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The Effectiveness of PRIZ Creativity Training Program on the Individual-Social Adaptation of High School Students in Shabestar

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Abstract

Purpose: The aim of this study was to investigate the effectiveness of the PRIZ creativity training program on individual-social adjustment of high school students.

Methodology: The research method was quasi-experimental with pre-test and post-test design and control group. The statistical population of the study included all female students in the first year of Shabestar high school in the academic year of 2018-19, numbering 1524 people. The sampling method was multi-stage cluster random sampling to select the school and the purposeful method was to select the students based on the inclusion and exit criteria in the experimental design. For this purpose, 30 students were selected and randomly divided into experimental (n = 15) and control (n =15) groups. To collect the data, the California Standard Individual and Social Adjustment Questionnaire (CPI) were used. To analyze the data in the inferential section, multivariate analysis of covariance test and spss24 software at a significance level of 0.05 were used.

Findings: The results showed that the mean of individual and social adjustment in the experimental group increased significantly after training and there was a significant difference in the post-test scores of individual and social adjustment of the "experimental group" compared to the "control group"(P<0/001).

Conclusion: The PRIZ creativity training program has a significant effect on improving the level of individual-social adjustment of female students.

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1. Introduction

Today, with the many problems that exist in societies, study and research on the adaptation of people to improve their lives is of great importance. Therefore, one of the important issues that need to be addressed is the issue of student adaptation. Adaptation is the adaptation to conditions and changes in an optimal way and with appropriate flexibility (Thapar et al., 2012). Undoubtedly, adolescence is one of the most critical stages of human development and it is natural that the characteristics of this period change the social adjustment of adolescents (Ejei, et al., 2012).

The basis of social behavior and individual and social adjustment is established in this period and it is in the course and events of this period that one learns and applies the correct communication with others (Kwan et al., 2014). People with positive adaptation are able to adapt effectively to the needs of life, but people with negative adaptation are weak in interacting rationally with the environment and presenting behavior appropriate to the culture, rules and regulations, social norms and customs. They also lack the ability and skills to meet needs and communicate well with others, have inappropriate adaptive strategies, or lack the necessary adaptive skills (Neihart, 2002). Individual-social adaptation is the ability to adapt to all aspects of interpersonal relationships, the ability and talent to live and express oneself according to societal constraints and cultural demands, and to coordinate behavior to meet environmental needs that often require impulse control. , Emotions and attitudes (American Psychiatric Association, 1994).

Creativity is a desirable human trait that schools must be serious about educating. Teaching creativity or training creative thinking, as one of the main goals of education, has always had public support. Creativity is the creation of a new, valuable and appropriate design. In other words, creativity is the use of mental abilities to create a new thought and concept. The growth and development of creativity depends on various individual and social factors such as intelligence, family, personality traits and…. Although creative ability is potentially and instinctively deposited in humans, its emergence requires proper education (Mirkamali and Khorshidi, 2012). However, paying attention to fostering creativity in children and students is one of the important issues that education experts have always paid attention to and recommended about it (Radbakhsh, et al., 2013).

Creativity is the basis for the growth of social adjustment and on the other hand, adaptive and socially skilled people have more creativity and innovation (Afshar Niakan, 2001). Paying attention to the creative talents of individuals and providing the ground for the emergence of this talent and creating an atmosphere in the school that develops ambiguity, contradiction, contradiction and failure, will promote creativity and innovation and as a result students' social adjustment will increase under the influence of their innovation. On the contrary, if the grounds for the development of students' creativity are not provided and their social adjustment and related factors are not examined, their academic performance will decline and will be reduced (quoted by Abtahi and Naderi, 2011). Therefore, today, society needs new and creative educational models to prepare students to face life crises and take advantage of their opportunities, abilities and creativity (Myers, 2015).

