KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 23 January 2023
Accepted 05 May 2023
Published online 10 May 2023

Journal of Assessment and Research in Applied Counseling

Volume 5, Issue 1, pp 135-140

E-ISSN: 3041-8518

# The Mediating Role of Goal Setting in the Relationship Between Creative Thinking and Academic Hope

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A r t i c l e  I n f o

**Article type:**
*Original Research*

**How to cite this article:**
Khalooaskari, H., Barzegar, M., Sohrabi Shegefti, N., & Javidi, H. (2023). The Mediating Role of Goal Setting in the Relationship Between Creative Thinking and Academic Hope. *Journal of Assessment and Research in Applied Counseling*, *5*(1), 135-140.
http://dx.doi.org/10.61838/kman.jarac.5.1.17



A B S T R A C T

**Objective:** The aim of this study was to investigate the mediating role of goal setting in the relationship between creative thinking and academic hope.

**Methods and Materials:** In this correlational study, from the population of male first and second grade students in Kazeroon, 266 participants were selected using multi-stage cluster sampling from the cities of Kazeroon, Khesht, Kenartakhteh, Baladeh, and Jarreh. To achieve the research objectives, standardized questionnaires on goal setting, academic hope, and creative thinking were used, with Cronbach's alpha coefficients of 0.97, 0.93, and 0.98, respectively.

**Findings:** The goodness of fit index with a value of 0.603 confirmed the overall model fit. Goal setting, with a total path coefficient of 0.154, influenced the relationship between creative thinking and academic hope using the bootstrap approach in the partial least squares method.

**Conclusion:** This study aimed to explore the mediating role of goal setting in the relationship between creative thinking and academic hope among high school students. The findings revealed significant relationships between these variables, supporting the proposed hypotheses and aligning with previous research.

***Keywords:*** *Goal setting, Creative thinking, Academic hope, Learning orientation, Analytical thinking.*

## 1. Introduction

Various factors can always be considered in academic achievement, and one of these factors is academic hope. Considering over 20 years of research on hope indicates that students with higher levels of hope perform better in education and life than those with lower levels of hope. Hopeful thinking reflects the belief that one can find

pathways to goals and motivates the use of these pathways. Consequently, hope directs people's emotions and well-being and is an essential component of happiness and success in life. Through education, hope can prepare learners for a better and more dynamic future and is closely linked to academic achievement (Ghadampour et al., 2018).

Students who are emotionally and cognitively engaged with learning spend more time and effort studying, achieve higher academic success, appropriately cope with their academic needs, and overcome educational challenges. A thorough examination of academic achievement and its influencing factors should be a priority for education stakeholders in any society, as improving students' academic status is a fundamental goal of contemporary educational systems (Mozhgan Gholami et al., 2019). Academic hope is among the factors influencing academic achievement. Hope is not merely a feeling but a dynamic cognitive motivational system that fosters students' academic progress (Ahmadi et al., 2019). Studies have shown that hope is a reliable predictor of academic success and is essential for students. In other words, hope is associated with greater competence in many life domains, including education. Hope empowers students to focus on success to overcome challenges, enabling them to achieve their goals. Mousavi, quoting Hall-Gyn, states that the subject of hope is fundamental and essential, and reminding students of it is very necessary. While it is clear that hope influences students' thoughts, emotions, and achievements, it has not been a central focus in theoretical or scientific investigations. This subject has been widely neglected by psychologists and theorists and is often considered a transient topic by philosophers. Moreover, this concept is frequently overlooked in academic studies of education (Ghadampour et al., 2018).

On the other hand, creative thinking skills are essential cognitive aspects necessary for meaningful learning in all disciplines. Creative thinking skills involve combining ideas, generating new ideas, and evaluating the effectiveness of existing ideas. These skills can train students to develop multiple ideas and arguments, ask questions, accept the validity of an argument, and be open and responsive to different perspectives (Fazal et al., 2023). Creative thinking skills in science learning can open new perspectives for students to provide solutions to scientific problems. Activities such as observation, experimentation, and field trips enable students to learn independently, understand lessons more easily, show a positive attitude towards science, and develop their creativity. Creativity is operationalized as a combination of fluency, innovation, novelty, and practical imagination (Albalhareth & Alasmari, 2023). It plays a crucial role in discovery, innovation, and problem-solving (Simonovic et al., 2023; Zhang et al., 2023).

