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Unlocking Classroom Learning: The Mediating Power of Task-Specific Perception and Organizing in Bridging Students and Contextual Dynamics

Mahdiyeh Dostmohammadi[1] (MSc), Siavash Talepasand[1] (PhD), Isaac Rahimian-Boogar[1] (PhD)

1. Department pf Psychology, Faculty of Psychology and Education, Semnan University, Semnan, Iran

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Corresponding Author:
Siavash Talepasand,
Department pf Psychology,
Faculty of Psychology and Education,
Semnan University,
Semnan,
Iran
E-mail: stalepasand@semnan.ac.ir

Abstract

Introduction: This study investigates how classroom dynamics are shaped by context characteristics (task norms, content difficulty) and student attributes (meta-cognition, self-efficacy) through mediating processes of task-specific perception and organization, based on Eynde and Turner's multidimensional model. The goal is to validate a structural model linking these factors to learning outcomes, offering actionable insights for educators.

Method: A correlational study of 404 Iranian ninth-graders (180 boys, 224 girls) employed multi-stage random sampling. Participants completed Positive and Negative Affect Schedule, Self-regulation questionnaire, Effort scale, Rating of perceived exertion, Self-efficacy questionnaire, Academic control scale, Self-concept questionnaire, Meta-Emotion and Meta-Cognition questionnaire, a teacher-made mathematics test, The Personal Belief Assessment Questionnaire, Motivated Strategies for Learning Questionnaire, Classroom structure scale, Semnan Value-Expectancy Questionnaire. Structural equation modeling (SEM) analyzed pathways between variables. Mediation analysis using bootstrap methods with 1000 samples and 95% confidence interval revealed significant indirect effects.

Results: Context characteristics influenced organization through task-specific perception (β=0.131, p<.05), explaining 13.1% of the total effect. Student characteristics affected organization via task-specific perception (β=0.228, p<.05), accounting for 22.8% of the total effect. Additionally, student characteristics impacted classroom learning through organization (β=0.428, p<.05), explaining 42.8% of the total effect. Task-specific perception also influenced classroom learning through organization (β=0.182, p<.05), mediating 18.2% of the total effect. The strongest indirect effect is the path of student characteristics on organization and ultimately on classroom learning.

Discussion: Task-specific perception and organizational strategies critically bridge student-context interactions. Educators should prioritize emotionally supportive environments and meta-cognitive skill development. Future research should explore cross-cultural applications and additional mediators (e.g., teacher rapport) to enhance predictive power.

Keywords: Classroom Learning, Task-Specific Perception, Organization, Student Characteristics, Context Characteristics

Introduction

In recent decades, classroom learning dynamics have been extensively examined through theoretical frameworks such as social cognitive theory [1]) and expectancy-value models [2]. However, the multidimensional model proposed by Eynde and Turner [3] stands out for its integration of emotional, cognitive, and organizational factors into a unified system. While this model has been validated in Western contexts, its applicability to non-Western educational systems—particularly those shaped by centralized curricula and high-stakes testing (e.g., Iran)—remains unexplored. This gap is critical, as cultural norms (e.g., teacher

authority, collectivist values) may uniquely mediate relationships between student characteristics and learning outcomes.

The significance of this model lies in its ability to integrate various psychological aspects of learning into a unified framework. It acknowledges that learning is not merely a cognitive process but involves intricate relationships between emotions, motivation, and cognitive functions. This perspective aligns with contemporary research in educational psychology that emphasizes the importance of considering learners' emotional states alongside their cognitive capabilities. The model's multidimensional nature allows educators and researchers to examine how different components of the learning environment interact and influence each other, providing valuable insights into optimizing educational practices.

Particularly noteworthy is how this model incorporates dynamical systems theory, which focuses on the role of emotions in learning processes. This integration highlights the evolving nature of classroom learning, where emotional responses can significantly impact cognitive engagement and overall academic performance. By considering these dynamic interactions, the model offers a more nuanced understanding of how various factors contribute to successful learning outcomes in academic settings.

The COVID-19 pandemic further underscores the urgency of this inquiry, as global shifts to online learning have disrupted traditional classroom dynamics. This study addresses these gaps by investigating how Eynde and Turner's model [3] operates in Iran's pandemic-affected educational context, offering novel insights into the interplay of cultural, emotional, and organizational factors in classroom learning.

Context Characteristics and Their Impact on Learning: The context characteristics within Eynde and Turner's model [3] encompass crucial elements such as class task variables (norms and practices) and task characteristics (content and difficulty). These features play a fundamental role in shaping educational experiences, as evidenced by Yamamoto's [4] research demonstrating how contextual factors directly influence student engagement and learning outcomes. When students become actively involved with their school environment, they tend to experience positive emotions in the classroom, establishing meaningful connections between their current academic work and future aspirations. This engagement manifests in several beneficial ways: students employ adaptive cognitive strategies for learning [5] and demonstrate increased participation in learning tasks [6].

The positive effects of strong school engagement extend beyond academic performance to encompass broader aspects of student well-being. Research has consistently shown that engaged students achieve better academic results [7, 8] while simultaneously experiencing improved psychological well-being [9, 10]. Furthermore, these students exhibit a significantly reduced risk of dropping out of school [11]. Migliorini et al. [12] highlighted an important reciprocal relationship between school context and student characteristics, emphasizing how the learning environment influences the resources available to students and, conversely, how student attributes shape their perception and utilization of these resources.

These findings underscore the critical role that context characteristics play in creating an optimal learning environment. The interplay between task norms, content difficulty, and classroom practices creates a foundation upon which students build their academic experiences. When these elements are effectively aligned with student needs and capabilities, they foster an environment conducive to both academic success and personal development. This alignment helps explain why some educational settings consistently produce better learning outcomes than others, even when working with similar student populations.

Student Characteristics and Academic Outcomes: Student characteristics represent another crucial dimension in Eynde and Turner's model [3], encompassing a wide array of cognitive and affective factors that significantly influence learning outcomes. These include meta-cognitive knowledge, meta-motivational knowledge, meta-emotional knowledge, and various belief systems about lessons, classrooms, and self-perception. Particularly noteworthy are students' beliefs about competency, academic self-concept, and self-efficacy, which have demonstrated strong positive correlations with academic outcomes such as progress, effort investment, and achievement [13-18].

Competency beliefs, defined as "students' cognitive representations of how well they are performing a given activity" [19], serve as a fundamental predictor of academic success. These beliefs operate through multiple pathways: they influence students' willingness to engage with challenging tasks, determine the amount of effort invested in learning activities, and affect persistence in the face of difficulties. Research has consistently shown that students with stronger competency beliefs demonstrate higher levels of academic engagement and achievement across various subjects and educational levels.

