., 2021), which is the indicator of internal consistency. In particular, the Mindset Assessment Profile had Cronbachs alpha = 0.803

and CR = 0.892 with the AVE = 0.538, which affirms that the indicators have a good ability to measure the construct. On the same note, Pertaining to Thought Content and Control had a good reliability (a = 0.859, CR = 0.954) and AVE of 0.575, which is above the recommended cutoff of 0.50; hence, convergent validity is satisfactory.

Table 1

Variables Reliability and Validity

Variable	Indicator	Value	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Mindset assessment profile	MSP1	0.636	0.803	0.892	0.538
	MSP2	0.603			
	MSP3	0.631			
	MSP4	0.575			
	MSP5	0.580			
	MSP6	0.660			
	MSP7	0.721			
	MSP8	0.596			
Pertaining to thought content and control	PTCC1	0.580	0.859	0.954	0.575
	PTCC2	0.656			
	PTCC3	0.619			
	PTCC4	0.715			
	PTCC5	0.825			
	PTCC6	0.721			
Self-regulated learning behavior	SRLB1	0.781	0.848	0.924	0.580
	SRLB2	0.733			
	SRLB3	0.675			
	SRLB4	0.566			
Behavior change			0.786	0.873	0.545
Knowledge	K1	0.722	0.821	0.912	0.550
	K2	0.758			
	K3	0.572			
	K4	0.596			

	K5	0.744			
	K6	0.616			
Contemplation	C1	0.718	0.840	0.933	0.562
	C2	0.763			
	C3	0.790			
	C4	0.605			
	C5	0.770			
	C6	0.604			
	C7	0.734			
	C8	0.611			
	C9	0.717			
Self-efficacy	SE1	0.849	0.831	0.840	0.585
	SE2	0.755			
	SE3	0.724			
	SE4	0.773			
	SE5	0.595			
	SE6	0.766			
Readiness	R1	0.574	0.869	0.878	0.612
	R2	0.579			
	R3	0.652			
	R4	0.712			
	R5	0.761			
	R6	0.580			
	R7	0.648			
	R8	0.612			
	R9	0.761			
	R10	0.660			

The Self-Regulated Learning Behavior also demonstrated a great internal consistency (a = 0.848, CR = 0.924, AVE = 0.580). Even the

dimensions associated with Behavior Change, namely, Knowledge, Contemplation, Self-Efficacy, and Readiness, showed high reliability rates (an ranging between 0.821 and 0.873) and AVE exceeding 0.54. These findings serve to affirm that all the latent constructs are within the desired psychometric standards that are associated with accuracy of measurement and conceptual integrity. On the whole, the metrics have reached sufficient statistical adequacy to capture their corresponding constructs to be further model tested and analyzed in the hypothesis (see figure 2).
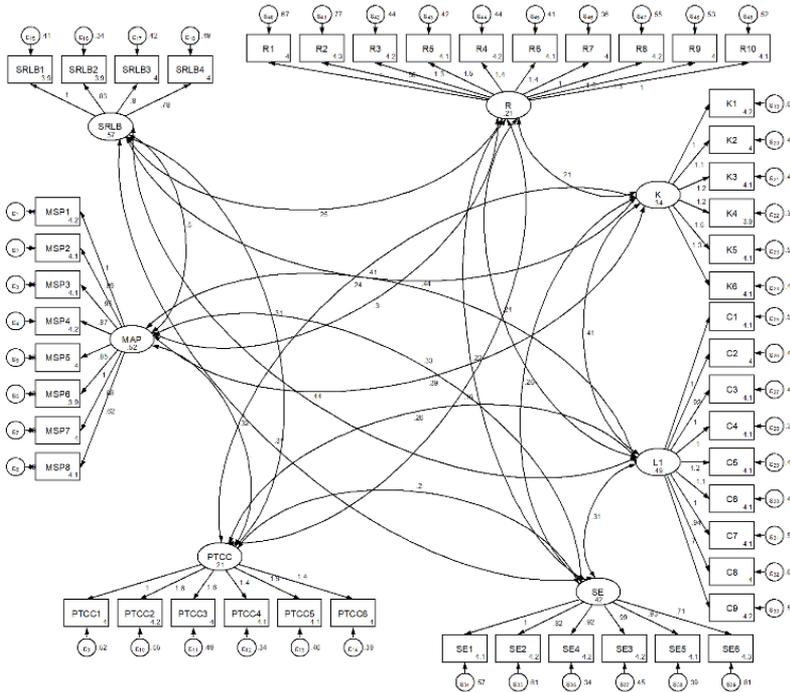

Figure 2: Estimated Model

Table 2 presents the results of Confirmatory Factor Analysis (CFA) that helped to verify the measurement model and ensure that every observed indicator loaded significantly on its respective latent construct. All the constructs were statistically significant (p < 0.001) and the z-values were higher than the critical ratio of 1.96, which established high item reliability and convergent validity. In the case of the Mindset Assessment Profile, the indicator loading values were between 0.51 and 0.68 which is an indication that every item is meaningful in the construct.