Students' creative thinking skills do not develop independently. Teachers need to intentionally encourage students' thinking abilities and manage them with well-planned learning programs. Learning activities enable students to develop their creativity in problem-solving. These activities include connecting various ideas, developing and formulating ideas to solve specific problems. Consequently, students' skills in formulating ideas to solve problems, presenting original new ideas, developing ideas, and making decisions about science-related situations improve (Rotaru, 2020; Simonovic et al., 2023).

This study examines the latent characteristics of creative thinking and academic hope, including goal setting.

In recent years, goal setting has been used as a motivational strategy in psychological research. Goal setting involves predicting positive outcomes of an action or a series of actions and planning to achieve those outcomes. Goal setting is a determinant component in any academic success, as, without specific goals, it becomes challenging to measure or even recognize students' success. Goal setting not only makes it possible to measure success but also plays a significant role in motivating students to perform better. Therefore, it is essential for students to understand goals tangibly and fluently. Given the importance of learning and education in our educational system, the characteristics of goal setting in the context of academic achievement and thinking aimed at effective student education in secondary school are the focus of this research.

## 2. Methods and Materials

### *2.1. Study Design and Participants*

This research is an applied study and falls under the category of descriptive research. The methodology employed is a survey of a correlational nature, utilizing structural equation modeling (SEM). The study population includes male students from first and second grades of public high schools in Kazeroon. A multi-stage cluster sampling method will be used in this study. Initially, the city of Kazeroon is divided into five districts: Kazeroon, Khesht, Kenartakhteh, Baladeh, and Jarreh. From these five districts, the number of secondary schools and students in the second and third grades will be determined through the education department. Subsequently, eligible and willing students


JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

from each school will be randomly selected, and questionnaires will be distributed among them. A total of 266 students will be chosen as the sample.

### *2.2. Measures*

#### *2.2.1. Creative Thinking*

The Creative Thinking Questionnaire developed by Peter Honey assesses two dimensions: analytical thinking and innovative creativity. It consists of a series of items designed to measure the creative and analytical abilities of students. The reliability of this questionnaire was confirmed with a Cronbach's alpha coefficient of 0.98, indicating high internal consistency. Validity was established through factor analysis, showing strong construct validity (Shoghi et al., 2023).

#### *2.2.2. Academic Hope*

The Academic Hope Questionnaire by Sohrabi and Samani (2011) evaluates two dimensions: agency and pathways. This standardized tool includes items that measure the level of hope in academic settings. The questionnaire has demonstrated excellent reliability with a Cronbach's alpha coefficient of 0.93. Its validity was confirmed through content and construct validation processes, ensuring it accurately measures academic hope.

#### *2.2.3. Goal Orientation*

The Goal Orientation Questionnaire, adapted from Wendy Will (1997) and Elliot and McGregor (2001), assesses four factors: learning orientation, performance-approach, performance-avoidance, and goal orientation uncertainty. This tool includes items that measure students' goal-setting behaviors and orientations towards learning and performance. The reliability of this questionnaire was validated with a Cronbach's alpha of 0.97, and its validity was supported through comprehensive validation studies, including factor analysis and content validity assessments (Azadianbojnordi et al., 2020; Ghadampour et al., 2018; Mozhgan Gholami et al., 2019).

### *2.3. Data analysis*

To test the hypotheses, a variance-based structural equation modeling approach will be employed using the SmartPLS 4.0 software. This method allows for the analysis of complex relationships between observed and latent variables, providing insights into the mediating effects of goal setting in the relationship between creative thinking and academic hope. The goodness of fit for the overall model will be assessed using standard indices, ensuring the robustness and accuracy of the findings.