The impact of student characteristics extends beyond mere academic performance to influence broader aspects of the learning experience. Students with well-developed meta-cognitive and meta-emotional knowledge tend to regulate their learning more effectively, employing appropriate strategies to manage cognitive load and emotional responses during challenging tasks. This self-regulatory capacity enables them to maintain focus and motivation even when confronted with complex material or temporary setbacks. Moreover, positive self-beliefs create a feedback loop that reinforces successful learning behaviors, leading to progressively better academic outcomes over time.

Task-Specific Perception and Its Emotional Dimensions: Task-specific perception represents a crucial dimension in Eynde and Turner's model [3], highlighting the complex emotional landscape that students navigate during learning activities. While tasks can serve as effective complements to school learning [20], they often present significant emotional challenges for students and

their parents [21]. Contrary to traditional views that emotions hinder learning, Eynde and Turner [3, 22] emphasize that emotions are integral to the learning process, closely interacting with cognitive and behavioral functions. Task-related emotions carry specific meanings for students' learning experiences, yet systematic analysis of their antecedents and consequences remains limited in educational research.

The emotional dimension of tasks has been extensively documented in various studies. Pekrun et al. [23] and Warton [24] established that tasks fundamentally represent emotional undertakings rather than purely cognitive exercises. While some students find enjoyment in these activities, many report experiencing unpleasant emotions during task completion [25]. Warton [24] identified key emotional costs associated with tasks, including decreased motivation and increased anxiety or boredom. In extreme cases, some students encounter such significant difficulties that they completely disengage from task-related activities [21]. Verma et al.'s [26] research further supports these findings, showing that students typically experience more negative emotions during tasks compared to other classroom activities.

The impact of emotional states on learning outcomes is particularly striking. Leone and Richards [27] demonstrated that students' mood significantly affects their learning experiences, with negative moods leading to markedly different outcomes compared to positive ones. Trautwein et al. [28] expanded on this understanding by revealing a bidirectional relationship between task-related emotions and academic progress. Their research showed that low academic progress strongly correlates with higher levels of unpleasant task-related emotions, while negative emotional experiences predict subsequent poor academic performance. This cyclical relationship underscores the importance of addressing emotional factors in educational contexts.

Values emerge as a crucial component of task-specific perception within Eynde and Turner's framework [3]. The value-expectancy theory of achievement motivation [29] suggests that perceived value serves as a primary motivator for student engagement in tasks. While interest shares similarities with value, it specifically relates to course content and arises from distinct theoretical perspectives. High interest levels have been consistently linked to improved text recitation, persistence in challenging tasks, and enhanced learning outcomes [30, 31]. Guthrie et al.'s [2] research demonstrated that students who develop interest in reading assignments show significantly better comprehension skills, even after controlling for initial reading ability.

The practical implications of these findings extend to various academic domains, particularly mathematics education. Battle's [32] study revealed that high school seniors who valued mathematical progress maintained longer engagement with math problems. Meece et al. [33] found that students who recognized the importance of math tasks were more likely to enroll in advanced courses, suggesting a direct link between perceived task value and academic commitment. These findings highlight the critical role that task-specific perception plays in shaping students' academic trajectories and overall learning success.

Organization as a Mediating Variable in Learning Dynamics: Organization emerges as a pivotal mediating variable in Eynde and Turner's model [3], structured into three distinct yet interconnected components: emotional, cognitive, and voluntary organizations. Emotional organization manifests in the formation of relatively fixed "self" patterns that significantly influence students' learning experiences. Lazarus [34], a prominent theorist in emotion research, emphasized that emotions serve as crucial information providers during goal-directed activities, influencing decision-making processes, commitment to objectives, and the empowerment of goal-oriented behavior. This emotional framework directly impacts students' perceptions of the learning context; for instance, anxious students become hyper-sensitive to teacher feedback, while those experiencing pleasure interpret teacher actions more positively [35].

Cognitive organization reveals substantial variations among students based on their need for cognition. Individuals with high cognitive needs demonstrate remarkable internal motivation to seek strategies despite facing complex challenges in demanding tasks [36]. These students typically employ deep learning approaches and excel in recalling information and understanding cognitively demanding curriculum content [37]. Conversely, students with lower cognitive needs require external support structures and often resort to surface-level learning strategies, showing less interest in cognitively challenging activities. The correlation between cognitive need and performance on challenging tasks has been consistently validated across various educational contexts.

Voluntary organization encompasses crucial variables such as invested effort, effort intensity, and direction of effort. Garcia et al. [38] demonstrated that voluntary control mechanisms play a fundamental role in maintaining goal-oriented learning activities. These control strategies strongly correlate with the effective use of cognitive learning techniques, supporting sustained engagement with academic tasks. Rimm-Kaufman et al. [39] further substantiated this relationship by linking classroom organization patterns with observable reports of student behavioral conflicts. Ketonen and Hotulainen's [40] research revealed significant correlations between classroom context and patterns of student achievement, particularly concerning the highest and lowest performers, underscoring the critical role of organizational factors in determining academic outcomes.

Accordingly, in the present research, a structural model of classroom learning antecedents has been designed using the framework of Eynde and Turner's model [3] in predicting classroom learning (Figure 1). Understanding this model is crucial for examining its application in contemporary educational settings. In this model, context characteristics and student characteristics were

considered exogenous variables, task-specific perception and organization as mediating variables, and classroom learning as the outcome variables. We assumed that the data fit a hypothetical structural model between context characteristics, student characteristics, task-specific perceptions, organization, and classroom learning (H1). In particular, we developed hypotheses about the direct effect. We hypothesized that context characteristics have a direct and positive structural effect on task-specific perception (H2) and organization (H3); Student characteristics have a direct and positive structural effect on task-specific perception (H4) and organization (H5); Task-specific perception has a direct and positive structural effect on organization (H6), and organization, in turn, has a direct and positive structural effect on classroom learning (H7). In this conceptual model, indirect hypotheses were developed based on the relationships between the internal structure of the variables. We hypothesized that context characteristics have an indirect and positive structural effect on organization through task-specific perception (H8); student characteristics have an indirect and positive structural effect on organization through task-specific perception (H9); student characteristics have an indirect and positive structural effect on classroom learning through organization (H10); and task-specific perception has an indirect and positive structural effect on classroom learning through organization (H11). This study aims to explore how context characteristics and student characteristics influence classroom learning through task-specific perception and organization.