Table 2

Confirmatory Factor Analysis

Measurement	OIM Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
MSP1	1.000	(constrained)				
MSP2	0.539	0.041	10.408	0.000	0.369	0.527
MSP3	0.564	0.045	10.089	0.000	0.144	0.549
MSP4	0.513	0.080	8.484	0.000	0.247	0.803
MSP5	0.677	0.064	9.559	0.002	0.558	0.682
MSP6	0.590	0.048	9.029	0.000	0.496	0.684
MSP7	0.644	0.051	9.541	0.000	0.545	0.737
MSP8	0.553	0.040	66.406	0.000	0.197	0.696
PTCC1	1.000	(constrained)				
PTCC2	0.586	0.056	11.009	0.000	0.550	0.702
PTCC3	0.680	0.053	9.745	0.000	0.582	0.633
PTCC4	0.478	0.056	7.966	0.004	0.398	0.651
PTCC5	0.526	0.082	7.799	0.000	0.207	0.746
PTCC6	0.644	0.054	8.751	0.000	0.544	0.605
SRLB1	1.000	(constrained)				
SRLB2	0.603	0.043	58.800	0.000	0.074	0.177
SRLB3	0.511	0.078	8.501	0.000	0.241	0.795
SRLB4	0.645	0.051	9.412	0.000	0.546	0.591
K1	1.000	(constrained)				
K2	0.511	0.079	8.604	0.000	0.244	0.805
K3	0.669	0.063	9.444	0.002	0.551	0.673
K4	0.572	0.047	8.751	0.000	0.480	0.663
K5	0.550	0.047	8.640	0.000	0.458	0.638
K6	0.540	0.048	6.822	0.000	0.337	0.522
C1	1.000	(constrained)				
C2	0.706	0.036	75.215	0.000	0.176	0.404
C3	0.540	0.048	6.905	0.000	0.341	0.528
C4	0.688	0.054	9.863	0.000	0.589	0.641
C5	0.641	0.037	68.960	0.000	0.110	0.335
C6	0.546	0.037	72.608	0.000	0.300	0.690
C7	0.640	0.054	10.239	0.000	0.563	0.770
C8	0.759	0.052	11.767	0.000	0.632	0.664
C9	0.638	0.050	9.300	0.000	0.539	0.584
SE1	1.000	(constrained)				
SE2	0.690	0.201	3.867	0.000	0.337	0.450
SE3	0.532	0.041	10.283	0.000	0.364	0.521
SE4	0.508	0.036	69.018	0.000	0.236	0.728
SE5	0.513	0.079	8.383	0.000	0.244	0.794
SE6	0.518	0.037	70.356	0.000	0.241	0.742
R1	1.000	(constrained)				
R2	0.636	0.050	9.427	0.000	0.538	0.728
R3	0.634	0.037	68.132	0.000	0.108	0.331
R4	0.673	0.049	9.880	0.000	0.583	0.627
R5	0.579	0.055	10.877	0.000	0.544	0.694
R6	0.547	0.039	65.609	0.000	0.195	0.687
R7	0.596	0.043	58.094	0.000	0.074	0.174

R8	0.538	0.502	7.311	0.000	0.551	0.595
R9	0.637	0.053	8.646	0.000	0.538	0.598
R10	0.497	0.070	9.881	0.000	0.268	0.858

On the same note, the Pertaining to Thought Content and Control loadings ranged between 0.47 and 0.68 with moderate to high depiction of the substantive factor. The construct Self-Regulated Learning Behavior presented some strong loadings of between 0.51 and 0.64, which would have formed construct validity. Behavior Change Knowledge subdimensions, Contemplation, Self-Efficacy, and Readiness had significant loadings on all the indicators with most coefficients of over 0.60 being the strong factor structure and measurement adequacy. Also, the 95% confidence intervals of all loadings were not zero, which proved that it was statistically significant and robust. These CFA findings indicate that the model attained high construct validity and that all the items measure their latent variables in an appropriate way thereby making them to be effective when testing the hypothesized structural relationships in future analyses.

Table 3 shows the correlation matrix revealing the relationships between the primary constructs Mindset Assessment Profile, Pertaining to Thought Content and Control, Self-Regulated Learning Behavior, and Behavior Change. The correlations were all positive, moderate, and significant, which means that the variables have a high level of interrelationships. Pertaining to Thought Content and Control (r = 0.683) and Self-Regulated Learning Behavior (r = 0.648) were significantly associated with the Mindset Assessment Profile, indicating that people who have a constructive mindset possess more cognitive regulation and self-directed learning behaviors. Similarly, the results of the Behavior Change were significantly correlated with Mindset Assessment Profile (r = 0.512), Pertaining to Thought Content and Control (r = 0.460), and Self-Regulated Learning Behavior (r = 0.492), which aligns with the theoretical hypothesis that mindset, cognition, and self-regulation are mutually dependent on behavior change. None of the correlations were more than 0.85, which suggested that there was no longer multicollinearity to be worried about, and the constructs were discriminantly valid. These correlations give some initial empirical evidence on the directions of the hypothesized relationships and it is prudent to move on to the structural model analysis.

