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Development and Validation a Training Package Based on Sternberg's Successful Intelligence Theory: Examining its Effectiveness on Self-regulation and Academic Resilience in High School Students

Abedeh Nazari[1] | **Esmaeil Sadipour**[2]✉ | **Soghra Ebrahimi Ghavam**[3] | **Hasan Asadzadeh Dehraei**[4]

1. PhD student in Educational Psychology, Department of Psychology, Faculty of Psychology and Educational Sciences, Allameh Tabataba'i University, Tehran, Iran. E-mail: Abedehn@yahoo.com
2. Corresponding author, Professor, Department of Psychology, Faculty of Psychology and Educational Sciences, Allameh Tabataba'i University, Tehran, Iran. E-mail: e.sadipour@atu.ac.ir
3. Associate Professor, Department of Psychology, Faculty of Psychology and Educational Sciences, Allameh Tabataba'i University, Tehran, Iran. E-mail: s.ebrahimighavam@gmail.com
4. Associate Professor, Department of Psychology, Faculty of Psychology and Educational Sciences, Allameh Tabataba'i University, Tehran, Iran. E-mail: asadzadehD@yahoo.com

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ABSTRACT

Objective: The primary objective of this study was to develop and validate a training package based on Sternberg's theory of successful intelligence and examine its impact on the self-regulation and academic resilience in high school students.

Methods: This research was conducted as an applied study, employing a semi-experimental approach with a pretest-posttest design that included a control group. The research targeted eleventh-grade female students in Zahedan, Iran, during the year 2022. The sample size for the study consisted of 60 participants. Following the pretest, 30 students from the experimental group underwent a series of 10 training sessions focused on the components of successful intelligence. The research tools utilized for data collection encompassed self-regulation academic questionnaire and academic resilience scale.

Results: The results of data analysis, employing covariance analysis, demonstrated a significant difference ($p < 0.01$) between the experimental group and the control group in terms of both self-regulation and academic resilience.

Conclusions: Consequently, educators have the opportunity to incorporate Sternberg's successful intelligence theory as an effective pedagogical approach to enhance students' self-regulation and academic resilience within their educational framework.

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Introduction

Irrespective of the current state of the education system, education centered around intelligence can offer valuable benefits to teachers, students, parents, schools, and the broader community. This approach can provide substantial support to teachers in meeting a diverse array of student needs in teaching and evaluation. It achieves this by supplying a wealth of practical examples and employing various assessment techniques, including projects, essays, grading, and subsequent scoring (Yang et al., 2021). Students routinely encounter challenges and stress-inducing situations in school that necessitate specific psychological components for them to overcome successfully. These components include self-regulation and academic resilience. Although some research in our country has explored the influence of other forms of intelligence, such as emotional and spiritual intelligence, on these aspects, there remains a research gap regarding the examination of Sternberg's comprehensive intelligence theory (Sternberg & Kaufman, 2011) in this context.

Moreover, given the findings of prior studies and the significant role of research variables in student performance, coupled with the impact of teaching methods and educational patterns on cognitive and psychological outcomes, the researcher identified the need to design and validate an educational package grounded in Sternberg's theory of successful intelligence. The objective was to assess the effectiveness of the training derived from this package in improving self-regulation and academic resilience.

Academic resilience serves as a protective factor pivotal to individuals' success, aiding them in navigating adverse conditions effectively. Possessing this attribute equips individuals to exhibit adaptive behavior, simplifying their approach to challenges and enhancing their capacity to address obstacles on their journey toward achieving goals (Hallahan et al., 2020).

It appears that one of the variables predicting academic resilience and exerting a significant impact on academic performance is academic self-regulation. This concept denotes a skill set possessed by learners that empowers them to efficiently manage their learning processes throughout their educational voyage. Students allocate their time thoughtfully, delve into the reasons behind their learning, scrutinize their learning methodologies, and, fundamentally, incorporate metacognition and behavioral strategies into their learning approaches (Shipp et al., 2009).

