



The Effectiveness of Individual Education Intervention on Academic Attitudes and Academic Self-Efficacy in Sixth Grade Elementary Students

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ABSTRACT: The aim of this study was to investigate the effect of Individual Education Intervention (IEI) on academic attitudes and academic self-efficacy in sixth grade elementary school students in Bushehr, Iran. The research method was quasi-experimental. The statistical population of the present study was 671 sixth grade students in Bushehr in 2022. The research sample was 30 people who were selected by accessible sampling and were randomly assigned to experimental and control groups. After performing the pre-test, the experimental group was exposed to IEI for 5 sessions (one session per week). The control group did not receive any special training during this period. Morgan and Jinks (1999) academic self-efficacy scale and Akbari (2004) academic attitude questionnaire were used to collect data. The research hypotheses were analyzed using the analysis of covariance. Results indicated that IEI improved academic attitude, academic self-efficacy and its components (talent, context and effort) in the experimental group compared to the control group. In general, the research findings support the effectiveness of Individual Education Intervention on students' motivational outcomes.

Keywords: Individual Education Intervention, Academic attitudes, Academic self-efficacy, Elementary students.

Introduction

One of the types of education that has a special place in Iran is individual education, which in ancient Iran was generally in the three form of private education for princes and nobles, individual education in traditional schools and private education for women and girls ([Asadian, Piri, & Hasan Reihani, 2015](#)). Individual education is one of the many types of training methods that have had very positive results. This method of education has been used since time immemorial and in most countries, along with other traditional methods. According to historical evidence, this method has been the most important way to educate European aristocrats and many scientific celebrities ([Nowruzi, 2019](#)). In recent decades, due to the major advances that have been made in the field of educational psychology, the accuracy in the individual differences of learners and its application in education, has created a major change in education and approaches. It has created a new trend in teachers' teaching and educational activities. In recent years, under the influence of research and findings of educational psychology, there have been changes in worldviews of education that have made traditional teaching methods somewhat out-of-date and it is necessary to pay attention to new methods. Advances in psychology in the twentieth century have led educators to pay more attention to children's individual

differences in education and learning, and to create equal educational opportunities according to children's needs and differences in mental activity ([Kyndt, Cascallar, & Dochy, 2012](#)). The methods that enabled each child and adult to be educated according to their abilities ([Joyce, Weil, & Wald, 1973](#)). In cases where it is not possible to use group training as usual, individual training is necessary in certain situations; Some of these cases are: 1- Students who for various reasons (for example, infectious disease) can not attend formal classes. 2 - Students with disabilities and mental retardation who can temporarily not be able to adapt to the classroom. 3- Students who are mentally advanced and tired of normal classrooms; In other words, those whose learning power is higher than the average student in the class and who learn normal things much earlier. 4- Classes of rural schools that are multi-level, formed in one room and are called one-teacher or one-room schools. In these classes, the number of students in each class is not large enough to form a class independently, and necessarily, one teacher teaches multi-grade students; Therefore, the use of individual training is necessary; Of course, individual training does not mean teaching a teacher to one person; Rather, the teacher teaches a group of five to six students whose knowledge is closer to each other and 6- When it is necessary to train a group of students for a specific job, in a certain opportunity like students participating in math and physics olympiads ([Parsa, 2019](#)). Some of the family models of individual education are as follows: learning in small homogeneous groups, cooperation of teachers in teaching individuals, materials of individual systems and dependencies, physical order of classrooms and indirect teaching methods ([Christle & Yell, 2010](#)). These patterns are used to nurture and create personal characteristics; those qualities that help students have a productive life. Skills that are developed with these patterns are: self-concept, self-awareness, creativity and cognition. Individual education programs have common goals, some of the most important of which are: improving self-confidence and creating a realistic sense of self and expressing empathetic reactions to others in students for emotional and cognitive health in them, providing training based on individual needs and desires and the growth of certain types of qualitative thinking such as individual expression ([Boavida, Aguiar, McWilliam, & Pimentel, 2010](#)).

In addition to the effect on learners' learning, individual education is also effective on their other cognitive and emotional outputs. One of these consequences is the academic attitude that has a special relationship with students' progress. Attitude is a combination of beliefs and emotions that prepare a person in advance to look at others, objects, and groups in a positive or negative way. Attitudes summarize the evaluation of objects and thus undertake to predict or guide future actions or behaviors. Attitude can be defined in terms of learning theories and cognitive approach ([Garcia, Restubog, Bordia, Bordia, & Roxas, 2015](#)). In each of these theories, the concept of attitude is defined differently, and each emphasizes different aspects of attitude. Attitude reflects the cognitive and emotional effect of a person's experience of a social object or subject that creates a desire to respond to that object or subject ([Chen, Björkman, Zou, & Engström, 2019](#)).