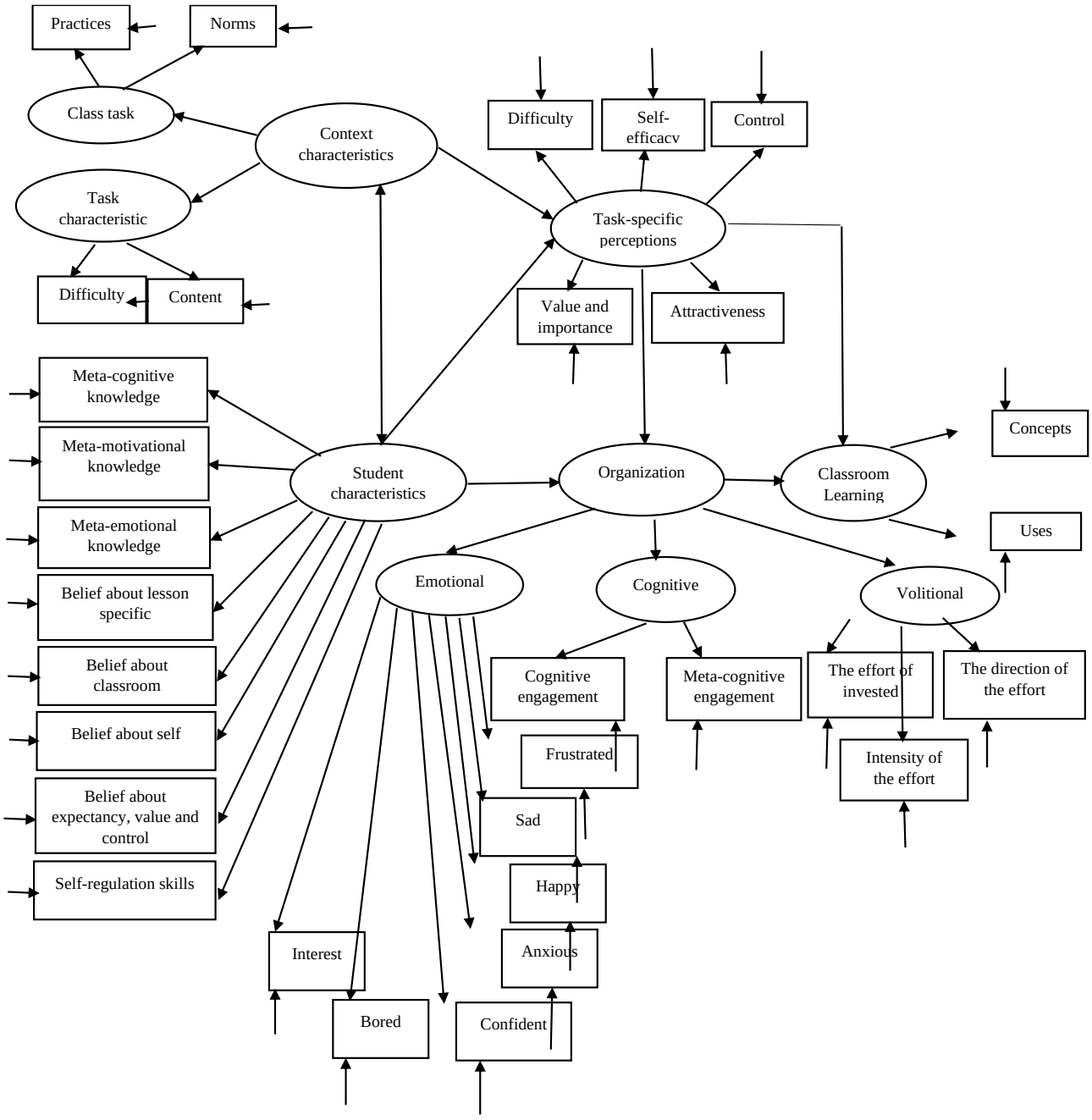

Figure 1. Hypothetical model of the present research.

Method

This research employed a descriptive-correlational design to investigate the structural model of classroom learning antecedents using Eynde and Turner's framework [3]. The statistical population comprised all ninth-grade high school students in Kerman city (N = 11,732), with a sample size of 400 determined based on Bentler's recommendation of a 5:1 to 50:1 ratio for parameter estimation [41]. Multi-stage random sampling was utilized, and due to the COVID-19 pandemic necessitating online learning, a survey link was distributed to 500 students across education districts No. 1 and 2 in Kerman city. The final response rate was about 80%, with 404 participants (180 boys, 224 girls) completing the questionnaires.

The study utilized a comprehensive set of validated instruments to measure various constructs.

The Positive and Negative Affect Schedule (PANAS): This scale developed by Watson et al. [42]. Each subscale consists of 10 questions that are scored on a five-point Likert scale. This scale measures emotional dimensions with Cronbach's alpha values of .88 and .87 for positive and negative affect subscales respectively. Bakhshipour and Dezhkam [43] in a study using confirmatory factor analysis (CFA) and structural equation modeling (SEM), investigated the factorial validity, construct validity, and reliability of this instrument on 255 students with anxiety and depression disorders at the University of Tehran. The results showed that the two-factor model was the most appropriate model. In terms of validity, this instrument can also be used to distinguish between anxious and depressed patients, and the reliability of these two subscales is .87. In the present study, the Cronbach's alpha coefficient of this scale was .91.

Bouffard et al.'s Questionnaire [44]: This questionnaire standardized in Iran by Kadivar [45] with reliability of .71. The self-regulation construct is rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), and items (5, 13, 14) are reverse scored. This scale has 3 components, including cognitive strategies (including questions 3, 7, 9, 10, 12), motivational strategies (including questions 6, 8, and 11), and meta-cognitive strategies (including questions 1, 2, 4, 5, 13, and 14). The results of factor analysis showed that the correlation coefficient between the questions is appropriate and the instrument explains .52 of the variance of self-regulation. Also, in the study [46], the overall reliability coefficient of the questionnaire was .72. In the present study, the Cronbach's alpha coefficient of this instrument was .84.

Effort scale: This scale is part of a cognitive engagement scale used by Dupey Wright and Marin in 2005[27]. This subscale has 4 items. The items are rated on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The range of scores is between 4 and 20, with higher scores indicating greater effort. Factor structure validity (RMSEA = .04, AGFI = .98, GFI = .99) and Cronbach's alpha of .77 [47]. In the present study, the Gronbach's alpha coefficient of this tool was 0.84.