Academic self-regulation stands as a prominent concept within modern educational systems. Its significance has been underscored by educators, trainers, and parents alike within the context of

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learning (Zimmerman, 2023). Given that academic progress holds immense importance in evaluating the effectiveness of education and training, researchers have focused on understanding how to foster students' independence and enable them to manage their learning autonomously, thereby reducing their reliance on teachers (Lawrence & Saileela, 2019). Efforts to enhance students' self-regulation primarily center on their mental well-being rather than the qualities of their teachers (Becker et al., 2017; Kazemi & Kazempoor Dehbidi, 2022). Research on the characteristics of self-regulating individuals suggests that they are driven to learn independently, set realistic academic goals for themselves, employ effective strategies to attain these goals, and adapt or modify their strategies as needed. They aim to optimize available resources, such as time, place, peers, parents, teachers, and supplemental tools like films, videos, and computers, to create, innovate, and select environments conducive to effective learning (Norouzi et al., 2021; Samavi et al., 2022).

Proficiency in self-regulation skills empowers students to engage in more effective learning. Conversely, the absence of these skills can push them towards discouragement and hopelessness during their learning journey, leading to procrastination in academic tasks and a decline in students' cognitive and emotional well-being (Grunschel et al., 2016). Among the predictive elements of academic self-regulation, environmental factors such as family communication patterns and a sense of belonging to the school community can be highly influential. These factors are regarded as essential social elements that impact individuals within the social system through their activities and close interpersonal relationships (Woolfolk & Margetts, 2012).

Masten (2021) define academic resilience as the students' ability to effectively confront obstacles, stressors, pressures, and all forms of threats. Research on academic resilience has evolved in two main areas: psychopathology (focused on adults) and developmental psychology (centered on children and adolescents). Psychopathology research has primarily aimed to identify factors that shield some individuals from succumbing to stressful risks. In contrast, developmental psychology researchers have strived to pinpoint personality traits (e.g., self-esteem) that distinguish children who adapt well despite socio-economic disparities, abuse, neglect, and traumatic life events (Mashhadi et al., 2022).

The dimensions of resilience within educational settings are scrutinized based on six components that bolster students' resilience (Foroozanfar, 2020). These components encompass caregiving and

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support, high expectations, opportunities for meaningful participation, the cultivation of social skills, addressing limitations and expectations, and imparting life skills (Bandura & Hall, 2018; Reyhan & Özgen, 2020). According to Arce et al. (2009), resilient individuals effectively navigate life's challenges and setbacks by utilizing their available resources, both internal and external, including support systems. Resilience can enhance psychological well-being and life satisfaction, with positive psychology discussions expanding over the past decade (Amani Kolarijani et al., 2022; Reyes et al., 2020). The findings of Sosa and Lagana (2019) in their study titled "Effects of Video Game Training on Cognitive Function in Older Adults" suggest that video game training as a strategy for self-regulation positively impacts cognitive flexibility, resilience, and social adaptation in adults. The results of the study by Homer et al. (2018) which explored the enhancement of high school students' executive functions through digital game-based training, underscore the effectiveness of digital games based on self-regulation in improving executive functions, cognitive flexibility, and social adaptation in high school students. Artuch-Garde et al. (2017) examined the relationship between resilience and self-regulation in at-risk Spanish adolescents. In this study, self-regulation was considered a crucial protective factor in challenging situations and was integrated into resilience programs. Sternberg's theory of successful intelligence goes beyond merely predicting academic performance and seeks to encompass achievement in various aspects of an individual's life. A comprehensive perspective on successful intelligence incorporates creativity, traditional (analytical) intelligence, practical wisdom, and common sense. This holistic approach is necessary because it often requires individuals to generate innovative solutions, assess the quality of these solutions, put them into practice, convince others of their merit, and, above all, ensure that these solutions contribute to the greater good. In light of research findings and insights from prior studies, this current research endeavor was undertaken with the primary objective of developing and validating an educational program rooted in Sternberg's theory of successful intelligence. Furthermore, the study explored the influence of this educational program on the self-regulation and academic resilience of high school students. Given the significance of the aforementioned content and the role of successful intelligence factors and research gaps in our country's studies related to Sternberg's successful intelligence model concerning students' emotional and psychological aspects, it is imperative to investigate the influence of successful intelligence education on the variables of self-regulation and academic

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resilience in students. The findings of this research can be utilized by families, educational institutions, and all organizations involved with students and learners to enhance students' performance at higher levels.