Students' attitudes toward school, lessons, and school staff have a great impact on their level of interest and desire for education, giving importance to different subjects, and trying and persevering in

completing learning tasks ([Kolovelonis & Goudas, 2018](#)). Attitude is a state of mental and nervous readiness that is organized through experience and has a direct and dynamic effect on the individual's reaction to all issues and situations related to it ([Eagly & Chaiken, 2007](#)). Accordingly, a person's academic attitude reflects the way he thinks, feels and reacts to his academic environment. Attitude includes cognitive, emotional and behavioral elements, which is the most accepted concept for defining attitude ([McLennan, McIlveen, & Perera, 2017](#); [Svenningsson, Höst, Hultén, & Hallström, 2021](#)).

Another variable that is important and related to students' academic life and can play an effective role in their lives is academic self-efficacy. Academic self-efficacy is defined as the ability to understand one's abilities to perform the tasks necessary to achieve educational goals ([Honicke & Broadbent, 2016](#); [Schunk & Pajares, 2002](#)). Students with higher academic self-efficacy have better academic adjustment and use more rewarding learning strategies ([Esmaeili, Sohrabi, Mehryar, & Khayyer, 2019](#)). Academic self-efficacy is the belief that a person has the ability to organize and implement the necessary actions in the situations ahead. In other words, self-efficacy is the belief in one's own ability to succeed in a given situation. Bandura considers such a belief to be the determining factor in the way people think, behave and feel ([Feldman & Kubota, 2015](#)). Academic self-efficacy, in particular, means confidence in completing academic tasks such as reading a book, answering questions in class, and preparing for an exam ([Di Giunta et al., 2013](#)). High levels of academic self-efficacy lead to higher grade point average and consistency in homework completion ([Galyon, Blondin, Yaw, Nalls, & Williams, 2012](#)). As a result, students with higher academic self-efficacy have better academic adjustment ([Akanni & Oduaran, 2018](#)). Levels of self-efficacy can increase or decrease motivation. Students with high levels of self-efficacy are attracted to difficult and challenging tasks and do not avoid them ([Dogan, 2015](#)). Students' personal self-efficacy beliefs also determine their level of motivation; That is, to what extent they show perseverance and to what extent they resist hardships and obstacles and do not give up ([Kostagiolas, Lavranos, & Korfiatis, 2019](#)).

Various studies have investigated the effectiveness of individual education on different cognitive and emotional outcomes in students. In one of these studies, [Pour Hosein Jafari, Aghdasi, and Ghiami Rad \(2020\)](#) investigated the effect of Individual and dyad training on aerobic skill learning in elderly. The results showed that dyad training method with care to more learning in elderly women is one of the most effective and effective methods along with other methods in order to learn motor skills. [Dehpasi and Sadoughi \(2019\)](#) also investigated the effect of individual learning model on self-efficacy and academic achievement of second grade elementary students. The results showed that after adjusting the scores, the experimental group and the control group were different in the post-test of academic achievement and academic self-efficacy, and individual learning model was effective on academic achievement and self-efficacy of students in the experimental group. [Mojganian and Sultan Sadoughi \(2014\)](#) in another study examined the effect of individual education method on reading skills of students with learning disabilities in the second grade of elementary schools in Yazd. The results showed that the individual education method is effective on reading skills of students with learning

disabilities. [Amit-Aharon, Melnikov, and Warshawski \(2020\)](#) investigated the effect of evidence-based practice on literacy self-efficacy and academic motivation. The results showed that evidence-based practice is effective on literacy self-efficacy and academic motivation.

New achievements in line with advances in world technology, especially computers, have led to the discovery of a variety of teaching methods that are now practiced in many schools in developed and industrialized countries. One of these methods, which have been considered with historical support in new formats and based on individual differences, is individual training methods ([Morin & Samozino, 2016](#)). In today's formal education system in Iran, for some reason, the use of these methods is limited. In Iran today, professionals who pay attention to the principles of learning, sometimes emphasize the principles of learning behaviorism incorrectly, or do not pay attention to the principles of learning at all and teach in a completely traditional way ([Maleki, 2019](#)). Therefore, it seems that the use of individual training methods such as computer assisted training requires comprehensive planning and special facilities. Therefore, based on the findings of previous research and the need to design effective educational methods, in the present study, the effectiveness of individual education intervention on academic attitudes and academic self-efficacy of sixth grade elementary students has been investigated.