Rating of perceived exertion scale (RPE): Perceived exertion were evaluated using Borg's [48] scale. 15-point scale from (6 very very easy) to (20 very very hard) is used to score perceived stress, in which respondents report their perception of the difficulty of the task. The range of scores on this scale is 6 to 20, with higher scores indicating greater perceived stress and difficulty. This scale shows reliability of .92 and validated by Habibi et al. [46] with R^2 = .87. Borg reported the validity of this scale as .92 [48]. In a study on students, the reliability was reported as .87 using Cronbach's alpha method. In the present study, the Cronbach's alpha coefficient of this instrument was .73.

Self-efficacy: Self-efficacy was measured through Jerusalem and Schwarzer's [49] questionnaire, demonstrating strong correlations with optimism and job satisfaction while showing negative relationships with depression and stress. This questionnaire has 10 items. The items are rated on a 4-point Likert scale from (1) (completely disagree with me) to (4) (completely like me). The range of scores is between 10 and 40. A higher score indicates greater self-efficacy. Jerusalem and Schwarzer reported the validity of the questionnaire using Cronbach's alpha between .76 and .90 [49]. The reliability of the questionnaire was reported as .74 using Cronbach's alpha. The validity of the questionnaire was calculated by correlating the score of each item with the total score of the questionnaire. The range of coefficients was from .40 to .64 and all coefficients were significant at the 0.001 level.

Academic Control Scale: Academic control was assessed using Perry et al. [50] scale. This scale has eight items that are rated on a five-point Likert scale from 1 (completely true of me) to 5 (not true of me at all). The range of scores on this scale is 8 to 40. A higher score means greater academic control. In Iran, in 2011, the validity of the instrument was examined using factor analysis method, validated by Hosseini and Khair [51] with Cronbach's alpha of .70. In the present study, the Cronbach's alpha coefficient of this scale was .73.

Self-concept Scale: Self-concept is a self-report measure that measures a person's negative attitude towards themselves. It consists of 25 questions and the questions are rated from 1 to 5. In the study by Beck et al. [52] the correlation between Beck's self-concept and Rosenberg's self-esteem for 110 patients was .15. In the study by Beck et al., the alpha coefficient was reported to be .82 and the test-retest coefficient was .88. In the present study, the Cronbach's alpha coefficient of this instrument was .85.

Meta-Emotion and Meta-Cognition Questionnaire: Meta-emotion and meta-cognition were assessed using Beer and Moneta's [53] questionnaire, demonstrating. The items are scored on a 5-point Likert scale, and items 1, 13, 10, 16, 4, and 1 are scored in reverse order, with a higher score indicating more repetition of the behavior. The three-factor structure of the questionnaire was confirmed using exploratory factor analysis. Cronbach's alpha coefficients were reported as .85, .76, and .85 for factors 1, 2, and 3, respectively. The overall validity of the questionnaire in the study [54] was calculated as .83 using the Cronbach's alpha method and .86 using the split-half method. Cronbach's alpha coefficients for the three factors 1, 2, and 3 were estimated as .71, .73, and .72,

respectively, and the split-half method was estimated as .75, .71, and .76, respectively. In the present study, the Cronbach's alpha coefficient of this tool was obtained as .87, therefore it has the necessary validity.

Teacher-made Mathematics Test: This instrument included a teacher-made mathematics test (reliability .73) based on specification tables covering various knowledge types. This researcher-made test consists of four types of questions: true-false (4 questions), matching (4 questions), multiple-choice (4 questions), short answer (2 questions), and descriptive (5 questions), totaling 19 questions, which are scored with a scale of 1 to 18 questions and scale 2 to 19 questions out of 20. In the present study, the face and content validity of the test was .73 based on the opinions of 5 experts, and the reliability of the test with a test-retest method administered at an interval of 10 days based on Pearson correlation was .78. The math test was made based on the following specification table: Knowledge of factual matters: 3 questions; Recall (conceptual knowledge): 3 questions; Understanding (conceptual knowledge): 7 questions; Application (conceptual knowledge): 4 questions and Analysis (conceptual knowledge): 2 questions.

The Personal Belief Assessment Questionnaire: Personal belief was developed and compiled by Albert Ellis in 2015 [55]. This questionnaire consists of 50 questions and aims to assess an individual's personal beliefs. The questionnaire is scored according to the Likert scale and is graded with 6 points. The Cronbach's alpha coefficient was calculated to be .90. In the present study, the Cronbach's alpha coefficient of this tool was obtained to be .95.

Pintrich and DeGroot's Motivated Strategies for Learning Questionnaire [56]: Motivated Strategies for Learning was designed by Pintrich and DeGroot in 1999 with 47 questions and in two parts. The motivational part consists of 25 questions and includes 4 components. And the learning strategies part consists of 22 questions. Pintrich and DeGroot in 1990 determined the reliability coefficients of the subscales using Cronbach's alpha method as .89, .87, .75, .83, .74, .89, respectively. Dartaj and Afsharian [57] reported Cronbach's alpha for the subscales ranging from 0.78 to 0.91 and confirmed its multifactorial structure through confirmatory factor analysis.

Classroom Structure Scale: Classroom structure was developed by Blackburn [58] and includes three subscales: motivational tasks (11 questions), autonomy support (5 questions), and mastery evaluation (10 questions). In 2009, Hejazi et al. [59] examined the construct validity of this tool using confirmatory factor analysis, and the goodness-of-fit indices (SRMR= .06, AGFI= .89, GFI= .92) indicated that the data fit the model. The reliability coefficient of the scale was examined by Blackburn in 1998 using the internal consistency method, and the Cronbach's alpha coefficients for the motivational tasks subscales were .85, autonomy support (.65), and mastery evaluation (.80). In Iran, Hejazi et al., in 2009 obtained alpha coefficients of the aforementioned subscales as .71, .68, and .68, respectively. In the present study, the Cronbach's alpha coefficient of this scale was calculated as .93.

Semnan Value-Expectancy Questionnaire: Value-Expectancy beliefs developed by Hosseini et al. [51] based on Wigfield and Eccles' [29] theory. This scale includes the following subscales: (a) The ability-expectancy beliefs subscale includes 9 items. Responses to the items are scored on a 7-point Likert scale (1=very bad to 7=very good); (b) The perception of task difficulty subscale includes 7 items and measures two domains of task difficulty (3 items) and the amount of effort expended (4 items). Responses to the items are scored on a 7-point Likert scale; (c) The Task Value subscale consists of 14 items that measure three components of task value, namely, acquisition value, intrinsic interest value, and extrinsic interest value. The Cronbach's alpha obtained in the ability-expectancy beliefs subscale with 5 items was estimated to be .92 [51].