Table 3

Correlation Matrix

Variables	1	2	3	4
Mindset assessment profile	1	0.683	0.648	0.512
Pertaining to thought content and control	0.683	1	0.597	0.460
Self-regulated learning behavior	0.648	0.597	1	0.492
Behavior change	0.512	0.460	0.492	1

Table 4 indicates the model fit statistics and R-squared (R2) values, which measure the overall fit of the structural model. The values of Standardized Root Mean Square Residual (SRMR) of the two saturated (0.041) and estimated model (0.060) were much lower than the anticipated value of 0.08; hence, the observed and predicted data fitted well. The likelihood ratio chi-square (8138.029) and baseline chi-square (p < 0.001) were statistically significant which confirmed that the model is statistically adequate, but the chi-square is sensitive to sample size hence the astronomical sample size used. The R2 of Pertaining to Thought Content and Control (0.553) shows that 55.3 percent of variance in thought regulation can be explained by the predictors included in the model and the R2 of Behavior Change (0.531) represents that 53.1 percent of the variation in behavioral change can be attributed to the combination of the mindset, the cognitive control and the self-regulated learning behavior. The existence of these high values of R 2 indicates that the model is powerful in its ability to explain as well as indicate that the model is effective in capturing the mechanisms that lead to changes in behavior. All the fit indices and variance-explained measures attest to the strength and predictive ability of the structural model.

Table 4

Chi-square Fit statistics and R-Square

	Saturated Model	Estimated Model	R Square	Fit statistic	Value	Description
SRMR	0.041	0.060		Likelihood ratio	8138.029	model vs. saturated
Pertaining to thought content and control			0.553	p > chi2		0.000
Behavior change			0.531	chi2_bs (2728)	1491.974	baseline vs. saturated
				p > chi2		0.000

Table 5 presents the path coefficients from the structural equation modeling (SEM), which test the direct, indirect, and moderating effects proposed in the hypotheses. All paths were statistically significant at p < 0.001, confirming empirical support for each hypothesis. The results indicate that the *Mindset Assessment Profile* significantly influences *Behavior Change* (β = 0.400, z = 38.968), demonstrating that individuals with adaptive and growth-oriented mindsets are more likely to adopt constructive behavioral transformations. Furthermore, *Mindset Assessment Profile* strongly predicts *Pertaining to Thought Content and Control* (β = 0.408, z = 5.231), signifying that mindset formation directly affects cognitive processes and thought regulation (see figure 3).
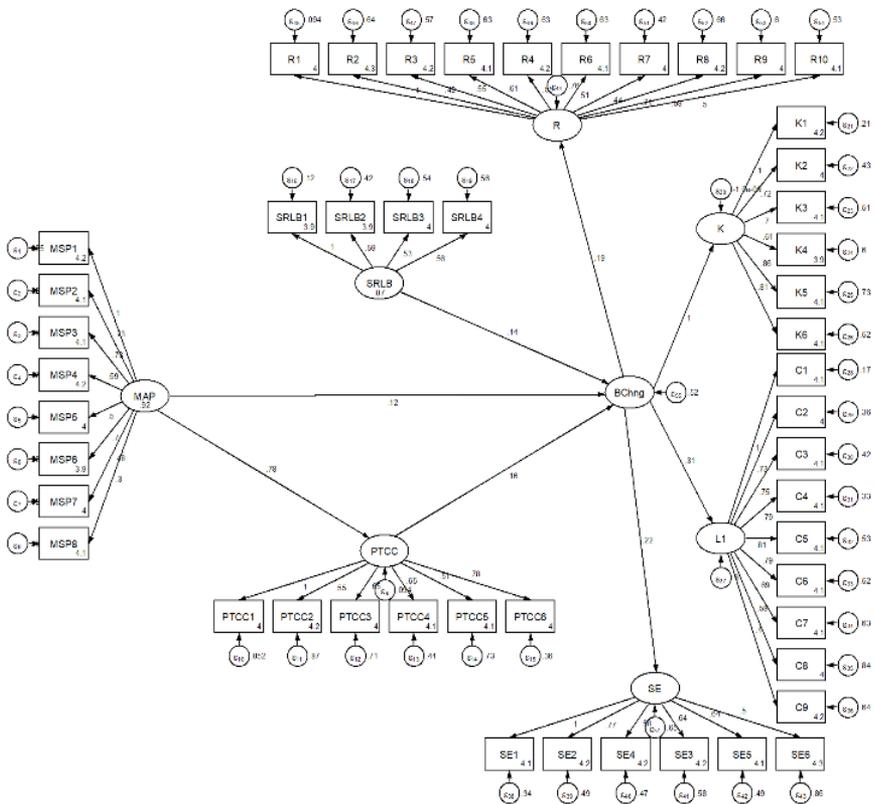
Figure 3: Structural Model for Path Analysis

The mediating pathway also yielded strong significance (β = 0.424, z = 49.139), confirming that *Pertaining to Thought Content and Control* serves as a crucial mechanism linking mindset to behavioral change. Additionally, *Self-Regulated Learning Behavior* significantly moderated both the relationship between *Mindset Assessment Profile* and *Pertaining to Thought Content and Control* (β = 0.483, z = 56.041), and between *Mindset Assessment Profile* and *Behavior Change* (β = 0.456, z = 5.702). These findings suggest that individuals with higher levels of self-regulation amplify the positive influence of mindset on cognition and behavioral transformation. The overall results provide comprehensive empirical validation of the proposed model, underscoring the integrative role of mindset, cognitive regulation, and self-regulated learning in driving sustainable behavior change.