Materials and Methods

The research methodology employed in this investigation was semi-experimental and, in terms of its objective, practical. The target population encompassed all eleventh-grade students in Zahedan, Iran, during the year 2022. From this population, a research sample of 60 female high school students (eleventh grade) attending Farzangan High School in Zahedan was selected initially using convenience sampling. Subsequently, they were randomly divided into two groups: an experimental group and a control group, each comprised of 30 students. Following an initial pre-test, the experimental group received ten instructional sessions focusing on the components of successful intelligence (as outlined in Table 1). Afterward, post-test data were collected.

Ethical Considerations: Ethical considerations included confidentiality, using the data solely for research purposes, allowing participants the freedom and full consent to withdraw from the research, and providing accurate information to participants upon request. The results, along with educational content for the control group, will be made available to participants after the completion of the instructional course for the experimental group.

Instruments

Metacognitive Self-regulation Questionnaire: This questionnaire developed by Sevari and Arabzade (2013) and consists of 30 items and six factors: Memory Strategy (5 items), Goal Selection (3 items), Self-assessment (6 items), Help-seeking (6 items), Responsibility (4 items), and Organization (6 items). All items are scored directly, meaning Never: 1, Rarely: 2, Sometimes: 3, Often: 4, Most of the time: 5, and Always: 6. To calculate the score for each component, sum the scores of all items related to that component. To calculate the total score of the questionnaire, sum the scores of all questionnaire items. The score range for this questionnaire is between 30 and 180. A higher score indicates a higher level of academic self-regulation and vice versa. The reliability of this questionnaire was confirmed using Cronbach's alpha, which yielded 0.87 for the entire questionnaire, and its validity was confirmed through confirmatory factor analysis.

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The Academic Resilience Scale (ARS-30): This scale was developed by Cassidy (2016) and consists of 30 questions and three factors: Persistence (14 items), Reflective and Adaptive Help-Seeking (9 items), and Negative Emotion and Emotional Responses (6 items). The scale uses a five-point Likert scale for scoring: Very Likely: 1, Likely: 2, Neutral: 3, Unlikely: 4, and Very Unlikely: 5. Positive items are scored in reverse (items 1, 3, 6, 7, 12, 14, 15, 19, and 28 are negatively scored, while the rest are positively scored). A higher total score on this scale indicates higher academic resilience. The total score of the scale is obtained by summing the scores of all items and falls within the range of 30 to 150. Its validity was confirmed through correlation with the General Academic Self-Efficacy Questionnaire (r = 0.49), and its reliability was acceptable with a Cronbach's alpha of 0.90 (Cassidy, 2016).

Here's the translation of the provided text:

Implementation Process: To conduct this research, the following stages were completed:

1. Develop and Production of the Successful Intelligence Educational Package
2. Validation of the Produced Educational Package
3.Determining the Effectiveness of the Educational Package

In the first phase of the study, to develop the Successful Intelligence educational package, an initial review of books and domestic and international studies on successful intelligence and teaching based on successful intelligence was carried out. The general content of this package was extracted from these books and studies. For example, to illustrate, the researcher referred to examples from Sternberg's book on the theory of successful intelligence. Regarding the tasks presented in this package, the researcher, considering the content of the eleventh-grade textbooks, provided activities that were in line with Sternberg's theory of successful intelligence. Sternberg (2007; 2003) believes that there are three main categories of skills called analytical, creative, and practical. These skills are independent of each other and contribute to the development of various abilities in students. The assessment of analytical skills requires students to apply their thinking skills to abstract problems derived from everyday life situations (Sternberg, 2015). Creative skills are demonstrated when students use their knowledge and skills in tasks and situations that are relatively novel and unconventional. On the other hand, practical skills are used when assessing tasks and situations that require students to adapt, shape, and select environments (Sternberg, 2015).

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To test the effectiveness of the Successful Intelligence package on the self-regulation and academic resilience, before starting the intervention, a pre-test was conducted. Then, the participating students were randomly assigned to two groups: the experimental group and the control group. After that, the package was implemented in Farzangan High School in Zahedan over a period of two months, involving 10 sessions. It's important to note that two sessions were held per week, each lasting approximately 1.5 hours. At the beginning of each session, 10 minutes were allocated for reviewing the assignments and reviewing the previous session. The last 10 minutes were devoted to providing homework assignments. At the end of each session, students were encouraged to complete the homework either individually or with their friends or family members at home. In addition, during the final session of the training, a brochure on successful intelligence was provided to the students.

