

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_715_19

Enhancing academic engagement of underachieving gifted students: The effects of Martin's educational program

Meadeh Hesam, Ahmad Abedi¹

Abstract:

INTRODUCTION: Gifted students are superior to their peers in terms of cognitive, educational, scientific, creativity, and artistic abilities. There are also gifted students who struggle with cognitive, educational, social, emotional, and behavioral development, especially academic performance. They are called underachieving students. One of the main problems of these students is the low level of academic engagement in educational settings. Thus, this study investigated the effectiveness of Martin's educational program on academic engagement (behavioral, emotional, cognitive, and agency) of underachieving gifted students.

MATERIALS AND METHODS: Thirty underachieving gifted students were selected by purposeful sampling from a high school in Isfahan, Iran, and were divided randomly into the experimental ($n = 15$) and the control ($n = 15$) groups. All participants completed the students' academic engagement questionnaire (behavioral engagement, emotional engagement, cognitive engagement, and agency engagement) at pre/post-test.

RESULTS: The findings showed that Martin's cognitive-behavioral program had a significant effect on academic engagement and its subscales, including behavioral engagement, emotional engagement, cognitive engagement, and agency engagement.

CONCLUSION: School counselors could benefit Martin's cognitive-behavioral program to promote the academic engagement of underachieving gifted students.

Keywords:

Academic engagement, Martin's cognitive-behavioral program, underachieving gifted student

Introduction

According to the National Association for Gifted Children (2010) in America, a gifted person is someone who shows the high levels of talent and ability in one or more aspects. Although there are different theories about giftedness, they emphasize that "a gifted student has higher cognitive abilities and intellectual capacity than peers in his/her age and grade." According to this definition, a gifted student is a person who potentially shows higher levels of progress, compared to his/her peers. These students are more successful in academic

settings and show more progress.^[1] Given this definition, some questions arise: what happens to some gifted students who are not able to demonstrate their abilities and competencies? Why some gifted students are weaker than their classmates in academic and social performances? Sometimes, low motivation and academic engagement occur in gifted students, which, in turn, interfere with their educational, social, emotional, and behavioral skills. These students are called "underachieving gifted students." In other words, an underachieving gifted student is a student who "shows a significant difference between his/her academic performances, intelligence, and abilities."^[2] That is, they

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Hesam M, Abedi A. Enhancing academic engagement of underachieving gifted students: The effects of Martin's educational program. *J Edu Health Promot* 2020;9:137.

Master of Counseling
in Yazd Science and
Research Branch of The
Islamic Azad University,
Yazd, Iran, ¹Department
of Children with Special
Needs, University of
Isfahan, Isfahan, Iran

Address for correspondence:

Dr. Ahmad Abedi,
Department of Children
with Special Needs,
University of Isfahan,
Isfahan, Iran.
E-mail: [a.abedi@edu.
ui.ac.ir](mailto:a.abedi@edu.ui.ac.ir)

Received: 29-11-2019
Accepted: 15-02-2020
Published: 30-06-2020

have high intelligence and talent but show poor academic performance.^[3] Studies suggest that 10%–15% of gifted students are classified as academic underachievement.^[4] Many studies have focused on this issue over the past three decades. A lot of studies have been done since 1980 to answer teachers, parents, and psychologists who are involved in this troubling, yet confusing problem.^[5] In general, the findings of the large body of research show two main factors that are involved in underachievement: individual factors and environmental factors (including, family and school). One of the individual factors is academic engagement and motivation. According to the research, underachievement occurs, not because of an inability to perform well, but because of unconscious or conscious choice.^[3] In other words, these students may be inappropriately motivated or be motivated by beliefs and behaviors that undermine their academic achievement.^[6] Taghinejad^[7] suggests three important reasons that why some gifted students succeed less than expected: (1) lack of motivation for school-based learning, (2) environments that do not nurture their talents, and (3) neuropsychological problems (learning disorders, attention deficit, memory deficit, and executive dysfunction).^[7] Following the latter, a lot of attention has been paid to the high-ability students with motivational problems.^[8] In other words, this construct is considered a factor for poor academic performance, high levels of exhaustion, and lack of motivation and even dropping out among students.^[9] Academic engagement could positively predict academic performance. In fact, academic engagement is a behavior (e.g., planning and perseverance) which gives the person some energy and interest to attend in school activities.^[10] Academic engagement refers to the quality of effort that the students spend on purposeful educational activities to directly achieve the desired academic outcomes.^[11] In general, academic engagement is a multidimensional construct, consisting of different behavioral, cognitive, and motivational component.^[12] Academic engagement is a construct that was first introduced to understand and explain the academic failure^[13] and is considered as the basis for reform in the educational field. In fact, academic engagement is a major factor in preventing academic failure and low level of motivation in schools.^[11] Many studies have emphasized the important role of academic engagement in academic success.^[11,14] Numerous studies have shown that academic engagement at the school is positively associated with positive outcomes such as high grade-point average,^[15] motivation, and long-term learning.^[16] Previous research shows that students who are engaged in school have better academic performance.^[17] Students who regularly attend class are more focused on learning and achieve a better grade point average and are more successful in the examinations.^[18] In a study, Martin and March^[19] showed that academic engagement has a positive effects on