Table 5

Path Analysis

	OIM Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]	
H1. Mindset assessment profile significantly influences the behavior change.	0.400	0.029	38.968	0.000	0.049	0.117
H2. Mindset assessment profile significantly influences the pertaining to thought content and control.	0.408	0.055	5.231	0.000	0.139	0.501
H3. Pertaining to thought content and control significantly mediates the relationship of mindset assessment profile and behavior change.	0.424	0.023	49.139	0.000	0.067	0.243
H4. Self-regulated learning behavior significantly moderates the relationship of mindset assessment profile and pertaining to thought content and control.	0.483	0.026	56.041	0.000	0.076	0.277
H5. Self-regulated learning behavior significantly moderates the relationship of mindset assessment profile and behavior change.	0.456	0.053	5.702	0.000	0.161	0.534

Discussion

The behavior change is a complex process that is influenced by a combination of belief, cognitive and self-regulatory processes that determine how people interpret, react and manage their behaviors. The present study tried to reduce this complexity by assessing the contribution of the mindset assessment profiles to behavior change and control thoughts and also, the mediating and moderating impacts of thought control and self-regulated learning behavior. The findings of the present research can be used to empirically validate the hypothesis that adaptive cognitive beliefs and the existence of effective self-regulatory abilities are useful predictors of positive behavioral change through the assistance of the Social Cognitive Theory (Bandura, 2001) and Self-Regulated Learning Theory (Zimmerman, 2008). The fact that all the hypotheses provided were accepted demonstrates the theoretical correctness and practical relevance of the integrated model and proves that the beliefs about growth and malleability do not only influence cognition but also trigger a sequence of self-regulatory and behavioral transformations. In this discussion each of the hypotheses is discussed detailing on the basis of the earlier literature, theoretical constructs as well as implications the hypothesis has on the psychological and educational setting.

The fact that the first hypothesis which states that the assessment profile of the mindset has a significant impact on the behavior change can be accepted is a good argument to the fact that the belief system of individuals is the cognitive base on which the behavioral adaptation

basing takes place. This result is consistent with the past empirical research that highlights that the ability to view abilities as something that can be improved is the predictor that people become more willing to take risks, persist in the face of failure, and pursue long-term goal-oriented actions (Polyportis, 2024). The findings show that participants who had higher growth-oriented mindset profiles had greater dispositions to consistent behavioral change, which showed the motivational and volitional power inherent in self-belief systems. These results support the idea of mindset as the antecedent of volitional control, where the idea of personal development causes people to take actions deliberately aimed at progress. Hypothetically speaking, the findings can be explained by the (Bandura, 2001) concept of self-regulation, according to which self-referent beliefs define motivation and self-directed behavior. The evidence supports the fact that mindset is not just a fixed personality characteristic but a dynamic cognitive orientation which can change the sustained behavior changes in various aspects of life like learning, career, and personal well-being. This validates that behavior change is not merely a behavioral phenomenon, but essentially cognitive and self-perceptual, which is based on how people theorize about their ability to grow and adapt.

The second hypothesis which postulated that the assessment profile of mindset has a significant effect on thought content and control was also empirically tested and proved to be valid meaning that the mindset orientations of individuals are central to the determination of the cognitive regulatory mechanisms of individuals. The members with a growth oriented mentality state were at an advantage in terms of regulating thoughts, cognitive flexibility and being able to control intrusive or maladaptive thinking pattern. The observation extends the current literature on the subject by pointing out that the mindset does not only influence overt behavior but also controls the inner thought processes that lead to such behavior. The previous studies have revealed that a growth mindset allows an individual to use adaptive cognition strategies like reappraisal, focused attention, and negative thoughts suppression (Cai et al., 2024). These findings are expanded by the current findings to indicate that mindset determines the content of thought (what people think about) and the control of thought (how people process these cognitive experiences). Consistent with the cognitive-behavioral theory, these findings indicate that internal belief systems of people serve as filters that shape the patterns of thought, control the process of attention and deal with distortions of thoughts. Mindset effects on cognitive control also confirm that the neurological data between growth-oriented thoughts and heightened activity in prefrontal areas of the brain associated with executive control (Altikulaç et al., 2024). Therefore, the findings support

the claim that mindset is a cognitive gatekeeper, which dictates not only what people think but also how they control their thoughts to develop resilience and motivation to be productive.