Material and Methods

The research method is quasi-experimental using a pre-test-post-test design with a control group. The statistical population of the present study was 671 sixth grade students in Bushehr, Iran in 2022. The research sample was selected by accessible sampling method from the statistical population. Accordingly, out of 671 sixth grade students in Bushehr, 30 who had lower academic attitudes and academic self-efficacy and were willing to participate in the study were randomly assigned into experimental group ($n = 15$) and control group ($n = 15$). The Individual Education Intervention (IEI) in this study was presented to sixth grade elementary students in 5 sessions. Data were analyzed using analysis of covariance and SPSS 24 software. Inclusion criteria included: 1- No acute mental and personality disorders (based on personality test) 2- No physical or psychological illness 3- Motivation to attend sessions regularly. Exclusion criteria also included: 1- not attending more than two consecutive sessions 2- requesting non-cooperation by the individual 3- lack of motivation to perform activities. In the case of ethical considerations, the subjects were assured that the questions of the questionnaires are purely research-oriented and do not require writing their personal information. The subjects also participated in the research voluntarily and were assured that they could leave the training sessions whenever they wished. Participants also completed an informed consent form to participate in the study before beginning the study. To collect data, two questionnaires of academic attitude and academic self-efficacy were used, which are introduced following.

Academic Attitude Questionnaire: Akbari Academic Attitude Questionnaire (2004) was used to assess students' academic attitudes. This questionnaire has 24 questions in 5-point Likert form (strongly agree, agree, have no opinion, disagree, strongly disagree). In negative questions (2, 3, 5, 8,

10, 13, 14, 15, 17, 18, 21, 22) the scoring is inverse. The individual score in the whole test is calculated by adding the points in the negative and positive questions. Akbari (2004) reported a good validity of the questionnaire in his research using factor analysis and its reliability by Cronbach's alpha method .82. The reliability of this questionnaire in the present study was 0.86 which was calculated by Cronbach's alpha method.

Jing and Morgan Student Self-Efficacy Questionnaire: The [Jinks and Morgan \(1999\)](#) Student Self-Efficacy Questionnaire has 30 questions in the form of four-choice Likert (strongly disagree, 1, disagree, 2, agree, 3, and strongly agree, 4). This questionnaire has three subscales (talent 1 to 10, context 11 to 20 and effort 21 to 30). The scoring method of this questionnaire is that the scores of the questions are added together. Questions 4, 5, 15, 16, 19, 20, 22 and 23 are scored in reverse. A higher score in this questionnaire indicates higher academic self-efficacy. [Jinks and Morgan \(1999\)](#) reported the reliability of the questionnaire .85 using Cronbach's alpha method. The reliability of this questionnaire in the present study was .84 with Cronbach's alpha method.

Results

Table 1 presents the mean and standard deviation of academic attitude and academic self-efficacy components of the participants in the experimental and control groups in the post-test.

Table 1. Mean and standard deviation of academic attitude and components of academic self-efficacy of participants in the experimental and control groups in the post-test

Variables	Experimental group		Control group	
	Mean	SD	Mean	SD
Academic attitude	24.47	3.62	21.58	.41
Talent	40.22	1.32	36.84	2.56
Context	32.99	2.38	28.67	1.38
Effort	30.34	1.24	26.55	1.78

According to Table 1, the mean of academic attitude in the experimental group in the post-test is higher than the mean of the control group. To test the differences, analysis of covariance was performed on the post-test scores of academic attitude by controlling the pre-test score. The results of this analysis are shown in Table 2.

Table 2. Results of one-way analysis of covariance related to the effect of individual education intervention on academic attitudes

Source	SS	DF	MS	F	p	Eta
Pretest	.174	1	.174	.068	.79	.003
Group	61.35	1	61.35	23.95	.001	.47
Error	69.16	27	2.56	-	-	-
Total	130.51	30	-	-	-	-

According to Table 2, after controlling the pre-test effect, the calculated F is equal to 23.95 that is

significant at the level 0.001. Therefore, it can be said that the individual education intervention has increased the educational attitudes of the participants in the experimental group compared to the participants in control group. According to the reported effect size (ETA), it can be said that the effect of individual education intervention on academic attitudes is .47 and this intervention explains 47% of the variance of academic attitudes.