increasing academic motivation and competency. In fact, academic engagement is a key factor for students' interest in school-related activities. In addition, Yu and Martin^[20] suggested that socioeconomic status and parents' educational level had a significant relationship with academic motivation and engagement. In other words, socioeconomic status and parents' educational level led to the academic promotion of the Chinese students. One of the interventions that have been tested for improving students' academic engagement in recent years is Martin's cognitive-behavioral program.^[12] Martin^[12] developed a cognitive-behavioral program, called "The Motivation and Engagement Wheel," to increase the students' academic motivation and provides a framework for introducing the main theory of motivation and academic engagement. The program includes more integrated studies of motivation and enthusiasm. It consists of four dimensions: (1) the adaptive cognitive dimension that includes self-efficacy, valuing, and mastery orientation; (2) the adaptive behavioral dimension that consists of planning, task management, and persistence; (3) the impeding/maladaptive cognitive dimension that is subsumed by failure avoidance, uncertain control, and anxiety; and (4) the maladaptive behavioral dimension that includes self-handicapping and disengagement. The program indicates underlying thoughts, feelings, and behaviors of academic engagement at school. In this model, motivation is divided into two groups of factors: enhancing and decreasing factors. The enhancing factors of academic motivation and engagement include task management, planning, persistence, valuing, mastery orientation, and beliefs about self. The decreasing factors of academic motivation and engagement include anxiety, uncertain control, failure avoidance, and self-handicapping. Although these components are not new and were suggested in previous theories, integrating them into the four operations is a new idea. It seems that among the four components of the wheel, the adaptive cognitive dimension, which includes valuing, mastery orientation, and self-efficacy, has an important and particular role in providing and maintaining the motivation. Self-efficacy refers to a sense of self-esteem and self-worth and a sense of self-sufficiency and efficiency in life.^[21] Many studies have investigated the effectiveness of self-efficacy and achievement motivation in group with regard to the cognitive component. Moreover, many studies have examined the effects of Martin's educational program in enhancing motivation and enthusiasm.^[22] Given to the pervious findings and the need to address the issues related to underachieving gifted students, the present study investigated the effects of Martin's educational program in academic engagement (behavioral, emotional, cognitive, and agency) of underachieving gifted students.

Materials and Methods

This was a quasi-experimental study with a pre-/post-treatment/control group design. The statistical population of the study included all female students who were identified as gifted students in the 7-grade gifted schools (there were two 7-grade gifted schools in the city of Isfahan, Iran, at the time of our study). The independent and the dependent variables were Martin’s educational program and academic engagement, respectively. The experimental group (underachieving gifted students who were in the seventh grade) received the education. All participants were attended in the pre/posttest. Underachieving students were selected by purposeful sampling. According to previous studies, underachieving is a difference between the intelligence potential and academic performance. The information about the underachieving students was obtained from the teachers. Three teachers (a math teacher, a Farsi teacher, and a science teacher) were asked to rate their gifted students’ educational performance on a 3-point scale: perfect, as expected, and less than expected. Finally, students who were rated by the teachers as “less than expected” were selected and invited to participate in a series of workshops that were held by a psychology team at the Shenakht Counseling Center (the purpose of the study was not expressed). Volunteer students participated in the study. The exclusion criteria were as follows: absence more than one session, any personal and familial problem that interferes with the intervention, reluctant to participate in the study, and the lack of parents’ consent. Finally, 30 students were selected and randomly divided into the experimental group ($n = 15$) and the control group ($n = 15$). Data were analyzed using MANCOVA.

