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The Effect of Cognitive-Behavioral Motivation on the Level of Practical Engagement of Elementary School Students

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ABSTRACT

Objective: The present study aimed to investigate the effect of cognitive-behavioral motivation on the level of practical engagement among elementary school students in Zehak County during the 2024 academic year.

Methods: The statistical population consisted of all 2,600 male and female students in this educational level in Zehak County (Sistan and Baluchestan). Using Cochran's formula, a sample size of 240 students was determined and selected through convenience sampling from two schools, with an age range of 7 to 13 years. After screening, 225 final questionnaires were analyzed. The data collection instrument was the standardized Cognitive-Behavioral Motivation and Practical Engagement Questionnaire, consisting of 19 items. The face and content validity of the instrument were confirmed by experts in education and psychology, and the reliability of both questionnaires in the pilot study was assessed at an acceptable level (Cronbach's alpha = 0.82). Data were analyzed using SPSS and AMOS software and structural equation modeling.

Results: The results indicated that adaptive cognitive motivation and adaptive behavioral motivation had a positive and significant effect on students' practical engagement, whereas maladaptive cognitive-behavioral motivation had a negative and significant effect.

Conclusions: These findings highlight the importance of strengthening adaptive motivational components and designing appropriate educational programs to reduce maladaptive elements.

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Introduction

Human beings require motivation for living, survival, activity, and even change. Motivation is a crucial element in human life. While learning is necessary for the emergence of new behaviors, motivation is needed to act upon what has been learned; thus, its importance surpasses that of learning itself (Singh et al., 2023). Student motivation is an essential topic, and many studies have sought to examine it due to its significant outcomes. Recently, researchers focusing on student motivation have argued that motivation leads to student engagement (Coates, 2005; Furlong & Christenson, 2008; Horsman-Schofield & Zimitat, 2007). Student motivation is a key factor influencing learning, engagement, and academic outcomes, providing inspiration, self-direction, and energy for pursuing goals and learning efforts (Zepke et al., 2010). Behavioral and cognitive challenges can result in low motivation, which in turn may weaken academic performance (Kehoe & Nelson, 2018). Although motivation is critically important for academic progress, its quality and quantity may vary across individuals and over time, depending on the learning context (Sternberg, 2005).

Educational specialists and counselors often use external motivational techniques—such as rewards, recognition, free time, and disciplinary measures—to stimulate learning (Krause et al., 2006). Such incentives may increase students' effort (Rubeck, 2007). However, the importance and sustainability of higher-order motivation have rarely been discussed (Luo et al., 2012; Li et al., 2010; Vansteenkiste et al., 2004). Studies show that intrinsically motivated students demonstrate lower anxiety, welcome competition (Wigfield & Wagner, 2005), focus more on achievement, and tend to be more engaged in learning. Although different types of motivation influence learning and academic engagement (Saeed & Zyngier, 2012), intrinsic motivation specifically contributes to higher levels of engagement (Wigfield & Wagner, 2005).

Motivation can be described in terms of reinforcers, or adaptive versus maladaptive cognition and behavior (Martin, 2001, 2003, 2007). Reinforcers are generated through self-efficacy, planning, task management, mastery orientation, valuing, and persistence. Self-efficacy refers to students' belief in their ability to understand or complete academic tasks, cope with challenges, and perform at their best. Valuing represents the extent to which students believe their school activities and learning are beneficial, important, and relevant. Mastery orientation includes a focus on understanding, learning, problem solving, and skill development. Planning refers to how students

organize their work and monitor their progress. Task management concerns how students use their time, schedule their activities, and prepare for classes and examinations. Persistence reflects an individual's capacity to persevere in challenging situations and find ways to complete required tasks (Singh et al., 2023). Understanding motivation from the perspective of reinforcers aligns with the Student Motivation (SDT) framework, which conceptualizes motivation as a continuum ranging from amotivation at one end to intrinsic motivation at the other. This framework also provides a straightforward model for understanding the degree of an individual's motivation. Although motivation is often described as a positive driver, negative motivational drivers—such as anxiety—cannot be overlooked (O'Neill et al., 2011; Salanova et al., 2010; Wiegand & Geller, 2005). Therefore, Martin's (2001, 2003) definition of motivation provides an appropriate framework as it incorporates both positive and negative drivers.

