

Original Article

Designing a Motivation Training Program Based on the Goal Orientation Theory and Investigating its Effectiveness on Students' Academic Engagement and Procrastination

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Abstract

Background and Aim: Besides health issues, motivational deficiencies are linked to various topics, especially in student education and learning. Therefore, it is essential to develop motivation-based educational programs to improve academic performance and learning in these individuals. This study aimed to design and investigate goal-orientation-based motivation training on academic engagement and procrastination among secondary school students.

Materials and Methods: The statistical population consisted of students from the second secondary school of Yazd in 2022. The sample included 30 randomly selected individuals (15 for the experimental group and 15 for the control group). The instruments used in the study included Reeve and Tseng's Student Engagement Questionnaire (SEQ) and Solomon's Academic Procrastination Questionnaire (APQ). The research design was semi-experimental; individuals in the sample group were randomly assigned to the devised training sessions. The motivational training package based on goal orientation was conducted in sessions lasting from 12 to 90 minutes. After the 12th session, the questionnaire was administered again as a post-test. Pre-tests and post-tests were also performed for the control group. The control group did not receive any intervention. The data were analyzed using SPSS-22 software and multivariate analysis of covariance.

Results: The findings showed that goal orientation-based motivation training affects academic engagement ($P < 0.05$) and procrastination ($P < 0.05$) of secondary school girl students.

Conclusion: Given the efficacy of goal orientation-based motivation training in increasing academic engagement and decreasing academic procrastination in students, this strategy can improve different aspects of academic performance. Psychologists can use the findings of this research and the goal-oriented motivational training approach to improve academic engagement and procrastination, thereby providing a basis for students' academic progress.

Keywords: Motivation based on goal orientation, Academic engagement, Academic procrastination

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Introduction

Improving learning and removing barriers to it have always been the main goals of education systems and researchers (1). Among psychological components, one of the most important factors affecting learning is motivation (2). Motivation plays an important role in directing emotion regulation and coping strategies; moreover, it has been noted that highly motivated students tend to be more resilient and perform better when faced with academic challenges (3, 4). Motivation is an important determinant of academic success and people's ability to cope effectively with adversity. According to current research, motivation might help enhance resilience and prevent academic burnout (5). Student motivation is often crucial to successful learning (6, 7). Motivation is the main driving factor and energy behind behavior (8). Students who are sufficiently motivated are willing to perform the behavior asked by the teacher. Lack of motivation, on the other hand, significantly reduces the likelihood of the expected action, resulting in the temporary or permanent elimination of the behavior (9). The significance of motivation is highlighted when working with students or learners who are somehow similar in terms of talents and learning capabilities but have major disparities in academic progress. These distinctions can be seen not just in classroom sessions but also in extracurricular activities. This component of human behavior relates to the domain of motivation (10). Because motivation is so crucial, many ideas have emerged around it. Goal orientation is one concept of the cognitive topic of motivation.

Goal orientation theory explains why people choose specific objectives, how they pursue those goals, and how they engage with the activities that come with them. This paradigm distinguishes four forms of goal orientation: mastery approach, mastery avoidance, performance approach, and performance-avoidance (11). According to goal orientation theory, differences in learning goals can lead to differences in coping strategies. For example, mastery-oriented goals are associated with more consistent effort and feelings of

competence, whereas avoidance goals are more directly related to anxiety and worry (12).

Motivation affects a wide range of educational traits. Academic procrastination is an effective motivator that considerably impacts academic success (13-15). Academic procrastination is the deliberate delay or postponement of academic tasks such as reading, writing assignments or essays, studying for tests, etc. According to the study, procrastination is a sophisticated process that is not just triggered by time restrictions but also includes fundamentally conscious emotional, cognitive, and behavioral components (16, 17). Academic procrastination, one of the leading reasons for low performance, is directly associated with anxiety and stress. According to a recent study, procrastination can be an indicator of poor motivation control, as students postpone performing their assignments to avoid problems (18).

Procrastination as a motivational issue is challenging since procrastinators oppose doing assignments. Some researchers argue that procrastination is a counter-motivational process caused by a lack of desire or enjoyment of a task (19). Numerous research findings demonstrate the significance and relevance of motivation in procrastination, with weak motivation increasing procrastination (20). People with low motivation tend to procrastinate and fail to complete tasks on time. Due to low motivation, these individuals tend to be highly inefficient in starting and completing academic activities. Students with low motivation rate their tasks as more difficult than those with high motivation, which leads to procrastination. Therefore, to improve procrastination, it is essential to pay attention to students' motivation (14).