Data collection occurred from the second week of May to the end of June, with participants completing the online questionnaires within an average timeframe of one hour. Only math test scores were collected three months later to ensure time priority. The research methodology ensured comprehensive measurement of all relevant constructs while maintaining methodological rigor through the use of established and validated instruments. The analysis began with calculating central tendency and dispersion statistics to describe the data distribution, followed by identifying outlier values using Tukey's Box-Whisker diagram and Mahalanobis distance for multivariate outliers. The Kolmogorov-Smirnov test confirmed data normality before proceeding with structural equation modeling. The hypothetical model was tested using Amos26 software, evaluating fit indices through absolute measures (GFI, AGFI), adapting measures (CFI, NFI, IFI), and parsimony measures (RMSEA, SRMR, X2/df).

Results

The goodness-of-fit indices demonstrated optimal model fit: chi-square to degree of freedom ratio was 3.34, with GFI at .88, AGFI at .86, and RMSEA at .076, all meeting recommended thresholds. The model explained substantial variance in key constructs: 73% of task-specific perception, 58% of organization, and 44% of classroom learning. Correlation analysis revealed significant bivariate relationships ($p<.01$) among most variables, with the strongest correlations between beliefs about classroom and self ($r=.92$) and meta-motivational and meta-cognitive knowledge ($r=.88$). Also, the weakest significant correlation was between effort direction and attractiveness perception ($r=.11$).

Mediation analysis using bootstrap methods with 1000 samples and 95% confidence interval revealed significant indirect effects. Context characteristics influenced organization through task-specific perception ($\beta=0.13$, $p<.05$), explaining 13.1% of the total effect. Student characteristics affected organization via task-specific perception ($\beta=0.22$, $p<.05$), accounting for 22.8% of the total effect.

Additionally, student characteristics impacted classroom learning through organization (β=0.42, p<.05), explaining 42.8% of the total effect. Task-specific perception also influenced classroom learning through organization (β=0.182, p<.05), mediating 18.2% of the total effect. The strongest indirect effect is the path of student characteristics on organization and ultimately on classroom learning.

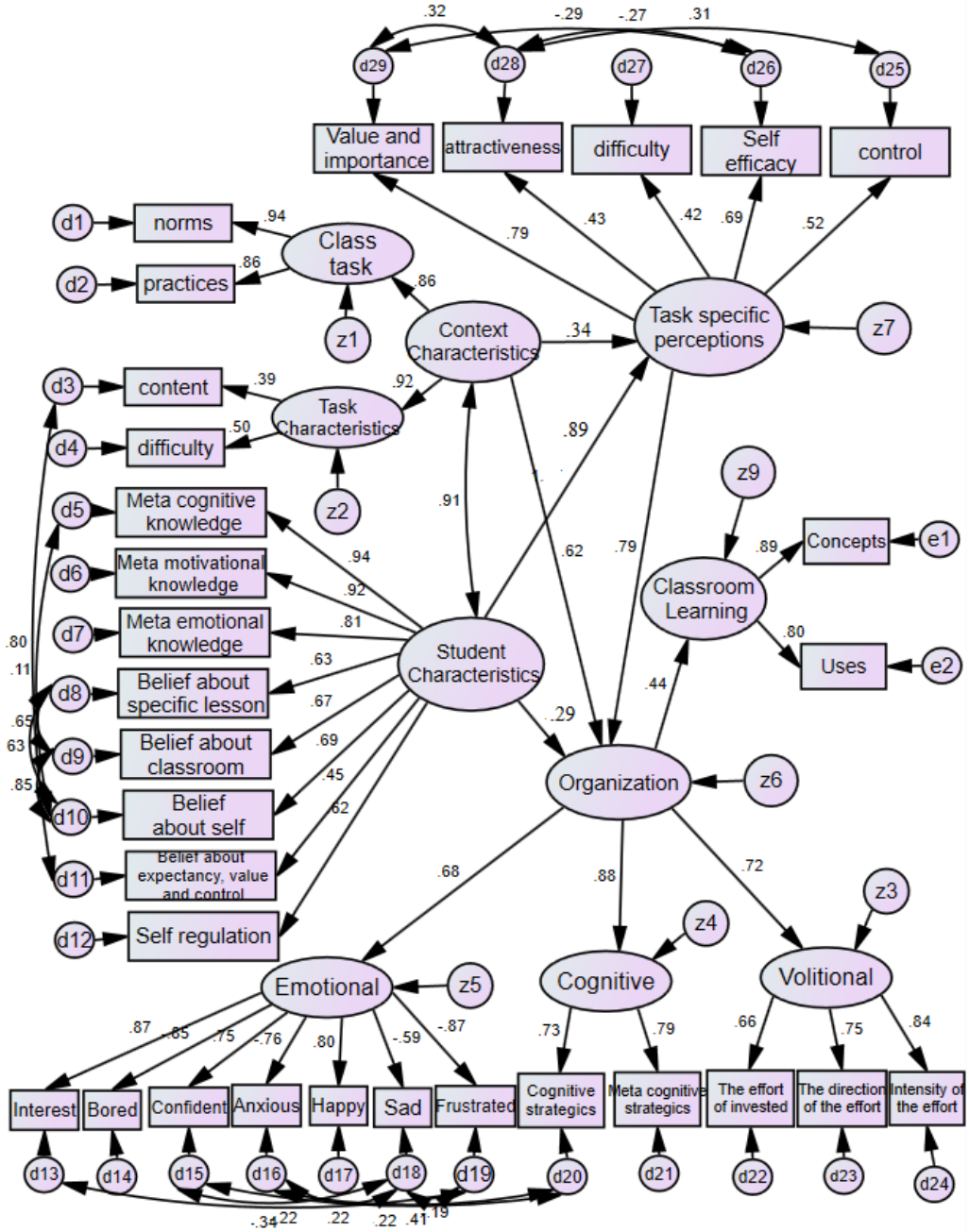

Figure 2. Final model of structural relationships between context characteristics, student characteristics, task-specific perception, organization and classroom learning.