Student engagement involves cognitive, physical, behavioral, and emotional involvement in learning (Dismore et al., 2019). In other words, student engagement is a state in which learners make meaningful efforts to learn and actively participate in academic activities. According to Trowler (2010), student engagement represents the interaction among time, effort, and other student- and institution-related resources used to optimize the learning experience (Pascarella & Terenzini, 1991). Educational institutions enhance student learning, performance, and insight by increasing engagement (Kahu, 2009; Saeed & Zyngier, 2012). Numerous studies have demonstrated a positive relationship between students' engagement in academic tasks (Tight, 2020) and desirable outcomes. Engagement, for example, is positively associated with knowledge acquisition and cognitive development (Alvarez, 2002; Shah & Cheng, 2019; Tight, 2020; Zyngier, 2008).

Students' practical engagement is defined as a positive and satisfactory state of energy, effort, and absorption in learning (Seo et al., 2014). Energy refers to one's capacity to participate voluntarily in academic work. Effort reflects feelings of importance, enthusiasm, inspiration, pride, and challenge in learning activities. Absorption is a state of full concentration and deep immersion in learning, during which time passes quickly and individuals feel engrossed in their tasks (Schaufeli & Bakker, 2010). The tripartite structure of energy, effort, and absorption was introduced by Schaufeli et al. (2002). Work engagement is defined as "a positive, fulfilling, work-related psychological state characterized by vigor, dedication, and absorption" (Schaufeli & Bakker,

2004). This concept is rooted in the Job Demands–Resources (JD-R) model (Bakker et al., 2004; Demerouti et al., 2001). The central idea is that any activity—including students’ academic work—creates demands (Demerouti et al., 2001), such as workload, time constraints, or types of interpersonal interactions (e.g., with teachers, peers, or academic staff). These demands may lead to fatigue and burnout, and insufficient support ultimately results in disengagement.

Given the above considerations, the present study emphasizes the benefits of motivation and engagement. Both constructs possess specific orientations and appear closely intertwined. This study investigates whether motivation serves as a precursor to engagement. Overall, the research addresses existing gaps by examining the relationship between adaptive cognition and behavior, motivational components, and students’ practical engagement, as well as the relationship between maladaptive cognition and behavior and motivational components on students’ work engagement. Accordingly, the main research question is whether cognitive-behavioral motivation affects the level of practical engagement among elementary school students in Zehak County.

Material and Methods

The present study employed a quantitative research design with an applied purpose. The research approach was inductive, and the overall strategy followed a survey-based methodology aimed at testing the study hypotheses and structural model. In terms of data collection, the study is classified as descriptive-correlational and specifically utilizes structural equation modeling (SEM).

Given that the study examined the impact of cognitive-behavioral motivation on the level of practical engagement among elementary school students in Zehak County, the research paradigm is positivist, and the study is cross-sectional and exploratory in nature. The research setting included both library-based and field-based environments. Aligned with its objectives, the study utilized a survey and correlational strategy, was applied in purpose, and relied on questionnaire-based data collection. The analyses were conducted using SPSS and AMOS statistical software.

The statistical population comprised all male and female elementary school students in Zehak County during the 2023–2024 academic year, totaling 2600 students. The research sample consisted of individuals selected to represent the population and allow generalization of findings. Using Cochran’s formula, a sample size of 240 elementary students was determined. A

convenience sampling method was applied. Students aged 7–13 years enrolled during the academic year 2023–2024 were identified through coordination with the Zehak County Education Office. Two schools—Hojjat School and Kadkhoda Rostam Kashani School—were selected as accessible sampling sites, containing a total of 240 eligible students. Following data screening, 225 valid questionnaires were retained for final analysis. Data collection involved both library research and survey methods. Theoretical foundations and related literature were gathered through books, academic articles, dissertations, scientific databases, and online resources. Primary data were collected using standardized questionnaires.

Two main instruments were utilized:

Cognitive-Behavioral Motivation Questionnaire: This standardized instrument assesses adaptive and maladaptive cognitive-behavioral motivational components. It consists of items measuring constructs such as self-efficacy, planning, task management, mastery orientation, valuing, persistence, and maladaptive motivational factors. The questionnaire includes 19 items and has been validated in previous studies. In the present research, face and content validity were confirmed by experts in education and psychology. Reliability was examined through a pilot study, yielding a Cronbach's alpha coefficient of 0.82, indicating acceptable internal consistency.

Practical Engagement Questionnaire: This instrument evaluates students' levels of energy, effort, and absorption during learning activities—dimensions aligned with the tripartite engagement model. The questionnaire, also consisting of 19 items, measures the extent to which students demonstrate vigor, enthusiasm, and deep cognitive involvement in academic tasks. Expert review established face and content validity, and the pilot study confirmed acceptable reliability (Cronbach's alpha = 0.82).