In the second stage, the validation of the produced educational package was carried out. For this purpose, the opinions of 10 experts in the field of intelligence and curriculum planning were gathered, and their feedback regarding the produced package was collected and validated.

In the third stage, the research's effectiveness, which was based on a pre-test and post-test design with a control group, was analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (analysis of covariance for testing the significant difference between the experimental and control groups). The data analysis was performed using SPSS software version 26.

The design of the Successful Intelligence educational package was based on the ASSURE model. Models are infinitely useful and effective for helping to understand and improve the teaching and learning process in schools and universities. Using instructional models helps teachers and educators invest in integrated and comprehensive teaching and learning environments. In such cases, school teachers and university educators can be effective and efficient in clarifying and accelerating the learning process of their students (Al-Haydary & Majeed, 2021). The ASSURE model and confidence-building learning are one of the models that enable teachers to plan their teaching activities effectively. This model, presented by Heinich, Molenda, Russell and Smaldino (Smaldino, 1999), consists of six stages or steps:

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1. Analysis of Learner Characteristics: In this stage, the instructional designer must identify the general and specific characteristics of learners, their learning styles, their current knowledge and skills, and cognitive and motivational characteristics.

2. Statement of Objectives: In this stage, the general teaching objectives are determined, and specific and detailed objectives are specified. In the best case, the necessary criteria for formulating teaching objectives are also determined.

3. Selection of Methods, Media, and Materials: The designer in the next step of this model must determine effective and appropriate teaching aids and media, as well as examine their availability. It is necessary to use various and suitable media.

4. Utilization of Media and Materials: The fourth stage of designing in this model includes preparing the media and teaching materials and also providing suitable conditions for teaching and assessing the required conditions. The teacher should also be prepared for teaching.

5. Learner Participation: In this stage, the method of learners' participation in the classroom and in the teaching process, as well as the skills they need for this participation, should be specified.

6. Evaluation and Revision of Instruction: The assessment of learner learning and the effectiveness of the teaching process are carried out in this stage (Smaldino, 1999).

Table 1. Design of the Successful Intelligence Educational Package in the Form of the ASSURE model (Confidence-Building Learning)

Stage	Activity
Analysis of Learner Characteristics	Number of students: 30 people, educational level: 11th, Cognitive development level: formal or abstract operations, General characteristics: Has full physical abilities. It has high cultural, economic and social homogeneity
Statement of Objectives	**General Objectives** :General understanding of the concept of intelligence, getting to know the types of triple intelligence, Familiarity with general intelligence, Familiarity with creative intelligence, Familiarity with practical intelligence **Partial goals** The student can define analytical intelligence and give some examples of intelligent behavior. Have creative intelligence. The student must be able to solve a problem. The student must be able to define The student should design a creative multi-activity related to the content of the book lessons. The student should be eager to present the content of his lessons in the form of a work of art. The student should be able to define the concept of practical intelligence. The student should be able to write a challenging problem from his daily life. The student should be able to create different solutions for the given problem. The student should be able to use solutions to solve his problem.

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Selection of Methods, Media, and Materials	The appropriate media are boards, videos, charts, brochures, and booklets, and the appropriate teaching method can be a combination of collaborative methods and lectures.
Utilization of Media and Materials	Providing introductory material and creating motivation Presentation of the initial lecture by the teacher Provide opportunity for group discussion Leading group discussion Creating a connection between the presented material and their daily life Summary and supplementary activities
Learner Participation	Grouping students and their participation in group discussions and providing lectures in the form of conferences by learners to other classmates, teaching and evaluating creativity and helping students to visualize the views of others, giving enough time To students for creative thinking
Evaluation and Revision of Instruction	Asking questions to the learners about the presented content: Checking whether I have made a correct analysis of the student? How far have I reached the desired goals? How effective have the used teaching methods been? Have all students participated in the discussion? Did the students show interest in the presented content? Were the educational aids and materials useful?

Results

Results for the mean and standard deviation of self-regulation and its components and academic resilience and its components in the pre-test and post-test separating by experimental and control groups, are provided in table 1.