Table 1. Mean, SD, Zero-order Correlations and Cronbach's Alpha of Variables (n = 404)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Norms	.83																														
Acts	.82**	.93																													
Content	.47	.46	.97																												
Difficulty	.40	.35	.11	.80																											
Meta-cognitive knowledge	.63	.63	.62	.39	.93																										
Meta-motivational knowledge	.59**	.62**	.52**	.41**	.88**	.91																									
Meta-emotional knowledge	.63**	.62**	.47**	39**	75**	74**	.87																								
Beliefs about special lesson	.54**	.50**	.40**	.44**	.58**	.54**	.50**	.64																							
Beliefs about classroom	.62**	.55**	.36**	.56**	.61**	.59**	.58**	.80**	.83																						
Beliefs about self	.65**	.60**	.37**	.54**	.60**	.60**	.60**	.79**	.92**	.94																					
Beliefs value, control, expectancy	.44**	.43**	.85**	.06ns	.64**	.53**	.48**	.41**	.39**	.40**	.97																				
Self- regulatory skills	.31**	.33**	.37**	.19**	.59**	.61**	.44**	.34**	.32**	.30**	.41**	.77																			
Difficulty perception	.30**	.29**	.16**	.33**	.33**	.33**	.34**	.33**	.36**	.36**	.19**	.23**	-																		
Self-efficiency perception	.38**	.36**	.43**	.70	.56**	.54**	.48**	.35**	.30**	.31**	.47**	.49**	.22**	.92																	