The students’ academic engagement questionnaire (behavioral engagement, emotional engagement, cognitive engagement, and agency engagement)

developed by Reeve and Tseng were used to measure academic engagement. Students must read each item and then rate his/her current status on a 5-point Likert scale from 1 (never at all) to 5 (always). The questionnaire measures the four dimensions of academic engagement. The dimension includes agency engagement (5 items), behavioral engagement (5 items), emotional engagement (4 items), and cognitive engagement (8 items).^[23] In a study reported a satisfaction psychometric properties, and the factor structure of the questionnaire was confirmed. Furthermore, the reliability of its subscales was as follows: agency engagement (0.82), behavioral engagement (0.94), emotional engagement (0.78), and cognitive engagement (0.80).^[24] In a study in Iran, the validity of the scale was confirmed, and the reliability of agency engagement, behavioral engagement, emotional engagement, and cognitive engagement were 0.79, 0.81, 0.73, and 0.87, respectively.^[24]

The experimental group received 10, 1-h sessions of Martin’s educational program, whereas the control group received no intervention. All participants completed the measure at pre/post-test. The summary of Martin’s educational program training^[10] is presented in Table 1.

Results

The results show that Martin’s program is an effective intervention for academic engagement and its dimensions in Table 2 (agency, behavioral, cognitive, and emotional engagements).

Discussion

The results showed that Martin’s educational program^[10] is an effective intervention for enhancing the academic engagement and its dimensions (agency, behavioral, cognitive, and emotional engagements) in underachieving gifted students. These findings are consistent with the

Table 1: Martin’s cognitive-behavioral session summary

Session	Program module	Content
1	The academic engagement concept and its dimensions	Introducing the purpose of the sessions and explaining the academic engagement concept
2	Enhancing self-confidence	Describing self-confidence and methods for enhancing it and the ways of thinking and attitude changes
3	Valuing	Why schools and academic activities are important for academic achievement as well as success in life
4	Mastery orientation	The persistence in doing tasks is an important factor of academic achievement and success in life
5	Planning	How to do good planning, identifying long-term goals, identifying short-term goals, matching the goals with personal standards, and identifying the path and way to the goals...
6	Task management	Time management, awareness of the different obstacles, and prioritize strategies to reach goals...
7	Anxiety reduction	The concept of anxiety, describing methods for managing, and controlling anxiety
8	Failure avoidance	Expressing the disadvantages of fear of failure, for example, not pursuing the goals, losing interest, mental health disorders, and self-esteem
9	Self-efficacy	Identifying self-efficacy resources, such as learning experiences, social interactions, social supports, and emotional reactions...
10	Finishing and answering the students’ questions	Summarizing the sessions, answering the questions, posttest

Table 2: The results of MANCOVA for the effects of Martin’s educational program on academic engagement and its dimensions (agency, behavioral, cognitive, and emotional engagements)

Variable	Group	Mean (SD)		F	P	η
		Preintervention	Postintervention			
Behavioral engagement	Experimental	12.46 (3.44)	17.46 (3.97)	65.84	0.001	0.073
	Control	12.20 (2.83)	12.20 (2.83)			
Emotional engagement	Experimental	7.60 (1.80)	10.60 (1.88)	40.49	0.001	0.68
	Control	7.80 (2.14)	8.20 (1.93)			
Cognitive engagement	Experimental	26.33 (4.28)	31.60 (4.40)	138.15	0.001	0.85
	Control	27.46 (2.97)	27.60 (2.39)			
Agency engagement	Experimental	9.06 (2.18)	12.93 (2.93)	22.74	0.001	0.62
	Control	10.00 (2.56)	10.13 (2.13)			
Total	Experimental	55.46 (10.57)	72.60 (70.62)	24.77	0.001	0.98
	Control	57.46 (8.83)	58.13 (7.58)			