## 3. Findings and Results

From the 266 respondents to the questionnaire, the highest percentage of respondents were from the second period, with 224 individuals, equivalent to 84.2%. Regarding the classification status of the sample, 112 respondents, representing 42%, had the highest frequency among the respondents.

**Table 1**

*Central Tendency and Dispersion Indices of the Research Variables*

| Variable | Sample Size | Mean | Median | Mode | Standard Deviation |
|---|---|---|---|---|---|
| Creative Thinking | 266 | 3.069 | 3.083 | 3.333 | 0.657 |
| Academic Hope | 266 | 3.109 | 3.125 | 2.225 | 0.695 |
| Goal Orientation | 266 | 3.027 | 3.050 | 3.000 | 0.664 |

Given that the significance level obtained in the Cramer-von Mises test for all research variables except emotional self-efficacy and goal setting is less than 0.05, these variables do not have a normal distribution. Therefore, the variance-based structural equation modeling (PLS) method was used to test the hypotheses.



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E-ISSN: 3041-8518

**Table 2**

*Convergent Validity Results of Questionnaire Dimensions (Measurement Model Algorithm)*

| Factors/Items | Factor Loading | t-Statistic | Significance Level | Confirmation |
|---|---|---|---|---|
| ot1 --> Academic Hope | 0.808 | 37.301 | 0.000 | Confirmed |
| ot2 --> Academic Hope | 0.843 | 52.778 | 0.000 | Confirmed |
| ot3 --> Academic Hope | 0.799 | 38.864 | 0.000 | Confirmed |
| ot4 --> Academic Hope | 0.796 | 34.385 | 0.000 | Confirmed |
| ot5 --> Academic Hope | 0.766 | 34.377 | 0.000 | Confirmed |
| ot6 --> Academic Hope | 0.820 | 47.599 | 0.000 | Confirmed |
| ot7 --> Academic Hope | 0.767 | 31.822 | 0.000 | Confirmed |
| ot8 --> Academic Hope | 0.759 | 34.781 | 0.000 | Confirmed |
| ot9 --> Academic Hope | 0.845 | 56.201 | 0.000 | Confirmed |
| Uncertainty --> Goal Setting | 0.951 | 191.813 | 0.000 | Confirmed |
| Analytical Thinking --> Creative Thinking | 0.980 | 454.422 | 0.000 | Confirmed |
| Innovative and Creative Thinking --> Creative Thinking | 0.969 | 210.422 | 0.000 | Confirmed |
| Learning Orientation --> Goal Setting | 0.953 | 179.427 | 0.000 | Confirmed |
| Performance-Approach --> Goal Setting | 0.963 | 225.405 | 0.000 | Confirmed |
| Performance-Avoidance --> Goal Setting | 0.963 | 213.630 | 0.000 | Confirmed |

After reviewing the factor loadings and significance coefficients, the research hypotheses are examined and tested:

The significance coefficients of the model paths indicate whether the research hypotheses are significant. Additionally, the standardized path coefficients indicate what percentage of changes in the dependent variable is explained by the independent variable.

**Table 3**

*Testing Research Hypotheses*

| Path | Path Coefficient | t-Statistic | Significance Level | Test Result |
|---|---|---|---|---|
| Creative Thinking -> Academic Hope | 0.082 | 2.185 | 0.029 | Confirmed |
| Creative Thinking -> Goal Setting | 0.582 | 15.898 | 0.000 | Confirmed |
| Goal Setting -> Academic Hope | 0.265 | 6.013 | 0.000 | Confirmed |
| Creative Thinking -> Goal Setting -> Academic Hope | 0.154 | 5.429 | 0.000 | Confirmed |

In SmartPLS, the results of the PLS-SEM algorithm use the bootstrap approach, which includes direct effects, total indirect effects, specific indirect effects, and total effects. These results, available in SmartPLS reports, allow for a mediation analysis. Note that SmartPLS results enable the analysis of both single and multiple mediation models (e.g., parallel and serial mediation).