Table 2. Descriptive statistics results of self-regulation and its components and academic resilience and its components in the pre-test and post-test separating by experimental and control groups

Group	Variable	Pretest		Posttest	
		Mean	SD	Mean	SD
Experimental	Memory strategy	14.31	4.23	19.06	1.95
	Goal setting	11.78	2.39	15.71	1.32
	Self-assessment	17.66	3.59	33.66	2.91
	Help seeking	19.62	1.91	23.90	2.66
	Responsibility	19.71	1.67	22.96	1.09
	Organizing	18.15	2.30	24.18	1.63
	Self-regulation	101.25	7.76	129.50	4.47
	Perseverance	38.03	4.90	48.63	3.20
	Adaptive and reflexive help seeking	37.75	4.84	45.88	2.74
	Negative affect and emotional responses	37.91	4.77	46	2.73
	Resilience	113.69	14.47	140.50	6.50
Control	Memory strategy	14.44	4.31	16.22	2.07
	Goal setting	12.50	2.55	12.71	2.21
	Self-assessment	17.81	3.64	19.19	2.19
	Help seeking	20.56	2.60	20.96	1.82
	Responsibility	20.62	1.87	20.87	1.43
	Organizing	19.75	2.18	21.03	1.69
	Self-regulation	105.68	10.02	111	5.47
	Perseverance	39.69	5.05	41.47	3.89
	Adaptive and reflexive help seeking	39.50	4.95	41.34	3.89
	Negative affect and emotional responses	39.59	4.95	41.53	3.92
	Resilience	**118.78**	**14.93**	**124.34**	**11.67**

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First Hypothesis: There is a significant difference between experimental and control group in academic self-regulation and its components.

To investigate the effectiveness of the Successful Intelligence training on students' academic self-regulation, a one-variable analysis of covariance (ANCOVA) was used. The results of conducting this analysis and examining its assumptions are presented in table 3. Before the both of ANCOVA and MANCOVA analyses, all assumptions include Normality, Homogeneity of Variance, Equality of Covariance and Homogeneity of Regression Coefficients are examined and confirmed.

Table 3. Results of the analysis of covariance (ANCOVA) for comparing academic self-regulation between the experimental and control groups

Source	SS	DF	MS	F value	p	Effect size
Pretest	2.64	1	2.64	0.105	0.74	0.002
Academic self-regulation	5093.48	1	5093.48	201.05	0.001	0.767
Error	1545.34	61	25.33			
Total	932468	64				

In Table 3, the results of the analysis of covariance (ANCOVA) for comparing the scores of academic self-regulation between the experimental and control groups in the post-test are presented. The obtained F-value is 201.05, which is significant at the 0.01 level ($p < 0.01$). Additionally, the effect size of the Successful Intelligence training on the academic self-regulation is 0.76%. Therefore, it can be concluded that there is a significant difference in academic self-regulation between students exposed to the Successful Intelligence training package and those in the control group. The Successful Intelligence training has had a positive impact on their academic self-regulation, increasing their self-regulation. To examine the effect of the Successful Intelligence training on the components of academic self-regulation, a multivariate analysis of covariance (MANCOVA) was used. Results of . Results of between-subjects effects for comparing academic self-regulation components in the posttest provided in table 4.

Table 4. Results of between-subjects effects for comparing academic self-regulation components in the posttest

Variable	SS	DF	MS	F value	p	Effect size
Memory strategy	71.28	1	71.28	21.22	0.001	0.27
Goal setting	120.20	1	120.20	38.41	0.001	0.40
Self-assessment	191.99	1	191.99	38.95	0.001	0.41
Help seeking	157.29	1	157.29	36.18	0.001	0.39
Responsibility	56.93	1	56.93	37.70	0.001	0.40
Organizing	163.05	1	163.05	66.56	0.001	0.54

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In Table 4, the results of the multivariate analysis of covariance (MANCOVA) for comparing the academic self-regulation components between the experimental and control groups in the post-test are presented. The obtained F-values for the components of memory strategy (22.21), goal setting (41.38), self-assessment (95.38), help-seeking (18.36), responsibility (70.37), and organizing (56.66) are significant at the 0.01 level ($p < 0.01$). Furthermore, the effect size of the Successful Intelligence training on memory strategy is 27.50%, on goal setting is 40.70%, on self-assessment is 41.00%, on help-seeking is 39.30%, on responsibility is 40.20%, and on organizing is 54.30%. Therefore, it can be concluded that the Successful Intelligence training has had a positive impact on the academic self-regulation components of students in the experimental group. There is a significant difference in these components between students exposed to the Successful Intelligence training and those in the control group ($p < 0.01$).