Another aspect influenced by motivation is academic engagement. Academic engagement, defined as self-initiated, goal-directed participation in academic activities, is a type of consistent psychological investment that promotes learning and pleasurable emotional states at the individual effort level (21). Appleton, Christenson, Kim and Ritchie's (2006) model suggests that academic engagement consists of three behavioral components, which include factors such as proactive behavior, effort, collaboration, and

participation. The affective or emotional component comprises interest, attachment, and positive attitudes toward learning, whereas the cognitive component includes self-regulation and learning objectives (22). Academic engagement involves not only external actions but also emotions and internal drive. Students interested and passionate about learning are more likely to engage enthusiastically in educational activities, linked to improved academic performance (23). Meanwhile, research has shown that motivation can enhance these characteristics of academic engagement to the extent that it directly increases each of the three levels of students' academic engagement (24). Therefore, researchers believe that attention should be paid to the role of motivation in improving students' academic engagement.

To the best of our knowledge, despite the importance of motivation in improving students learning performance, no thorough investigation of a comprehensive motivational training protocol based on goal orientation theory has been conducted in Iran. Furthermore, no significant analysis has been conducted into how well this technique prevents academic conflict and procrastination, two of the most common challenges students face. Given the importance of motivation and goal orientation in reducing procrastination and improving academic engagement, examining the effectiveness of a motivational training program based on this idea can aid in the identification of efficient approaches to improve student's educational experiences. As a result, this study aimed to develop and evaluate a goal-oriented program for students.

Methods

This study used a semi-experimental pre-and post-test design with a control group and was approved by the Research Committee of the Qom Branch, Islamic Azad University (Thesis Code:

154848644325406215023162721681). The current study also served a practical purpose. The study's statistical population included all students enrolled in Yazd City's Second Middle School in 1402. The statistical sample consisted of 30 students randomly assigned to two groups: the experimental and the control group (15 in the experimental group and 15 in the control group). Inclusion criteria included being female, attending high school, not receiving medical or psychological treatment, and not having physical or mental illness. Exclusion criteria included subjects' unwillingness to continue cooperating during the study. The educational intervention includes 12 motivational training sessions based on goal-oriented theory, extracted and validated by researchers. The package was validated using the relative coefficient of content validity (CVR) and the content validity index (CVI). The reviewers were given the session schedule and the categories extracted from the qualitative evaluation section. Reviewers were requested to examine the relevance and necessity of the scheduled sessions and complete them using the checklist given. It includes relative content validity coefficients and indices. The results of this study showed that the agreement of the reviewers for the sessions was satisfactory, and no sessions were removed.

The lowest allowed number for content validity was 0.79, attained at 0.85. Furthermore, the relative content validity coefficient had a minimum value of 0.62, while the minimum value for sessions was 0.67. The experimental group received training in 90-minute sessions across four consecutive weeks. Table 1 presents a summary of the intervention.

To comply with ethical guidelines, subjects completed a consent form before participating in the study and all personal information was kept confidential. In addition, the control group received the same intervention after the study and post-tests were conducted. Data were analyzed using SPSS-25 software. Data were analyzed using both univariate and multivariate covariance approaches.

Table 1. session-Contents of motivational training based on goal orientation theory

Session	Content
Session 1	Assessment and self-assessment of students' goal orientation: Concept of learning, study motivation, positive and negative motivations for learning and mastery.