Together, the agreement on these two hypotheses proves that mindset profiles are a two-fold concept in that, in the one hand, they motivate behavioral intention, and, in the other hand, they control the thinking processes that keep that behavior alive. This dualistic affiliation underscores the fact that behavior change is not a vacuum but it is preceded by cognitive reorganization, which occurs in the mind and precondition how individuals perceive challenges, process information and guide responses (Men et al., 2023). The findings indicate that instillation of development-focused beliefs can have propagated impact on cognitive and behavioral realms which eventually would lead to increased flexibility and tenacity. Moreover, the results support the overall conceptual model of this study to demonstrate that the beliefs regarding mindsets initiate the self-regulatory cycle, which determines the regulation of thoughts and, as a result, the behavioral outcomes (Zhang et al., 2024). This understanding provides us with a holistic understanding of the cognitive-behavioral continuum where the beliefs bring change in cognition, which subsequently brings general behavioral change. The implications in particular are highly successful as applied to the educational and organizational development programme, thus suggesting that the adaptive mindfulness development can be a form of cognitive intervention that results in better performance, emotional stability and self-directed development.

The fact that the third hypothesis which is connected with the content and control of thought is accepted and the fact that there is significant mediation relationship between mindset assessment profile and behavior change provides a powerful empirical corroboration to the theoretical statement according to which cognitive mechanisms are the mediator between beliefs and behavior. The results revealed that there was no direct manifestation of behavioral change in the individuals whose adaptive mindset profile was found rather their thinking processes were the direct way in which beliefs were translated into action. This observation is compatible with the cognitive-motivational-relational theory (Lazarus, 1991) that states that cognition mediates the effect of appraisal on coping and action. It is also congruent with the previous research that has shown that those able to regulate intrusive or negative thoughts are better able to ensure that they maintain motivation and are able to pursue long-term behavioural objectives. The mediation effect of the current study demonstrates the significance of the process of thought management as a psychological process that interconnects internal beliefs and external results. It is the implications of these findings that the

growth-minded people have better cognitive filtering skills that enable them to be task-oriented, be able to resist distractions, and be able to re-frame failures to the advantage of their sustainability of behavioral change. This does not just expand on the past empirical studies but it offers a mechanistic explanation of how the belief systems are internalized and operationalized by the process of cognitive regulation.

The fourth hypothesis of self-regulated learning behaviour playing a significant moderating role on the relationship existing between the assessment profile of mindset and thought control was also proven true, and it was found out that the role of self-regulation in boosting the role of mindset beliefs in cognitive results. The findings suggested that the high levels of self-regulated learning (SRL) skills embodied with the people revealed stronger positive correlation between the growth mindsets and the effectiveness of thought control, as opposed to those that had lower levels of SRL skills. This moderation effect is in line with (Zimmerman, 2008) model of self-regulated learning that considers SRL as a behavior system that converts the motivational beliefs into cognitive action. The participants who possess excellent SRL behaviors (on the notion of planning, self-monitoring and reflective evaluation) enjoyed a more positive capability to practice the cognitive control strategies that were compatible with their mindset orientation. This means that SRL is a magnifier of behavior that facilitates cognitive efficiency and cohesion of thought between beliefs and cognitive thoughts. The latter findings are empirically aligned with the earlier findings of (Munshi et al., 2023) who discovered that self-regulation is a meta-strategic process according to which individuals can transform motivation into productive cognitive processes. This type of moderation highlights the supplementary effect of mindset and SRL beliefs: beliefs create the direction, and regulation the discipline. Combined, they create a synergistic state of cognitive being, which facilitates concentration, flexibility, and toughness in conditions that are difficult to handle.

The theoretical model is supported further by the fact that the fifth hypothesis; that self-regulated learning behavior can be a significant moderator between mindset assessment profile and behavior change were accepted and made SRL a boundary condition in the belief-behavior relationship. The participants who exhibited a high SRL behavior were more effective in that they translated their intention that is driven by mindset into viable, long-term behavioral changes. This result is one of the reasons that self-regulation is an enabler of belief enactment that converts motivation into regular behavioral performance (Wang, Li, Huang, et al., 2023). Having established SRL capacities, one can have a more definite goal, track the progress and change the behavior accordingly to their beliefs in growth and, in this way, maintain the behavior change, even in

the case when external motivation is minimal. This interactive effect fills the gap between cognitive orientation and behavioral outcome, that one must have a growth mindset, but as well as regulatory discipline must be involved. The findings are reminiscent of the previous data (Wu et al., 2024) who showed that SRL serves to moderate motivational variables to predict success and endurance. The study therefore affirms that the process of self-regulation is a cognitive and behavioural buffer which maximizes the process through which mindset is translated into behaviour. The combined validation of mediation and moderation effects give us the entire information about the relationship between belief systems and cognitive control and self-regulation processes as a means to elicit permanent changes in behavior.

In short, the results of this study provide a unified and empirically tested model that shows the role of mindset beliefs, thought control, and self-controlled learning behavior in promoting long-term behavior change. The creed of all the five hypotheses substantiates the assumption that belief systems act as mental stimulus, regulation of thought is a mediating channel and self-managed action can give the structure needed to maintain change in the long term. The research contributes to the theoretical knowledge through the merging of motivational, cognitive, and behavioral aspects into one explanatory framework based on the Social Cognitive Theory and Self-Regulated Learning Theory. In practice, the findings underscore the need to cultivate growth mindsets in addition to instructing self-regulatory skills so that individuals can successfully control thoughts and behaviors. In general, this study is a contribution to the developing discussion on psychological adaptability and offers a starting point to develop interventions aimed at ensuring that one develops continuously on a personal and professional level, making use of cognitive power and self-regulated learning.