Control perception	.27**	.27**	.02ns	.22**	.33**	.42**	.35**	.22**	.26**	.29**	.11*	..20**	.31**	..28**	.75																
Perception of importance and value	.48**	.47**	.34**	.32**	.64**	.62**	.52**	.51**	.50**	.50**	.44**	.45**	.33**	.41**	.48**	.79															
Perceptions of attractiveness	.32**	.22**	.017ns	.27**	.28**	.40**	.27**	.25**	.30**	.29**	.015ns	.31**	.25**	.09ns	.50**	.53**	.77														
Interest	.50**	.48**	.38**	.20**	.52**	.45**	.44**	.38**	.39**	.40**	.42**	.24**	.29**	.47**	.43**	.50**	.28**	.72													
Boredom	.-51**	.-48**	.-34**	.-25**	.-50**	.-45**	.-44**	.-35**	.-39**	.43**	.40**	.-.25**	.-28**	.40**	.42**	.50**	.27**	.76**	.68												
Trust	.50**	.43**	.28**	.27**	.47**	.48**	.46**	.38**	.46**	.47**	.-35**	.22**	.31**	.39**	.47**	.50**	.38**	.66**	.66**	.62											
Anxiety	.-47**	.-48**	.-51**	.-21**	.-62**	.-55**	.-54**	.-43**	.-43**	.-44**	.56**	.-.41**	.-27**	.59**	.32**	.54**	.-12*	.73**	.67**	.-57**	.60										
Happiness	.48**	.44**	.31**	.19**	.44**	.44**	42**	34**	.36**	.39**	.-33**	.17**	.31**	.38**	.52**	.47**	.39**	.72**	.69**	.64**	.60**	.54									
Grief	.-44**	.-40**	.-34**	.-29**	.-61**	.-65**	.-51**	.-42**	.-45**	.-46**	.41**	.-.48**	.-31**	.48**	.51**	.59**	.-.45**	.54**	.47**	.-57**	.-58**	.47**	.53								
Failure	.-48**	.47**	.37**	.18**	.48**	.42**	.43**	.37**	.39**	.42**	.-43**	.24**	.29**	.42**	.41**	.47**	.28**	.86**	.78**	.66**	.69**	.74**	.45**	.72							
Cognitive strategies	.50**	.54**	.59**	.24**	.69**	.62**	.61**	.45**	.44**	.42**	.59**	.65**	.24**	.57**	.15**	.45**	.08ns	.43**	.40**	.30**	.62**	.32**	.-41**	.-45**	.84						
Meta-cognitive strategies	.32**	.32**	.19**	.35**	.53**	.57**	.44**	.39**	.44**	.42**	.23**	.64**	.31**	.39**	.29**	.48**	.37**	.23**	.26**	.32**	.36**	.24**	.-42**	.-26**	.56**	.68					
Investment efforts	.38**	.38**	.48**	.19**	.53**	.49**	.36**	.36**	.34**	.35**	.51**	.51**	.25**	.49**	.25**	.49**	.19**	.46**	.45**	.38**	.-53**	.37**	.-49**	.-42**	.50**	33**	.63				
Efforts direction	.46**	.50**	.43**	.28**	.56**	.50**	.49**	.43**	.43**	.49**	.49**	.33**	.27**	.34**	.21**	.48**	.11*	.44**	.50**	.33**	.-53**	.39**	.-37**	.-42**	.46**	.30**	.55**	.70			
Intensity of effort	.50**	.54**	.47**	.25**	.59**	.56**	.49**	.42**	.41**	.46**	.47**	.36**	.30**	.43**	.27**	.47**	.14**	.48**	.56**	.39**	.56**	.45**	.-44**	.-49**	.49**	.31**	.62**	.65**	.71		
Concepts	.34**	.39**	.19**	.16**	.30**	.33**	.25**	.26**	.22**	.24**	.19**	.22**	.22**	.25**	.28**	.33**	.26**	.25**	.21**	.29**	.-25**	.28**	.-33**	.-21**	.22**	.26**	.17**	.15**	.20**	-	
Applications	.26**	.27**	.15**	.16**	24**	.30**	.20**	.26**	.27**	.28**	.15**	.20**	.23**	.24**	.30**	.28**	.25**	.25**	.21**	.27**	.-24**	.29**	.-36**	.-19**	.18**	.22**	20**	.18**	.18**	.71**	-
Mean	3.43	3.62	4.86	4.06	3.49	3.45	3.39	4.02	4	4.05	5.12	3.42	3.73	2.83	2.8	3.12	2.89	3.47	2.3	3.22	2.38	3.26	2.84	2.32	3.69	3.17	3.53	3.9	3.89	14.50	4.40
Standard deviation	.59	.71	1.43	1	.61	.56	.54	.91	.83	.84	1.38	.83	1.34	.65	.63	.51	.56	.85	.96	.60	.78	.67	.58	.97	.75	.56	1.04	.96	.94	2.43	2.70
Skewness	.99-	.98-	.53-	.38-	.30-	.88-	.76-	.87-	.39-	.45-	-.81	-.29	.04	-.08	.31	-.94	.61	.69-	.85	.67-	.59	-.31	.44	.81	.77-	-.14	-.58	-.95	-.95	-.56	.23
Kurtosis	.79	.95	-.27	.20	.66	.28	.95	.36	.37	.29	.35	-.03	-.09	-.32	.16	.16	.87	.54	.38	.68	1.01	.84	.98	.24	.98	.85	-.38	.78	.69	.25	-.09
Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Norms	.83																														
Acts	.82**	.93																													
Content	.47	.46	.97																												
Difficulty	.40	.35	.11	.80																											
Meta-cognitive knowledge	.63	.63	.62	.39	.93																										
Meta-motivational knowledge	.59**	.62**	.52**	.41**	.88**	.91																									
Meta-emotional knowledge	.63**	.62**	.47**	39**	75**	74**	.87																								
Beliefs about special lesson	.54**	.50**	.40**	.44**	.58**	.54**	.50**	.64																							
Beliefs about classroom	.62**	.55**	.36**	.56**	.61**	.59**	.58**	.80**	.83																						
Beliefs about self	.65**	.60**	.37**	.54**	.60**	.60**	.60**	.79**	.92**	.94																					
Beliefs value, control, expectancy	.44**	.43**	.85**	.06ns	.64**	.53**	.48**	.41**	.39**	.40**	.97																				
Self- regulatory skills	.31**	.33**	.37**	.19**	.59**	.61**	.44**	.34**	.32**	.30**	.41**	.77																			
Difficulty perception	.30**	.29**	.16**	.33**	.33**	.33**	.34**	.33**	.36**	.36**	.19**	.23**	-																		
Self-efficiency perception	.38**	.36**	.43**	.70	.56**	.54**	.48**	.35**	.30**	.31**	.47**	.49**	.22**	.92																	
Control perception	.27**	.27**	.02ns	.22**	.33**	.42**	.35**	.22**	.26**	.29**	.11*	..20**	.31**	..28**	.75																
Perception of importance and value	.48**	.47**	.34**	.32**	.64**	.62**	.52**	.51**	.50**	.50**	.44**	.45**	.33**	.41**	.48**	.79															
Perceptions of attractiveness	.32**	.22**	.017ns	.27**	.28**	.40**	.27**	.25**	.30**	.29**	.015ns	.31**	.25**	.09ns	.50**	.53**	.77														
Interest	.50**	.48**	.38**	.20**	.52**	.45**	.44**	.38**	.39**	.40**	.42**	.24**	.29**	.47**	.43**	.50**	.28**	.72													
Boredom	.-51**	.-48**	.-34**	.-25**	.-50**	.-45**	.-44**	.-35**	.-39**	.43**	.40**	.-.25**	.-28**	.40**	.42**	.50**	.27**	.76**	.68												
Trust	.50**	.43**	.28**	.27**	.47**	.48**	.46**	.38**	.46**	.47**	.-35**	.22**	.31**	.39**	.47**	.50**	.38**	.66**	.66**	.62											
Anxiety	.-47**	.-48**	.-51**	.-21**	.-62**	.-55**	.-54**	.-43**	.-43**	.-44**	.56**	.-.41**	.-27**	.59**	.32**	.54**	.-12*	.73**	.67**	.-57**	.60										
Happiness	.48**	.44**	.31**	.19**	.44**	.44**	42**	34**	.36**	.39**	.-33**	.17**	.31**	.38**	.52**	.47**	.39**	.72**	.69**	.64**	.60**	.54									
Grief	.-44**	.-40**	.-34**	.-29**	.-61**	.-65**	.-51**	.-42**	.-45**	.-46**	.41**	.-.48**	.-31**	.48**	.51**	.59**	.-.45**	.54**	.47**	.-57**	.-58**	.47**	.53								
Failure	.-48**	.47**	.37**	.18**	.48**	.42**	.43**	.37**	.39**	.42**	.-43**	.24**	.29**	.42**	.41**	.47**	.28**	.86**	.78**	.66**	.69**	.74**	.45**	.72							
Cognitive strategies	.50**	.54**	.59**	.24**	.69**	.62**	.61**	.45**	.44**	.42**	.59**	.65**	.24**	.57**	.15**	.45**	.08ns	.43**	.40**	.30**	.62**	.32**	.-41**	.-45**	.84						
Meta-cognitive strategies	.32**	.32**	.19**	.35**	.53**	.57**	.44**	.39**	.44**	.42**	.23**	.64**	.31**	.39**	.29**	.48**	.37**	.23**	.26**	.32**	.36**	.24**	.-42**	.-26**	.56**	.68					
Investment efforts	.38**	.38**	.48**	.19**	.53**	.49**	.36**	.36**	.34**	.35**	.51**	.51**	.25**	.49**	.25**	.49**	.19**	.46**	.45**	.38**	.-53**	.37**	.-49**	.-42**	.50**	33**	.63				
Efforts direction	.46**	.50**	.43**	.28**	.56**	.50**	.49**	.43**	.43**	.49**	.49**	.33**	.27**	.34**	.21**	.48**	.11*	.44**	.50**	.33**	.-53**	.39**	.-37**	.-42**	.46**	.30**	.55**	.70			
Intensity of effort	.50**	.54**	.47**	.25**	.59**	.56**	.49**	.42**	.41**	.46**	.47**	.36**	.30**	.43**	.27**	.47**	.14**	.48**	.56**	.39**	.56**	.45**	.-44**	.-49**	.49**	.31**	.62**	.65**	.71		
Concepts	.34**	.39**	.19**	.16**	.30**	.33**	.25**	.26**	.22**	.24**	.19**	.22**	.22**	.25**	.28**	.33**	.26**	.25**	.21**	.29**	.-25**	.28**	.-33**	.-21**	.22**	.26**	.17**	.15**	.20**	-	
Applications	.26**	.27**	.15**	.16**	24**	.30**	.20**	.26**	.27**	.28**	.15**	.20**	.23**	.24**	.30**	.28**	.25**	.25**	.21**	.27**	.-24**	.29**	.-36**	.-19**	.18**	.22**	20**	.18**	.18**	.71**	-
Mean	3.43	3.62	4.86	4.06	3.49	3.45	3.39	4.02	4	4.05	5.12	3.42	3.73	2.83	2.8	3.12	2.89	3.47	2.3	3.22	2.38	3.26	2.84	2.32	3.69	3.17	3.53	3.9	3.89	14.50	4.40
Standard deviation	.59	.71	1.43	1	.61	.56	.54	.91	.83	.84	1.38	.83	1.34	.65	.63	.51	.56	.85	.96	.60	.78	.67	.58	.97	.75	.56	1.04	.96	.94	2.43	2.70
Skewness	.99-	.98-	.53-	.38-	.30-	.88-	.76-	.87-	.39-	.45-	-.81	-.29	.04	-.08	.31	-.94	.61	.69-	.85	.67-	.59	-.31	.44	.81	.77-	-.14	-.58	-.95	-.95	-.56	.23
Kurtosis	.79	.95	-.27	.20	.66	.28	.95	.36	.37	.29	.35	-.03	-.09	-.32	.16	.16	.87	.54	.38	.68	1.01	.84	.98	.24	.98	.85	-.38	.78	.69	.25	-.09