## 4. Discussion and Conclusion

This study aimed to explore the mediating role of goal setting in the relationship between creative thinking and academic hope among high school students. The findings revealed significant relationships between these variables, supporting the proposed hypotheses and aligning with previous research.

The first hypothesis, which posited a direct positive effect of creative thinking on academic hope, was confirmed. The path coefficient of 0.082 and a t-statistic of 2.185 ($p < 0.05$) indicated that students with higher levels of creative thinking tend to exhibit greater academic hope. This finding corroborates earlier studies (Azizi et al., 2020; Hasanpour et al., 2020; Miri Rami et al., 2022; Yusnaeni et al., 2017; Zarejamalabadi et al., 2017), which highlighted the critical role of creative thinking in fostering a positive academic outlook and resilience in students. Creative thinking, characterized by the ability to generate novel ideas and approach problems from various perspectives, equips students with the skills to envision multiple pathways to achieve their academic goals, thus enhancing their hope and motivation.



JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

The second hypothesis, which examined the relationship between creative thinking and goal setting, was also supported. The significant path coefficient of 0.582 and t-statistic of 15.898 ($p < 0.001$) suggest a strong positive influence of creative thinking on goal setting behaviors. This result is in line with the findings of Ahmadi et al. (2018), who emphasized that creative individuals are more likely to engage in strategic planning and set specific, achievable goals. Creative thinkers can break down complex problems into manageable tasks, making goal setting an integral part of their approach to challenges (Ahmadi et al., 2019).

The third hypothesis, which proposed that goal setting positively influences academic hope, was confirmed with a path coefficient of 0.265 and a t-statistic of 6.013 ($p < 0.001$). This finding supports the results of Malahi and Tabodi (2018) and Lim et al. (2020), who demonstrated that goal setting is a crucial factor in maintaining students' motivation and hope. By setting clear and attainable goals, students can track their progress, stay focused, and sustain their enthusiasm for academic pursuits (Malahi & Tabodi, 2020).

The mediation analysis provided further insights, revealing that goal setting partially mediates the relationship between creative thinking and academic hope. The significant indirect effect (path coefficient = 0.154, t-statistic = 5.429, $p < 0.001$) indicates that creative thinking contributes to academic hope through the mechanism of goal setting. This mediation effect aligns with the theoretical framework proposed by Snyder (2002), which suggests that hopeful thinking involves both pathways thinking (identifying routes to goals) and agency thinking (motivation to pursue these routes) (Snyder, 2002).

## 5. Limitations & Suggestions

The findings of this study have significant implications for educational practice. Educators should recognize the importance of fostering creative thinking skills in students as a means to enhance their academic hope. Incorporating activities that stimulate creativity, such as problem-solving tasks, brainstorming sessions, and project-based learning, can help students develop the cognitive flexibility needed to set and achieve academic goals.

Furthermore, goal setting should be integrated into the curriculum as a motivational strategy. Teachers can guide students in setting SMART (Specific, Measurable, Achievable, Relevant, Time-bound) goals and provide regular feedback to help them stay on track. By doing so, educators can create a supportive environment that nurtures students' intrinsic motivation and academic resilience.

Despite the valuable insights gained from this study, several limitations should be acknowledged. The sample was limited to male students in public high schools in Kazeroon, which may not represent the broader student population. Future research should include a more diverse sample, encompassing different genders, educational settings, and cultural backgrounds to enhance the generalizability of the findings.

The use of self-reported questionnaires may introduce response biases, as participants might provide socially desirable answers. Employing a mixed-methods approach, including qualitative interviews or observational studies, could provide a more comprehensive understanding of the relationships between creative thinking, goal setting, and academic hope.

Additionally, the cross-sectional design of the study limits the ability to establish causal relationships between variables. Longitudinal studies are needed to examine how these relationships evolve over time and to identify potential causal pathways.

### Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

### Declaration of Interest

The authors of this article declared no conflict of interest.

### Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

### Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

### Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

**Authors' Contributions** All authors equally contributed in this article.

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JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518