Data analysis was performed using SPSS for descriptive statistics and preliminary analysis, and AMOS for confirmatory factor analysis (CFA) and structural equation modeling (SEM). The modeling approach was used to examine latent variables, evaluate measurement models, and test the direct effects of cognitive-behavioral motivation components on practical engagement.

Ethical Considerations

Ethical principles were strictly observed throughout the study. Participants and their guardians were informed of the study purpose, confidentiality measures, and voluntary participation. No identifying personal information was collected, and all data were used exclusively for research

purposes. Participation posed no harm or risk to students. The research procedure was approved by the relevant educational authorities in Zehak County, and consent was obtained prior to administering the questionnaires.

Results

To examine the research hypotheses, Structural Equation Modeling (SEM) was employed. SEM provides a comprehensive analytical approach for testing hypotheses concerning the relationships among observed and latent variables. In SEM, causal relationships between latent constructs, their effects, and the amount of explained and unexplained variance are identified. The approach investigates the relationships between endogenous and exogenous latent variables to determine whether the theoretical relationships proposed in the conceptual model are supported by the data. In other words, SEM evaluates whether significant relationships exist among the latent variables under investigation. In this stage, structural relationships between conceptual constructs were assessed to test the study hypotheses. The structural model was developed and analyzed using AMOS software.

Figure 1 presents the fitted structural model of the study (path coefficients).

The model fit indices obtained from Confirmatory Factor Analysis (CFA), along with their desirable thresholds, are presented in Table 1. These indices indicate an acceptable fit of the measurement models and confirm the significance of factor loadings between observed variables and their respective latent constructs.

Table 1. Model Fit Indices for the Structural Model

Fit Index	Abbreviation	Standard Value	Model Value
Chi-square / Degrees of Freedom	df/ χ^2	< 3	1.648
Root Mean Square Error of Approx	RMSEA	< 0.08	0.049
Root Mean Square Residual	RMR	< 0.08	0.04
Non-Normed Fit Index	NNFI	> 0.90	0.97
Comparative Fit Index	CFI	> 0.90	0.92
Incremental Fit Index	IFI	> 0.90	0.97
Goodness of Fit Index	GFI	> 0.80	0.96
Adjusted Goodness of Fit Index	AGFI	> 0.80	0.88

The chi-square statistic is one of the absolute fit indices. A smaller chi-square value indicates better model fit. When the significance level associated with χ^2 is greater than 0.05, the model can be

considered ideal; values between 0.01 and 0.05 are acceptable. Since the significance level for the current model lies between 0.01 and 0.05, the chi-square value is deemed acceptable.

The normalized chi-square index (χ^2/df) is another commonly used index, with acceptable values ranging from 1 to 3. As shown, the value for the current model is 1.94, indicating an excellent and acceptable fit.

Based on the results and the fit indices presented above, the theoretical model demonstrates acceptable fitness. Therefore, the structural relationships and regression coefficients between latent variables were further evaluated. To test the hypotheses, both the *p-value* and *t-value* indices were used. A structural path is considered significant when the *p-value* is less than 0.05 and the *t-value* exceeds ± 1.96 .

Hypothesis Testing

Hypothesis 1: Cognitive Adaptive Motivation has a significant effect on students' Practical Engagement.

Table 2. Results of Testing Hypothesis 1

Hypothesis	Path	Path Coefficient	T-value	P	Result	Relation Type
H1	Cognitive Adaptive Motivation → Practical Engagement	0.389	3.64	0.001	Significant	Positive & Significant

The results indicate that the effect of cognitive adaptive motivation on practical engagement is 0.389. With a *p-value* of 0.000 and a *t-value* of 3.64 (greater than ± 1.96), the path is significant at the 0.05 level. Therefore, cognitive adaptive motivation has a **positive and significant** impact on students' practical engagement, and Hypothesis 1 is supported.

Hypothesis 2: Behavioral Adaptive Motivation has a significant effect on students' Practical Engagement.

Table 3. Results of Testing Hypothesis 2

Hypothesis	Path	Path Coefficient	T-value	P	Result	Relation Type
H1	Behavioral Adaptive Motivation → Practical Engagement	0.571	2.18	0.001	Significant	Positive & Significant

The findings show that the effect of behavioral adaptive motivation on practical engagement is 0.571. Given a p-value of 0.000 and a t-value of 2.18, the path is statistically significant. Thus, behavioral adaptive motivation has a positive and significant effect on students' practical engagement, confirming Hypothesis 2.