Implications of the study

The theoretical implications of the research are valuable as they expand the knowledge base of the behavior change mechanisms in the integrated perspective of the mindset theory, self-regulation theory, and cognitive control frames. The study supports the conceptual assumption that cognition and control interact to form behavioral outcomes by empirically validating the pathways between mindset assessment profile, thought content and control, self-regulated learning behavior and behavior change. The results add value to the literature by emphasizing the role of mindset that is not only a psychological orientation toward learning and adjustment, but also a constructive mechanism that mediates the process of cognitive control and behavior change. Additionally, mediating and moderating functions that were found in this study offer a

multidimensional theoretical framework that facilitates a gap between motivational, cognitive, and behavioral theories. The field is progressed by such integration, which is providing a general explanatory model based on which people can make sense of the translation of their internal beliefs and cognitive approaches into external changes in behavior, especially educational and developmental ones.

Practical Implications

The study also has practical implications especially to teachers, organization heads and practitioners in behavior change. Such attitude is highly influenced by the cognition and behavior change realisation, which offer a good power in facilitating interventions of calimations facilitating learning experiences and personal development. The mindset assessment instruments can be used in the training process to unveil the readiness of the individuals to change their behavior and develop individualized methods that can assist them in enhancing their self-regulated learning behaviors. Educators in academic institutions can use such findings to promote growth attitudes and metacognitive skills that would contribute to the management of attention and self-discipline in students. Elaborately, in the organizational context, the trainers and managers can encourage reflective behaviours and self-observation strategies that could favor decision making and flexibility. Its findings also tend to suggest that the policies or interventions seeking to alter behavior through which may be wellness, sustainability or performance improvement programs must be the one to integrate both cognition regulation and self-regulated learning components to ensure long term behavioral outcomes.

Limitations and Future Research Directions

Even though this research based study offers solid empirical data, it has some limitations that need to be considered to inform the next research. To begin with, the data were gathered within a certain educational setting, which can be inadequate in the generalization of the results to other populations or workplaces. Whereas heavily used, self-reported measures can be subject to social desirability bias, which can impact the results quality. Moreover, the cross-sectional nature of the study does not permit causal inference because one cannot confidentially determine temporal sequencing between variables. The other drawback is that cultural effects on mind and self-control actions may be different in different demographic or socio-economic backgrounds. Additional studies in the future can address these limitations by taking a multi-source, longitudinal, or experimental design to enhance the causal validity and minimize bias.

Furthermore, other mediating and moderating constructs that can be considered in future studies are suggested to increase the explanatory

power of the model. E.g., emotional regulation, the intensity of motivation or digital learning environments might be considered complementary factors that shape the connection between attitude and behavior change. Possible cross-cultural and institutional studies might also serve to confirm the applicability of the model in different environments, other than the one used. Also, interviews or reflective journals, which are qualitative methods, would possibly give more information on the subjective experiences that underlie cognitive control and behavioral change. Another area that may be considered by future researchers is the incorporation of neuroscience-related measures, e.g., cognitive load or attention tracking, to prove the processes of thought control and self-regulation on a physiological basis empirically.

Funding

References

Al Mamun, M. A., & Lawrie, G. (2023). Student-content interactions: Exploring behavioural engagement with self-regulated inquiry-based online learning modules. *Smart learning environments*, *10*(1), 1. https://doi.org/10.1186/s40561-022-00221-x

Altikulaç, S., Janssen, T. W., Yu, J., Nieuwenhuis, S., & Van Atteveldt, N. M. (2024). Mindset profiles of secondary school students: Associations with academic achievement, motivation and school burnout symptoms. *British Journal of Educational Psychology*, *94*(3), 738-758. https://doi.org/10.1111/bjep.12676

Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual review of psychology*, *52*(1), 1-26. https://doi.org/10.1146/annurev.psych.52.1.1

Burgoyne, A., & Macnamara, B. (2020). The reliability and validity of the mindset assessment profile tool. *Tilgjengelig fra: https://psyarxiv. com/hx53u*. https://doi.org/10.31234/osf.io/hx53u

Cai, J., Wen, Q., Bi, M., & Lombaerts, K. (2024). How Universal Design for Learning (UDL) is related to Differentiated Instruction (DI): The mediation role of growth mindset and teachers' practices factors. *Social Psychology of Education*, *27*(6), 3513-3532. https://doi.org/10.1007/s11218-024-09945-9

Chen, Y., Li, C., Cao, L., & Liu, S. (2024). The effects of self-efficacy, academic stress, and learning behaviors on self-regulated learning in blended learning among middle school students. *Education and Information Technologies*, *29*(18), 24087-24110. https://doi.org/10.1007/s10639-024-12821-w