Session 2	Explaining goal orientation based on progress: Types of goal-oriented learning, explanation of progress goals and competence, mastery-approach, mastery-avoidance, performance-approach, and performance-avoidance.
Session 3	Learning for learning: effort as a functional, efficient, effective, and healthy goal for individuals, avoiding improper learning, learning as a relatively stable change in feelings, thinking, and behavior.
Session 4	Joy of learning: experiencing challenges and facing challenging issues, providing opportunities to experience and apply prior learning, the role of learning in shaping individual attitudes and thinking.
Session 5	Getting rid of reliance on approval: focusing on demonstrating one's skills and capabilities, utilizing criteria of social comparison, assessing the influence of others' validation on motivation for growth, aiding the student's self-awareness and acknowledgment, and fostering a sense of value.
Session 6	Effort is an ability: effort is an actual ability, more effort for challenging tasks.
Session 7	Becoming smarter: students' attitude towards intelligence, incremental attitude towards intelligence, complete definition of intelligence, research findings on the impact of learning on intelligence.
Session 8	Fear of failure: explaining fear and its roots, fear of failure as an anxiety and barrier to true success, changing students' attitudes towards failure.
Session 9	Learn or score: differences between studying to learn and studying for grades, how studying for learning can also lead to higher grades, focusing on grades may cause anxiety.
Session 10	Effective comparison: examining the tendency for comparison in participants, advantages and disadvantages of comparison, the relationship between this type of self-evaluation and low self-esteem and confidence.
Session 11	Improvement vs. showing: focusing on the true goal of learning, avoiding showing, and striving for learning.
Session 12	Toward mastery-approach goal orientation: the benefits of mastery orientation over performance, self-regulation through cognitive and metacognitive strategies.

Materials

Student Engagement Questionnaire (SEQ)

This questionnaire was developed by Reeve & Tseng (2011) and has 22 questions. It includes four factors: behavioral, cognitive, emotional, and functional. The questions are rated on a seven-point Likert scale (from "strongly disagree": 1 to "strongly agree": 7). The validity of this questionnaire was calculated by the developers using the internal correlation method, and Cronbach's alpha coefficients were reported to be 0.94, 0.88, 0.78, and 0.82 for the behavioral, cognitive, emotional, and agentic dimensions of the factors, respectively(25). The validity of the tool was measured by the developers using the exploratory factor analysis method and the four factors mentioned were identified with specific values greater than one (26).

Academic Procrastination Questionnaire (APQ)

This scale has been developed by Solomon (1984). It consists of 27 questions and three components. These components are exam preparation, essay preparation, and homework preparation. The scoring of the questionnaire is based on a 5-point Likert scale with the options 1: never, 2: rarely, 3: sometimes, 4:

usually, and 5: always. Solomon tested the validity of the scale using internal consistency with a coefficient of 0.84 (27).

Results

The mean age of the experimental group was 16.25 ± 1.05 years, and the mean age of the control group was 16.27 ± 1.11 years. Furthermore, Table 1 displays the averages and standard deviations of academic vibrancy and resilience for the two groups. Table 2 displays the descriptive indices of the subscales of academic engagement and academic procrastination variables, with the means and standard deviations for both sample groups, pre-test, and post-test.

The hypotheses in this study were tested using multivariate analysis of covariance. First, the conditions for covariance analysis were discussed. The Kolmogorov-Smirnov test revealed that for all variables, the K-S value was not significant at the $P < 0.05$ level. As a result, the difference between the sample group's distribution and the normal distribution is not statistically significant, and the variable distribution is normal. The results of the M-box test for covariance homogeneity revealed that the covariance of the studied variables, or the association of the

dependent variable at the post-test phase, was equal in both groups and corresponded to the association of these variables throughout the population. Consequently, this assumption was also validated. The Levin test results showed no significant variation in variance across the groups ($P \leq 0.05$ threshold). As a result, the variances between the groups are significantly different, showing that the groupings are homogeneous. The regression slopes were homogeneous, and the F statistic for the interaction between covariates (pre-tests) and dependent variables (post-tests) across factor levels of both dependent variables was not significant ($P < 0.05$). Consequently, the premise of homogeneity in regression slopes is kept. Overall, given that the fundamental hypotheses of covariance analysis were met, this analysis was appropriate for this investigation.

A multivariate covariance analysis was used to assess the impact of education on academic engagement. Analysis of covariance was used to examine the post-test scores of the subscales after eliminating the influence of the pre-test with Wilks' lambda index used as a multivariate metric. Table 3 shows the results of the multivariate covariance analysis performed to compare the post-test scores of the

academic engagement subscales. Table 3 shows that all four subscales have a significant influence on the linear combination of post-test scores. Table 4 shows the results of the multivariate analysis of covariance used to compare the post-test scores between the experimental groups.