Hypothesis 3: Maladaptive Cognitive-Behavioral Motivation has a significant effect on students' Practical Engagement.

Table 4. Results of Testing Hypothesis 3

Hypothesis	Path	Path Coefficient	T-value	P	Result	Relation Type
H1	Maladaptive Cognitive-Behavioral Motivation → Practical Engagement	-.476	5.23	0.001	Significant	Negative & Significant

The results indicate that maladaptive cognitive-behavioral motivation has a path coefficient of -0.476 . With a p-value of 0.000 and a t-value of 5.23 (greater than ± 1.96), the effect is significant. Thus, maladaptive cognitive-behavioral motivation has a negative and significant impact on practical engagement, supporting Hypothesis 3.

Discussion

The purpose of this study was to examine the effect of cognitive-behavioral motivation—both adaptive and maladaptive—on the level of practical engagement among elementary school students in Zehak County. The findings provide strong evidence that student motivation functions as a significant antecedent to their behavioral and practical engagement in academic activities. This result aligns with the notion proposed by Skinner et al. (2016), who emphasized that the relationship between motivation and student engagement is highly complex, multidimensional, and embedded within dynamic classroom environments. Despite this inherent complexity, the present study demonstrates that motivation can serve as a direct and meaningful predictor of students' practical engagement.

The results revealed that adaptive cognitive motivation and adaptive behavioral motivation positively and significantly predicted students' practical engagement. This finding is consistent with earlier studies indicating that adaptive motivational components—such as self-efficacy, mastery orientation, planning, persistence, and task management—enhance students' willingness

to invest effort and energy in learning tasks (Martin, 2001; Martin, 2003; Schaufeli et al., 2002). Students who possess adaptive motivational characteristics are more likely to regulate their learning behaviors, respond constructively to challenges, and participate actively in academic tasks. These results reinforce the idea that adaptive forms of motivation play a central role in shaping productive academic behaviors.

Conversely, the negative and significant effect of maladaptive cognitive-behavioral motivation on practical engagement is also consistent with past literature. Maladaptive indicators—such as anxiety, self-handicapping, avoidance, fear of failure, and disengagement—have been shown to undermine students' capacity to participate consistently in academic activities (Martin, 2001; Pekrun & Perry, 2014). These factors drain cognitive resources, hinder sustained effort, and reduce students' willingness to take part in challenging classroom tasks. Similar patterns have been reported in studies examining emotional and behavioral barriers to engagement, highlighting that maladaptive motivation is a critical risk factor for reduced academic participation.

The findings collectively support the usefulness of the two-factor motivation framework proposed by Martin (2001–2003) in educational contexts. This structure enables educators to distinguish between students who exhibit adaptive patterns and those who display maladaptive tendencies and, accordingly, to design targeted interventions. Given that behaviors associated with motivation have differential impacts on student engagement, they cannot be ignored when planning pedagogical strategies or intervention programs. Tailoring interventions based on students' motivational profiles may improve engagement and ultimately enhance academic achievement.

This study, despite its contributions, has certain limitations. One of the most notable constraints is that the research model did not include emotional variables such as emotional intelligence, affective quotient, or emotion-regulation strategies. Previous evidence suggests that emotional factors can significantly moderate or mediate the relationship between maladaptive motivation and student engagement (Pekrun, 2017). Ignoring these affective factors may lead to a partial understanding of the causal mechanisms that underlie the links between motivational patterns and practical engagement. Additionally, the study relied on self-report instruments, which may introduce response bias. The use of a convenience sampling method and a geographically limited population also reduces the generalizability of the findings to broader contexts.

Based on the findings, several practical recommendations can be offered for educators and school administrators. Teachers are encouraged to adopt active instructional methods such as group discussions, project-based learning, and problem-solving activities. These approaches stimulate cognitive motivation, foster deeper processing, and encourage students to take an active role in learning. Additionally, implementing structured reinforcement systems—such as symbolic rewards, verbal and written recognition, and consistent feedback—can help strengthen adaptive behaviors and sustain student engagement. Immediate and constructive feedback also plays a crucial role in consolidating desirable learning behaviors and reducing maladaptive tendencies. For future research, it is recommended that scholars incorporate emotional and affective variables to develop a more comprehensive model of student motivation and engagement. Longitudinal studies could provide deeper insights into how motivational patterns evolve over time and how they shape long-term academic outcomes. Including diverse samples from multiple regions or educational stages would also enhance external validity and contribute to a more nuanced understanding of motivational processes among students.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Farhangian University.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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