*p<.05 **p<.01 Note: Reliability coefficients are on the diagonal of the matrix

Table 2. Model Fit Indices

IFI	TLI	NFI	AGFI	GFI	RMSEA	CFI	df	X2/df
.91	.90	.90	.86	.88	0.07	.91	414	**3.34**

Table 3. Direct, Indirect and Total Effects and Explained Variance of Endogenous Variables of the Research Model

Direction	Direct	Indirect	Total	R^2
To task-specific perception from				
(H2) context characteristics	.34	-	.34	.73
(H4) student characteristics	.89	-	.89	
To organization from				
(H5) student characteristics	.29	.70	.71	.58
(H6) task-specific perception	.79	-	.79	
(H3) context characteristics	.62	.27	.89	
To classroom learning from				
(H7) organization	.44	-	.44	.44
task- specific perception	-	.35	.35	
student characteristics	-	.44	.44	

*all coeffients are significant at .05

Table 4. Baron and Kenny's Test Statistics for the Mediating Role

Variables	Effect	Estimate	CI 95%	
(H8) context characteristics *task-specific perception * organization	Average Causal Mediation Effect	.09	.01	.19
	Average Direct Effect	.61	.38	.86
	Total Effect	.70	.45	.95
	mediation ratio	.13	.21	.27
(H9) student characteristics * task-specific perception * organization	Average Causal Mediation Effect	.16	.11	.21
	Average Direct Effect	.54	.45	.63
	Total Effect	.71	.63	.76
	mediation ratio	.22	.15	.30
(H10) student characteristics * organization * classroom learning	Average Causal Mediation Effect	.53	-.01	1.00
	Average Direct Effect	.71	.01	1.41
	Total Effect	1.2	.81	1.59
	mediation ratio	.42	-.01	.99
(H11) task-specific perception * organization * classroom learning	Average Causal Mediation Effect	.34	-.06	.73
	Average Direct Effect	1.52	.99	2.07
	Total Effect	1.86	1.47	2.20
	mediation ratio	.18	-.03	.40

*all coefficients are significant at p< .001

Discussion

The study's findings reveal significant pathways from contextual and student characteristics to classroom learning, mediated through task-specific perception and organization. The first finding of the present study was that contextual characteristics had a significant positive structural effect on task-specific perception. This positive effect of contextual characteristics on task-specific perception is consistent with theoretical foundations [23]. Based on Eynde and Turner's multidimensional model [3], students' perceptions of the classroom environment are a predictor of variables that establish adaptive relationships between the nature of the classroom environment and students' cognitive and affective outcomes. Therefore, the school context influences task-specific perception (including problem perception, self-efficacy perception, control perception, perception of importance and value, and perception of attractiveness).

The results of this study revealed that contextual characteristics had a significant positive structural effect on organization. These findings align with theoretical foundations and previous research [4]. According to the model proposed by Eynde and Turner [3], contextual features influence affective, cognitive, and volitional organization. Forgas [35] suggests that a student's emotional and cognitive organization can influence his or her perception of the learning context. For example, a student who feels anxious may be more sensitive to teacher feedback, while a student who enjoys the lesson may interpret the teacher's actions as more supportive.

The results showed that the direct structural effect of students' characteristics on task-specific perceptions is positive and significant. This finding is in line with previous studies [3, 14]. In the model, students' expectations of academic success and the value they place on homework are positively related to all behaviors leading to progress, including perception of control, self-efficacy, attractiveness, and problem perception.

Another finding of this study was that task-specific perception had a positive structural effect on organization. This finding is in line with theoretical foundations and previous studies [23]. In this regard, the control value theory of achievement emotions suggests that high-quality education fosters the development of high-value control beliefs and thus increases the experience of pleasant achievement emotions.

Based on the results of this study, organization had a direct and positive structural effect on classroom learning. These findings are consistent with the control theory of expectancy-value theories of academic motivation and previous studies [2, 23, 29, 56]. Control-value theory describes how distinct academic emotions are related to learning. Control-value theory explains that environmental factors such as cognitive quality, task demands, autonomous support, and goal structures influence students' assessments of control and value. Therefore, students experience distinct emotions corresponding to their assessments of control and value. In addition, academic emotions are involved in students' use of learning strategies and self-regulation, ultimately affecting their progress [23].

The results of this study showed that the characteristics of the context as one of the environmental and social factors of the classroom had a positive structural effect on the characteristics of the student, which is in line with Eynde and Turner's multidimensional model [3] and also previous research [12].

Conclusion

In general, contextual characteristics demonstrated a positive structural effect on task perception, which subsequently influenced organization and ultimately classroom learning. Similarly, the characteristics of students positively affected task perception, organization, and classroom learning, with particularly strong indirect effects through task-specific perception. These results align with established theoretical frameworks and previous empirical studies, reinforcing the importance of considering multiple interacting factors in educational contexts.

The study makes substantial contributions to both theoretical understanding and practical applications in education. Theoretically, it validates the generalizability of Eynde and Turner's model [3] within Iran's educational system, expanding the body of knowledge on classroom

learning antecedents. Practically, the findings offer valuable guidance for designing effective educational environments and interventions. For instance, improving assignment quality leads to positive student evaluations and enhanced learning enjoyment, which in turn boosts motivation and engagement in learning activities.

Several key implications emerge from these findings. First, teachers should design assignments that are appealing to students, providing adequate control over tasks while ensuring students understand their importance and value. Second, the study highlights the crucial role of academic emotions in shaping motivational beliefs, learning strategy usage, and performance outcomes. When students effectively manage stress and enhance self-efficacy, they strengthen their cognitive engagement and improve academic achievement. Third, the research confirms that control and value assessments positively predict hope and success while negatively predicting frustration, which directly impacts academic performance. Despite these valuable insights, the study faces certain limitations. As a correlational study, causal inferences cannot be definitively drawn. The focus on high school students restricts the generalizability of findings to other educational levels. Additionally, data collection during the COVID-19 pandemic necessitated electronic administration, potentially affecting response patterns. Future research should address these limitations by replicating the study across different age groups, including university students, and utilizing experimental designs to establish causal relationships. Further investigation into subject-specific emotions and their relationships would provide additional valuable insights. Future studies should compare Iranian data with other collectivist contexts (e.g., China, Japan). Practical implications include (i) curriculum design: Integrate meta-emotional training to help students manage Konkur-related stress; (ii) Teacher Training: Encourage pedagogy that links tasks to real-world applications (e.g., math problems analyzing local unemployment rates) to enhance perceived value.

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. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Ethical Approval

Written informed consent was obtained from the parents of all study participants.

Declaration of Generative AI and AI-Assisted Technologies

No AI was used in the preparation or editing of this study.

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