SD=Standard deviation

results of Martin,^[10] Adelodun,^[9] Taghinejad,^[7] and Yu *et al.*^[20] According to Martin’s cognitive-behavioral theory, which is known as “the Motivation and Engagement Wheel,” enhancing academic engagement in underachieving students could be explained through the four dimensions of the program: adaptive cognitive, maladaptive cognitive, adaptive behavioral, and maladaptive behavioral dimensions. The program could enhance the self-efficacy in the adaptive cognitive dimension for valuing courses and generally a mastery orientation; that is, enhancing motivation for why to go to school. In the maladaptive cognitive dimension, Martin’s program led to reduced anxiety and worry as well as reduced failure avoidance and uncertain control over school schedules. Furthermore, in the adaptive behavioral dimension of persistence, planning, and task management, the student’s cognitive and metacognitive skills were significantly improved based on the techniques which were trained in the sessions. Finally, students showed a significant decrease in the maladaptive behavioral dimension, disengagement in academic activities, and self-handicapping. Moreover, academic engagement is a multidimensional construct and Martin’s program could create and enhance an agency and control over academic issues by addressing the domains that are the weakness of underachieving students.

One of the academic engagement dimensions is behavioral engagement. Behavioral engagement includes pursuing academic goals, participating in learning, and doing homework. In explaining these findings, it can be concluded that Martin’s program has been able to increase the persistence and effort, participating in classroom activities, answering questions, and engaging in classroom discussions.

Emotional engagement is another dimension of academic engagement. Emotional engagement is the student’s emotional reactions in class, such as interest, happiness,

hope, vitality, fatigue, and sadness. Martin’s program, due to its multidimensional nature, provided an internal interest for assignments, energy and vitality to attend school, and doing homework in underachieving students. Therefore, it enhanced a positive emotion about school and classroom in this group of students.

Cognitive engagement is another important factor in academic engagement, which includes cognitive and metacognitive strategies for studying and learning. In the program’s adaptive cognitive and behavioral dimensions, some strategies for learning are taught to students, including summarizing, categorizing, prereading, deep study, developing questions, memorizing, planning, time management, doing assignments, and preparation for examinations. Acquiring these skills (cognitive and metacognitive skills) enhances academic performance. Pentrich and DeGrout showed that students with cognitive and metacognitive skills have better academic performance than other students.^[25]

The last academic engagement is the agency. Reeve and Tseng defined agency engagement as a productive involvement of students in the process of learning and teaching. In this kind of engagement, the student tries actively and purposefully to learn, due to the sense of agency, self-efficacy, and getting control over academic issues. In the classroom, for example, he/she expresses his/her own interests and priorities, participate in activities, asks questions, and actively solves the problems in the class. Therefore, it can be said that Martin’s program is a systematic, comprehensive, and multidimensional program which, in turn, leads underachieving gifted students to eventually achieve a sense of agency and mastery in the academic settings.

Conclusion

According to the results of the present study, it is suggested that Martin’s program be presented during on-the-job courses for teachers in the gifted schools.

Furthermore, the program could be used for school counselors, parents training sessions as well as teachers in council sessions, since most of these students are labeled as students with learning disorders or discouraging by teachers as well as counselors which may lead them to a bad academic future. By informing schools about the characteristics of underachieving gifted students, we can help these students and improve their academic achievement.

There are some limitations in this study. First, the study is limited to the female underachieving gifted students of Isfahan, therefore, caution should be considered in generalizing from the findings. Second, this study is limited to the academic engagement of 7-grade underachieving gifted students; therefore, it is possible that many factors, other than motivation and academic engagement, cause problems for underachieving gifted students and future studies could consider those factors.