As shown in Table 4, the group impact on the subscales is significant, implying that the goal-oriented motivation training procedure significantly impacts students' academic engagement. Education's impact on academic procrastination was assessed using multivariate covariance analysis. To compare the post-test scores of the subscales after adjusting for the pre-test effect, covariance analysis was used, with Wilks' lambda index serving as a multivariate metric. Table 5 shows the results of the multivariate analysis of covariance used to compare post-test scores across academic procrastination subscales.

Table 5 demonstrates that all three subscales have a significant influence on the linear combination of post-test scores. Table 6 shows the results of the multivariate analysis of covariance used to investigate the difference in post-test scores within the experimental group.

As seen in Table 6, the effect of the group on all three subscales was significant.

Table 2. Descriptive statistics of dependent variables

Variable		Intervention group		Control group	
		Mean	SD	Mean	SD
Behavioral engagement	Pre-test	27.66	2.73	26.46	3.10
	Post-test	39.26	3.61	26.06	3.06
cognitive engagement	Pre-test	38.21	5.85	41.06	5.36
	Post-test	46.40	6.23	40.60	4.88
Emotional engagement	Pre-test	33.26	3.14	32.66	3.76
	Post-test	42.74	4.65	33.20	3.54
Agentic engagement	Pre-test	36.46	7.52	37.80	7.89
	Post-test	57.13	8.81	38.20	7.15
Test preparation	Pre-test	27.67	2.31	26.76	2.19
	Post-test	21.59	3.52	26.31	2.08
Essay writing preparation	Pre-test	29.78	2.76	28.54	2.21
	Post-test	23.35	3.45	27.98	1.98
Preparation for homework assignment	Pre-test	24.53	2.12	23.76	1.99
	Post-test	19.08	3.81	24.43	2.01

Table 3. Analysis of Covariance to Examine the Effect of Motivation-Based Training on Academic Engagement

Source	Value	F-Value	Df1	Df2	Significance Level
Behavioral Engagement Pre-Test	0.27	18.408	1	28	0.001
Cognitive Engagement Pre-Test	0.22	33.723	1	28	0.001
Emotional Engagement Pre-Test	0.21	23.321	1	28	0.001
Agentic Engagement Pre-Test	0.25	21.623	1	28	0.001

Table 4. Results of multivariate analysis of covariance examining differences in posttest scores across experimental groups.

Source	Dependent variable	Sum of squares	Df	Mean of squares	F	P value
Group	Behavioral engagement- post-Test	723.481	1	723.481	23.408	0.001
	Cognitive engagement- post-Test	678.203	1	678.203	31.808	0.001
	Emotional engagement- post-Test	685.432	1	685.432	25.643	0.001
	Agentic engagement- post-Test	749.032	1	749.032	21.649	0.001
Error	Behavioral engagement- post-Test	453.40	1	453.40		
	Cognitive engagement- post-Test	587.821	1	587.821		
	Emotional engagement- post-Test	354.254	1	354.254		
	Agentic engagement- post-Test	403.529	1	403.529		

Table 5. Results of multivariate analysis of covariance tests for academic procrastination subscales

Source	Value	F	df 1	df 2	P value
Test preparation	0.94	2.35	1	28	0.001
Essay writing preparation	0.86	2.16	1	28	0.001
Preparation for homework assignment	0.97	2.64	1	28	0.001

Table 6. Results of multivariate analysis of covariance to examine differences in post-test outcomes in the experimental groups.

Source	Dependent variable	Sum of squares	Df	Mean of squares	F	P value
Group	Test preparation - post-Test	435/32	1	435/32	8.29	0.001
	Essay writing preparation - post-Test	442/39	1	442/39	8.74	0.001
	Preparation for homework assignment- post-Test	502/06	1	502/06	9.76	0.001
Error	Test preparation - post-Test	218/59	1	218/59		
	Essay writing preparation - post-Test	196/38	1	196/38		
	Preparation for homework assignment- post-Test	184/29	1	184/29		

Discussion

The aim of this study was to investigate the effectiveness of goal orientation-based motivation training on students' academic engagement and procrastination. The current study investigated the impact of the motivational package on students' academic engagement and found that the package had a positive effect on students' academic engagement. This finding was consistent with previous studies that showed the impact of psychological interventions on improving students' academic engagement (28, 29).