Second Hypothesis: There is a significant difference between experimental and control group in academic resilience and its components.

In order to examine the effectiveness of the successful intelligence instruction on resilience, a one-variable analysis of covariance (ANCOVA) was employed. The results of this analysis is presented in table 5.

Table 5. Results of ANCOVA for Comparing Resilience between the Experimental and Control Groups

Source	SS	DF	MS	F value	p	Effect size
Pretest	43.90	1	43.90	0.48	0.48	0.008
Academic self-regulation	4198.47	1	4198.47	46.63	0.001	0.43
Error	5491.31	61	90.21			
Total	1131987	64				

Table 5 presents the results of the analysis of covariance for comparing the resilience scores between the experimental and control groups in the posttest phase. The obtained F-value is 46.63, which is statistically significant at the 99% confidence level ($p < 0.01$). Additionally, the effect size of the successful intelligence instruction on resilience is 43%. Based on these results and considering the higher mean scores of the experimental group in the posttest, it can be concluded that there is a significant difference in resilience between students exposed to the successful intelligence instruction and the control group students. Therefore, successful intelligence

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instruction has been effective in increasing resilience among the experimental group, resulting in higher levels of resilience compared to the control group.

To examine the impact of successful intelligence instruction on the components of resilience among students, a multivariate analysis of covariance (MANCOVA) was employed. The Results of between-subjects effects for comparing resilience components in the posttest are presented in Table 6.

Table 6. Results of between-subjects effects for comparing resilience components in the posttest

Variable	SS	DF	MS	F value	p	Effect size
Perseverance	769.24	1	769.24	58.84	0.001	0.49
Adaptive and reflective help-seeking	340.19	1	340.19	29.63	0.001	0.33
Negative emotion and emotional responses	326.08	1	326.08	28.22	0.001	0.31

In Table 6, the results of the test of between-subjects effects for comparing the resilience components between the experimental and control groups in the posttest phase are presented. Based on the results, the obtained F-values for the components of perseverance ($F = 58.84$), adaptive and reflective help-seeking ($F = 29.63$), and negative emotion and emotional responses ($F = 28.22$) are statistically significant at the 99% confidence level ($p < 0.01$). Moreover, the effect size of successful intelligence instruction on perseverance is 49%, on adaptive and reflective help-seeking is 33%, and on negative emotion and emotional responses is 32. Given the higher mean scores of the experimental group in the posttest phase and the effect sizes, it can be concluded that successful intelligence instruction had a positive impact on these resilience components, resulting in increased levels of these components among the experimental group. Therefore, students exposed to the successful intelligence instructional package demonstrated a significant difference in terms of resilience components compared to the control group students ($p < 0.01$).

Discussion

The current research was conducted with the aim of designing and validating the successful intelligence instructional package and examining its effectiveness on the academic self-regulation and academic resilience in high school female students. One of the reasons why focusing on successful intelligence instruction is beneficial is that it increases students' interest in the taught content, thereby enhancing their motivation to learn. Some teachers believe that if they present the course materials in a coherent manner, they have fulfilled their duties. However, if students lack sufficient motivation, they may not

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pay attention or listen. In such situations, teachers may think they are teaching, but little learning occurs in their classrooms. For example, in science class, teachers can encourage students to complete a complex experiment after several unsuccessful attempts.

The findings of this research indicated a significant difference in self-regulation and academic resilience between the experimental and control groups, with successful intelligence instruction leading to increased self-regulation and academic resilience in students. This finding aligns with the results of studies conducted by Sosa and Lagana (2019), Homer et al. (2018), and Artuch-Garde et al. (2017). To explain these findings, it can be said that Self-regulation is considered one of the prerequisites of life in the current world, playing a determining role in individuals' responses to stressful events and influencing academic progress (Pellas, 2014). Masten (2021) also define academic resilience as students' ability to effectively deal with obstacles, stress, pressure, and other threatening factors. Teachers can strengthen resilience in students through modeling and peer messaging; they can also normalize this process by sharing stories of their own or others' experiences of mistakes and failures. Furthermore, teachers can practice skills with students or teach them strategies to manage and identify their emotions, enabling them to plan for coping with challenges and overcoming their setbacks (Leipold & Greve, 2009).