Acknowledgment

We appreciate the cooperation of all staff of Shenakht Psychology and Counseling Service Center. This study is supported by the gifted high school officials under the confirmation letter 386, 2019/12/31.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Johnsen SK. Standards in gifted education and their effects on professional competence. *Gift Child Today* 2012;35:49-57.
2. Davis GA, Rimm SB. *Education of the Gifted*. England: McGraw-Hill Book Company; 1998.
3. Taghinejad M, Abedi A, Yarmohammadiyan A. Comparing the effectiveness of growth mindset intervention with independent learning program on academic resilience of underachievement gifted students. *Appl Psychol Res Q* 2019;9:1-20.
4. Ritchotte J, Rubenstein L, Murry F. Reversing the underachievement of gifted middle school students: Lessons from another field. *Gift Child Today* 2015;38:103-13.
5. Abu-Hamour B, Al-Hmouz H. A study of gifted high, moderate, and low achievers in their personal characteristics and attitudes toward school and teachers. *Int J Spec Educ*. 2013;28:5-15.
6. Chere NE, Hlalele D. Academic underachievement of learners at school: A literature review. *Mediterr J Soc Sci* 2014;5:827.
7. Taghinejad M. Development of A Cognitive-Motivating Program Based on Academic Motivational Theories and the Comparison of its Effectiveness With Dweck's Mindset Program and Harvey and Wolfe's Independent Learning Program on Underachievement Gifted Student's Learning Behaviors, Academic Resilience and Academic Self-Handicapping. PhD Thesis, University of Isfahan; 2019.
8. Snyder KE, Malin JL, Dent AL, Linnenbrink-Garcia L. The message matters: The role of implicit beliefs about giftedness and failure experiences in academic self-handicapping. *J Educ Psychol* 2014;106:230.
9. Adelodun GA. Strategies for promoting achievement motivation among underachievement gifted student. *Afr J Psychol Soc Sci Issues* 2013;16:106-13.
10. Martin AJ. Enhancing student motivation and engagement: The effects of a multidimensional intervention. *Contemp Educ Psychol* 2008;33:239-69.
11. Hejazi E, Rastegar A, Jahromy RG. The academic achievement prediction model in mathematics: The role of achievement goals and school engagement. *J Educ Innov* 2008;7:29-46.
12. Martin AJ. Examining a multidimensional model of student motivation and engagement using a construct validation approach. *British Journal of Educational Psychology* 2007;77:413-40.
13. Hejazi E, Abedini Y. Structural model functional relationship approach-goals, academic engagement and achievement. *J Psychol* 2008;12:342-8.
14. Azad Abdollahpuor M, Kadivar P, Abdollahy M. The relationship between cognitive styles and cognitive and metacognitive strategies and academic achievement. *J Psychol* 2005;8:30-44.
15. Akey TM. *School Context, Student Attitudes and Behavior, and Academic Achievement: An Exploratory Analysis*. MDRC; 2006.
16. Shernoff ES, Kratochwill TR, Stoiber KC. Training in evidence-based interventions (EBIs): What are school psychology programs teaching? *J Sch Psychol* 2003;41:467-83.
17. Shernoff DJ, Csikszentmihalyi M, Schneider B, Shernoff ES. Student engagement in high school classrooms from the perspective of flow theory. In: *Applications of Flow in Human Development and Education*. Dordrech: Springer; 2014. p. 475-94.
18. Caraway K, Tucker CM, Reinke WM, Hall C. Self-efficacy, goal orientation, and fear of failure as predictors of school engagement in high school students. *Psychol Sch* 2003;40:417-27.
19. Martin AJ, Marsh HW. Academic buoyancy: Towards an understanding of students' everyday academic resilience. *Journal of School Psychology* 2008: 46, 53-83.
20. Yu K, Martin AJ, Hou Y, Osborn J, Zhan X. Motivation, engagement, academic buoyancy, and adaptability: The roles of socio-demographics among middle school students in China. *Measurement: Interdiscip Res Perspect* 2019;17:119-32.
21. Benight CC, Bandura A. Social cognitive theory of posttraumatic recovery: The role of perceived self-efficacy. *Behav Res Ther* 2004;42:1129-48.
22. Proudfoot JG, Corr PJ, Guest DE, Dunn G. Cognitive-behavioural training to change attributional style improves employee well-being, job satisfaction, productivity, and turnover. *Pers Individ Dif* 2009;46:147-53.
23. Reeve J, Tseng M. Agency as a fourth aspect of student engagement during learning activities. *Contemp Educ Psychol* 2011;36:257-67.
24. Alizadeh KH, Rafiepuor A, Samavi SA. The study of psychometric indicators of academic engagement questionnaire among high school students in Bandar Abbas. *Quarterly of Educational Measurement* 2016;6:83-102.
25. Pintrich PR, de Groot EV. Motivational and self-regulated learning component of classroom academic performance *J Educ Psychol* 1990;82:33-40.