Cristea, T., Heikkinen, S., Snijders, C., Saqr, M., Matzat, U., Conijn, R., & Kleingeld, A. (2025). Dynamics of self-regulated learning: The effectiveness of students' strategies across course periods. *Computers & Education*, *228*, 105233. https://doi.org/10.1016/j.compedu.2025.105233

Doss, K., & Bloom, L. (2023). Mindset and the desire for feedback during creative tasks. *Journal of Creativity*, *33*(1), 100047. https://doi.org/10.1016/j.yjoc.2023.100047

Dweck, C. (2006). Mindset: The new psychology of success. Random HouseDigital. In: Inc. https://www.libertybooks.com/mindset-the-new-psychology-of-success-

9780345472328

Gesel, S. A., Donegan, R. E., Heo, J., Petscher, Y., Wanzek, J., Al Otaiba, S., & Lemons, C. J. (2023). Heterogeneity in reading achievement and mindset of readers with reading difficulties. *Reading and writing*, *36*(1), 1-28. https://doi.org/10.1007/s11145-022-10296-0

Gu, J., & Wang, J.-L. (2024). Basic psychological needs satisfaction profiles and well-being among Chinese adolescents and Chinese university students: The role of growth mindset. *Current Psychology*, *43*(13), 11998-12006. https://doi.org/10.1007/s12144-023-05321-6

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Evaluation of reflective measurement models. In *Partial least squares structural equation modeling (PLS-SEM) using R: A workbook* (pp. 75-90). Springer International Publishing Cham. https://doi.org/10.1007/978-3-030-80519-7_4

Kane, M. J., Brown, L. H., McVay, J. C., Silvia, P. J., Myin-Germeys, I., & Kwapil, T. R. (2007). For whom the mind wanders, and when: An experience-sampling study of working memory and executive control in daily life. *Psychological science*, *18*(7), 614-621. https://doi.org/10.1111/j.1467-9280.2007.01948.x

Kittel, A. F. D., & Seufert, T. (2023). It's all metacognitive: The relationship between informal learning and self-regulated learning in the workplace. *PloS one*, *18*(5), e0286065. https://doi.org/10.1371/journal.pone.0286065

Kurtoglu, M., & Basgul, S. S. (2023). The Effects of Group Based Cognitive Behavioral Therapy on Self-Compassion, Social Anxiety and Ruminative Thought Style of Turkish Youth Transitional Age: A Controlled Study on University Students. *Psychiatry and Behavioral Sciences*, *13*(1), 13. https://doi.org/10.5455/PBS.20211205105803

Lam, C. D., & Sato, M. (2025). Exploring self-regulated learning behaviours of young second language learners during group work. *International Review of Applied Linguistics in Language Teaching*(0). https://doi.org/10.1515/iral-2024-0226

Lazarus, R. S. (1991). Progress on a cognitive-motivational-relational theory of emotion. *American psychologist*, *46*(8), 819. https://doi.org/10.1037/0003-066X.46.8.819

McNeil, D. G., Phillips, W. J., & Scoggin, S. A. (2024). Examining the importance of athletic mindset profiles for level of sport performance and coping. *International Journal of Sport and Exercise Psychology*, *22*(4), 995-1011. https://doi.org/10.1080/1612197X.2023.2180073

Mejeh, M., Sarbach, L., & Hascher, T. (2024). Effects of adaptive feedback through a digital tool–a mixed-methods study on the course of self-regulated learning. *Education and Information Technologies*, *29*(14), 1-43. https://doi.org/10.1007/s10639-024-12510-8

Men, Q., Gimbert, B., & Cristol, D. (2023). The effect of self-regulated learning in online professional training. *International Journal of Mobile and Blended Learning (IJMBL)*, *15*(2), 1-17. https://doi.org/10.4018/IJMBL.318225

Mitan, A., Vătămănescu, E.-M., Dincă, V.-M., & Ghigiu, M.-A. (2024). Intertwining entrepreneurial motivation and the global mindset: a look into entrepreneurial profiles and business outcomes. *Business Process Management Journal*, *30*(6), 1848-1873. https://doi.org/10.1108/BPMJ-11-2023-0864

Munshi, A., Biswas, G., Baker, R., Ocumpaugh, J., Hutt, S., & Paquette, L. (2023). Analysing adaptive scaffolds that help students develop self-regulated learning behaviours. *Journal of Computer Assisted Learning*, *39*(2), 351-368. https://doi.org/10.1111/jcal.12761

Ng, J. T., Liu, Y., Chui, D. S., Man, J. C., & Hu, X. (2023). Leveraging LMS logs to analyze self-regulated learning behaviors in a maker-based course. LAK23: 13th international learning analytics and knowledge conference, https://doi.org/10.1145/3576050.3576111

Özdemir, N., Çoban, Ö., Buyukgoze, H., Gümüş, S., & Pietsch, M. (2024). Leading knowledge exploration and exploitation in schools: The moderating role of teachers' open

innovation mindset. *Educational Administration Quarterly*, *60*(5), 668-717. https://doi.org/10.1177/0013161X241281391

Polyportis, A. (2024). A longitudinal study on artificial intelligence adoption: understanding the drivers of ChatGPT usage behavior change in higher education. *Frontiers in Artificial Intelligence*, *6*, 1324398. https://doi.org/10.3389/frai.2023.1324398