It seems that one of the variables that precedes academic resilience and affects academic performance is self-regulation, which is considered a skill in learners. Students who possess high self-regulation manifest high energy in academic performance and believe they can overcome academic challenges. Such a belief in personal capabilities in coping with environmental stressors is associated with more adaptive functions in school and greater overall academic well-being. On the other hand, students with a belief in academic self-regulation are inclined to choose alternative ways if they do not succeed and make efforts and persistence for better performance.

According to Sternberg's perspective, intelligence manifests itself in three analytical, creative, and practical forms. Analytical intelligence includes the ability to analyze, judge, evaluate, compare, and measure. Creative or creative intelligence encompasses the ability to create, design, invent, discover, and imagine. Practical intelligence focuses on the ability to use, apply, execute, and practice. Based on this, some students excel in all three aspects of intelligence equally, while others perform well in two aspects, and some only excel in one aspect. To achieve success across these three dimensions, a balance must be maintained. Sternberg believes that it is important to establish a balance in education between

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these three types of intelligence. Students should be provided with opportunities to learn through analytical, creative, and practical thinking (Baabaazaadeh et al., 2020).

Successful intelligence is a brief interpretation of successful human intelligence, and this success is the main goal of educational systems. Expanding this perspective on intelligence can lead to greater success (Hashemi et al., 2019). One noteworthy aspect of research on successful intelligence in Iran is that most studies have examined its cognitive dimensions, while some have also explored creativity and academic motivation within the framework of this theory. However, with the expansion of positive psychology's focus on psychological well-being components in the educational domain, other aspects have gained significant importance. Among these components are academic self-regulation and academic resilience. Although some research has been conducted in Iran regarding the impact of other types of intelligence, such as emotional and spiritual intelligence, on these components, there appears to be a research gap in investigating the comprehensive Sternberg's theory of intelligence on these components.

According to previous research findings on the relationship between academic resilience, and self-regulation, it can be said that promoting these constructs provides students with increased resilience against the challenges and issues they face in their daily academic lives. Furthermore, research evidence suggests the possibility of the effectiveness of teaching successful intelligence packages in enhancing these constructs. Students who have received training in successful intelligence are more likely to have better performance compared to those who have not received any training. Researchers need to clarify and differentiate the effectiveness of these constructs. Based on previous research findings, teaching successful intelligence offers the opportunity for students to systematically organize their knowledge, behavior, and emotions to achieve their learning goals, making them consistently active over time.

It can be said that resilience and self-regulation are positively related to cognitive and metacognitive strategies used by students. Therefore, researchers, by studying the foundations related to the theory of successful intelligence and examining the previous research and successful intelligence packages, designed a package based on the dimensions and components of this theory, considering the Iranian cultural context. The results showed better performance in the experimental group compared to the control group, along with increased self-regulation and academic resilience among students.

Teachers can incorporate Sternberg's theory of successful intelligence into their teaching methods to enhance students' academic well-being.

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Beside the findings, there are some limitations should be consider in generalization of results. First, researchers were unable to include a follow-up assessment in the current study. This limitation may affect the generalizability of the results. Furthermore, since this research was only conducted among female high school students in Zahedan city (Iran), caution should be exercised when generalizing the findings to other female and male students in different regions.

Based on our results, providing a creative, analytical, and practical classroom environment can create conditions for participation, negotiation, teamwork, and critical examination of learning obstacles. School administrators and teachers should consider the principles and assumptions of successful intelligence in managing schools and classrooms and use the designed instructional package to help students achieve deeper learning. The content of the instructional package can be made available to teachers as a booklet to strengthen students' academic self-regulation in their educational system. It is also recommended that successful intelligence education begin early in the formal education period and be continuous. Teachers should be encouraged to incorporate creativity into their teaching methods to enable students to excel in all three dimensions of analytical, creative, and practical intelligence.

Data availability statement

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

Ethics statement

The studies involving human participants were reviewed and approved by ethics committee of Allameh Tabatabai University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

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

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Conflict of interest

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

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