To elaborate on this conclusion, we may say that one of the key notions the participants absorbed during their training with this educational program was that learning is intrinsically worthwhile rather than being about assessments or pleasing others. As a result, they did not experience excessive anxiety that interfered with their capacity to learn or solve difficulties. Those with a performance-oriented learning goal orientation,

which seeks to acquire good grades, avoid failure, and be acknowledged by others, are more likely to experience anxiety and be too shy to participate in learning or education. On the other hand, a learning goal orientation focuses not only on the goal and its achievement but also on the motivation for choosing the goal and the strategies for achieving it [11]. In this technique, individuals first select appropriate goals that are related to their interests and that are important to them. Second, they strive to reach the aim logically and suitably, resulting in participation and involvement in academic activities. Students' dedication stems not only from earning official markers of achievement (grades) but also from feeling proud of comprehending and internalizing the subject or of internalizing it and applying it in reality. Students approach their work with determination, perseverance in challenges and barriers, and enjoyment. Consequently, participation and success in the learning process promote higher levels of cognition and long-term comprehension (30).

According to this definition of engagement, student involvement and participation are most effectively achieved when learning is a clear goal and is delivered as part of a series of training sessions that contain a particularly tailored incentive package.

The emotional aspect of engagement relates to how intense and long-lasting students' feelings are, reflecting their enthusiasm for the excellent experience (31). Emotional engagement is manifested through increased positive emotions experienced during school and extracurricular activities, such as joy, pride, pleasure, enthusiasm, tolerance, fun, happiness, and curiosity [32]. Students have gained an understanding of the meaning and purpose behind their academic and social activities following the achievement motivation training. They experience the joy of learning and happy feelings by letting go of their need for approval from others (33). Furthermore, emphasizing learning objectives, avoiding negative competition, and promoting the enjoyment of learning reduces academic stress as a disruptive factor, increasing the quantity of good feelings that individuals experience.

Research findings on the impact of motivation training packages on students' academic procrastination revealed that these packages impact all three subscales of procrastination: exam preparation, essay writing, and homework assignments. Our findings are consistent with earlier investigations (34, 35). To clarify this effectiveness, we can state that individuals postpone academic tasks for numerous reasons. One of these reasons is inaccurate and unsuitable beliefs about learning, assessing one's talents, and the concept of effort. Individuals who procrastinate have a high fear of failure, which causes them to delay work (36, 37). However, training that aims to reduce the fear of failure, illustrates the true nature of work, and frames effort as a skill, which is included in modern motivational programs, leads to reduced procrastination. Academic anxiety can lead to avoiding tasks, and it is commonly related to difficulty in managing time and poor self-regulation (38). Furthermore, research suggests that self-regulation training not only reduces procrastination but also improves the ability to identify and control negative elements such as anxiety (39). Explaining how to procrastinate, self-regulation theory suggests that

people who procrastinate and lack self-regulation skills have difficulty managing their cognitive, emotional, and behavioral processes [18].

In the goal orientation motivation theory, leaders who practice self-regulation use appropriate goal orientation and significantly contribute to fostering this orientation. As a result, self-regulation techniques are taught to students in class, particularly in Session 12. This training combines cognitive and metacognitive approaches. Cognitive strategies improve the learning process and allow information to be kept more effectively. Repetition, review, extension, and organization are examples of cognitive methods used. Metacognitive methods could refer to understanding people's cognitive processes and the best ways to use them to achieve learning objectives. Metacognitive techniques are executive functions used to plan and think about the learning process, and to control, manage, and analyze the learner's progression. All of these factors help to improve self-regulation, which lowers procrastination.

Conclusion

The findings of this study showed that using a goal-orientation based motivation training approach is an effective approach for improving students' academic engagement and procrastination. Given that academic engagement and procrastination play an important role in academic progress. Psychologists can use the findings of this research and the goal-oriented motivational training approach to improve academic engagement and procrastination, thereby providing a basis for students' academic progress. Despite the above findings, the current study has limitations that should be acknowledged before generalizing the results. First, the current research focused on the effectiveness of goal-directed motivational training among junior high school students, so caution should be exercised when applying it to other societies. Furthermore, studies with long follow-up periods may provide more detailed insights into the effectiveness of the training. Future research could broaden the sample to include different cultures, age ranges, and genders. They should examine gender disparities, as studies show significant differences in academic motivation and anxiety levels between girls and boys.

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Conflict of Interest

The authors declare no conflict of interest.

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