Prasetya, R. E. (2023). The interplay between self-regulated learning behavioral factors and students' performance in English language learning through Moodle. ELT Forum: Journal of English Language Teaching, https://doi.org/10.15294/elt.v12i3.66613

Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American journal of health promotion*, *12*(1), 38-48. https://doi.org/10.4278/0890-1171-12.1.38

Quilty-Dunn, J., Porot, N., & Mandelbaum, E. (2023). The best game in town: The reemergence of the language-of-thought hypothesis across the cognitive sciences. *Behavioral and Brain Sciences*, *46*, e261. https://doi.org/10.1017/S0140525X22002849

Reyes-de-Cózar, S., Merino-Cajaraville, A., & Salguero-Pazos, M. R. (2023). Avoiding academic burnout: Academic factors that enhance university student engagement. *Behavioral Sciences*, *13*(12), 989. https://doi.org/10.3390/bs13120989

Rutherford, T., Buschkuehl, M., Jaeggi, S. M., & Farkas, G. (2018). Links between achievement, executive functions, and self-regulated learning. *Applied Cognitive Psychology*, *32*(6), 763-774. https://doi.org/10.1002/acp.3462

Sanyal, A., Thaker, A., Mahajan, A., Daru, D., & Karani, R. (2025). Deep Learning Techniques for Thought-Controlled IoT Devices. In *Challenges and Solutions in Internet of Things-Based Smart Applications* (pp. 74-98). Chapman and Hall/CRC. https://doi.org/10.1201/9781003436911

Song, Y., Li, C., Xing, W., Li, S., & Lee, H. H. (2024). A fair clustering approach to self-regulated learning behaviors in a virtual learning environment. Proceedings of the 14th Learning Analytics and Knowledge Conference, https://doi.org/10.1145/3636555.3636863

Sudore, R. L., Stewart, A. L., Knight, S. J., McMahan, R. D., Feuz, M., Miao, Y., & Barnes, D. E. (2013). Development and validation of a questionnaire to detect behavior change in multiple advance care planning behaviors. *PloS one*, *8*(9), e72465. https://doi.org/10.1371/journal.pone.0072465

Sun, J. C.-Y., Liu, Y., Lin, X., & Hu, X. (2023). Temporal learning analytics to explore traces of self-regulated learning behaviors and their associations with learning performance, cognitive load, and student engagement in an asynchronous online course. *Frontiers in Psychology*, *13*, 1096337. https://doi.org/10.3389/fpsyg.2022.1096337

Uslu, N. A., & Durak, H. Y. (2024). Understanding self-regulation, achievement emotions, and mindset of undergraduates in emergency remote teaching: a latent profile analysis. *Interactive Learning Environments*, *32*(5), 1814-1833. https://doi.org/10.1080/10494820.2022.2129391

Wang, T., Li, S., Huang, X., & Lajoie, S. P. (2023). Task complexity affects temporal characteristics of self-regulated learning behaviours in an intelligent tutoring system. *Educational technology research and development*, *71*(3), 991-1011. https://doi.org/10.1007/s11423-023-10222-3

Wang, T., Li, S., Tan, C., Zhang, J., & Lajoie, S. P. (2023). Cognitive load patterns affect temporal dynamics of self-regulated learning behaviors, metacognitive judgments, and learning achievements. *Computers & Education*, *207*, 104924. https://doi.org/10.1016/j.compedu.2023.104924

Wells, G. (2009). *The Meaning Makers: Learning to Talk and Talking to Learn*. Multilingual Matters. https://books.google.com.pk/books?id=2rjat5VrFR4C

Wu, X., Liu, H., Xiao, L., & Yao, M. (2024). Reciprocal relationship between learning interest and learning persistence: Roles of strategies for self-regulated learning behaviors and academic performance. *Journal of Youth and Adolescence*, *53*(9), 2080-2096.

        https://doi.org/10.1007/s10964-024-01994-9
Zhang, J., Liu, Y., & Cheong, C. M. (2024). The effect of growth mindset on motivation and
        strategy use in Hong Kong students' integrated writing performance. *European
        Journal   of   Psychology   of   Education*,   *39*(3),   2915-2934.
        https://doi.org/10.1007/s10212-024-00859-w
Zhao, Y., Huang, Z., Wu, Y., & Peng, K. (2023). Autonomy matters: Influences of causality
        orientations on Chinese adolescents' growth mindset. *Journal of Pacific Rim
        Psychology*,   *17*,   18344909231157466.
        https://doi.org/10.1177/18344909231157466
Zheng, X.-L., Tu, Y.-F., Hwang, G.-J., Yu, J., & Huang, Y.-B. (2024). Interweaving of self-regulated
        learning and game-based learning in higher education: A review of academic
        publications from 2009 to 2020. *Educational technology research and
        development*, *72*(6), 3185-3216. https://doi.org/10.1007/s11423-024-10393-7
Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical
        background, methodological developments, and future prospects. *American
        educational   research   journal*,   *45*(1),   166-183.
        https://doi.org/10.3102/0002831207312909