According to Table 1, the mean of components of academic self-efficacy, i.e. talent, context and effort in the experimental group in the post-test is higher than the mean of the control group. To test the observed differences, multivariate analysis of covariance was performed on the post-test scores of academic self-efficacy components by controlling the pre-test scores. The results are presented in Table 3.

Table 3. Results of multivariate analysis of covariance on post-test scores of components of academic self-efficacy

Effect	Test	Value	F	Hypothesis DF	Error DF	P	Eta
Group	Pillai's trace	.802	21.26	3	24	.001	.80
	Wilks' lambda	.198	21.26	3	24	.001	.80
	Hotelling's trace	4.05	21.26	3	24	.001	.80
	Roy's largest root	4.05	21.26	3	24	.001	.80

Table 3 shows the results of multivariate analysis of covariance on post-test scores by controlling the pre-test score of the components of academic self-efficacy, namely talent, context and effort. According to Table 3, there is a significant difference between the experimental and control groups at least in terms of one of the components of academic self-efficacy at the level .001. To examine more accurately the difference, one-way analysis of covariance embedded in MANCOVA was performed on the components of academic self-efficacy, namely talent, context and effort. The results of this analysis are presented in Table 4.

Table 4. Results of one-way analysis of covariance embedded in MANCOVA on post-test scores by controlling pre-test scores of academic self-efficacy components

Source	Variables	SS	DF	MS	F	p	Eta
Group	Talent	72.64	1	72.64	49.53	.001	.67
	Context	118.95	1	118.95	58.7	.001	.71
	Effort	86.33	1	86.33	41.06	.05	.14

Table 4 shows there is a significant difference between the experimental and control groups in the talent ($F = 49.53$ and $P = .001$), context ($F = 58.7$ and $P = .001$) and effort ($F = 4.06$, $P = .05$). In other words, individual education intervention has improved the components of academic self-efficacy in the experimental group compared to the control group. The reported size of effects shows that the effect of the intervention on the context was greater than the other components.

Discussion

The aim of this study was to investigate the effect of individual education intervention on academic

attitudes and academic self-efficacy of sixth grade elementary school students in Bushehr, Iran. The results showed that the individual education intervention increased the academic attitudes in the experimental group compared to the control group. Also, individual education intervention has improved the components of academic self-efficacy (talent, context and effort) in the experimental group.

Our findings are consistent with the study results of [Pour Hosein Jafari et al. \(2020\)](#), [Dehpasi and Sadoughi \(2019\)](#), [Mojganian and Sultan Sadoughi \(2014\)](#), and [Amit-Aharon et al. \(2020\)](#). One of the most active levels of educational innovation in recent decades has been the individualization of education. Studies in this field show that no particular technique or method is suitable for individual training in all situations. How it is implemented successfully depends on the set of variables involved in learning. The type of goals, the level of the learner's ability, the number of students in the class, the type of equipment available, the teacher's skill and ability, and the extent of the individual differences of the students are some of these variables.

Many educational psychologists and educators believe that the learning situation should be organized in such a way that each student works and learns according to their abilities ([Wuensch, Pool, & Sander, 2021](#)). To achieve such a goal, individual training methods are very suitable methods. In these methods, students move forward according to their abilities, and the teacher spends less time teaching and more time caring for the individual student. Of course, the first and most fundamental step in achieving such a goal is to accept the concept of student-centered design and education. In many cases, achieving educational goals through individual training is much easier and more feasible than other traditional methods. Especially if the individual education method is used correctly, the students' spirit of independence in performing activities will be strengthened. Individual education does not necessarily mean teaching a student by a teacher with a specific curriculum. Individual training may also be done in groups. Of course, when individual training is designed as a group, it is better to train a group of students who have common characteristics. Individualizing education is one of the important phenomena of educational systems in recent years. Teachers and educators have repeatedly questioned the effectiveness of traditional methods and expressed dissatisfaction. This dissatisfaction was partly due to individual differences between students. If individual differences are not taken into account in the classroom, fatigue, disgust and hatred of educational activities will result. The solution to such a problem is to use individual teaching methods or to classify students based on abilities.

Based on the findings of the present study, it is suggested that teachers be taught how to design and implement individual training methods in workshops. It is also suggested that in future research, the effectiveness of this intervention on other academic and motivational variables such as academic achievement and achievement goals in students should be examined. In the present study, the gender of students was not examined. It is suggested that the effect of gender as a moderator variable be studied in future studies.

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