One of the effective methods and techniques in cultivating people's creativity is the PRIZ method. The PRIZ method, which is a new technique for teaching creative skills and based on the facts about the quantum properties of the water molecule, is a powerful tool for developing new ideas during problem solving as well as problem-solving (convergent thinking and divergent thinking). The word PRIZ is derived from the first letters of the words in the Russian phrase with abbreviation (PIPS) and means the theory of innovative solution of the Parviz problem. The solution to the appropriate analysis of the proposed problem is to identify and formulate a general problem, analyze and determine the relationships between the components and finally create a suitable and new combination to determine the specific solution. In other words, the PRIZ is the logical analysis, the logical combination and the synergy resulting from this analysis and combination. According to this method, creativity means "rehabilitation to the potential and actual capabilities and capabilities of the subject under study". In other words, PRIZ tries to activate all the

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visible and hidden angles of the subject under study and to make optimal use of it in a new combination (Abdoltajedini et al., 2016).

Since one of the basic elements of maintaining adolescents' physical and mental health is their adaptation, on the other hand, today, society for the improvement and development of human beings needs to cultivate creative and innovative human beings who can keep pace with the progress and development of science and technology. In society, have the ability to approach creatively and creatively to solve problems. With this approach, the need to train and strengthen creativity to achieve a prosperous society is of particular importance. Due to this, the ground should be prepared for the manifestation of students' talents and creations with appropriate measures. For this reason, in this study, we seek to investigate this issue and examine the effectiveness of creativity education program based on the PRIZ technique on individual-social adjustment of high school students. So the main issue in this plan is whether the PRIZ Creativity Training Program can improve the level of individual-social adjustment of junior high school students?

2. Methodology

This research was a quasi-experimental study with a pretest-posttest design with a control group. The statistical population of the study includes all female students in the first year of Shabestar high school in the academic year 2018-19, according to the reported statistics of education, 1524 people. Female students were selected to study only because of their ease, availability, and easy data collection. The sampling method was multi-stage cluster random sampling to select the school and the purposeful method was to select the students based on the inclusion and exit criteria in the experimental design. Determining inclusion criteria is important because it partially eliminates the interfering factors in the study. Inclusion criteria in the present study are female students in the eighth grade aged 15-14 years and the lowest score in the California Individual-Social Adjustment Questionnaire (CPI), which was initially presented to students as a pre-test to complete and Exclusion criteria were lack of motivation and interest and dissatisfaction to continue participating in the research and absence of more than two sessions in the pilot sessions. Thirty students were selected by this method and randomly divided into experimental and control groups. The California Individual and Social Questionnaire are used to assess adolescents' social - individual adjustment.

Clark et al.,(1953) developed a test to measure different life adaptations that have two poles of individual and social adjustment, with 180 two-choice yes or no questions. This test has 12 subscales, half of which measure individual adjustment and the other half for measuring social adjustment (Amidnia, Nisi and Sudani, 2010). In the field of individual adjustment, 6 specific scores related to self-reliance, self-perception, personal freedom, feeling dependence, repulsive tendencies, neurological symptoms and the total scores of this section, one score is obtained as individual adjustment. In the field of social adjustment, 6 specific scores related to the factors of social templates, social skills, antisocial tendencies, family relations, school relations, Community relations, and from the total scores of this section, one score is obtained as social adjustment. The reliability of the California test using the Cronbach's alpha test is 0.87 for the individual adjustment scale and 0.85 for the social adjustment scale. Eftekhar Saadi obtained the California questionnaire's reliability using Cronbach's alpha and Split-half methods for 0.96 and 0.95 for individual adjustment, 0.94 and 0.89 for social adjustment, and 0.97 and 0.91 for the whole questionnaire, respectively. The validity of the California test scale in the areas of individual adjustment, social adjustment and total score was determined by correlation with the standard questions. These coefficients for individual adjustment are 0.62, social adjustment 0.61and for the total questionnaire 0.79. This has been reported to be significant (Eftekhar Saadi et al., 2009). PRIZ creativity training program during 8 sessions (2 hours each session), the experimental group was trained in the PRIZ creativity

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program. To analyze the data in the inferential section, multivariate analysis of covariance and spss24 software were used at a significance level of 0.05.

3. Findings

Table1. Mean and standard deviation of individual-social adjustment of experimental and control groups in pre-test and post-test

variable	Test turn	examination Group		control group	
		average	Standard deviation	average	Standard deviation
Self-reliance	pre- test	8/14	2/07	6/80	2/18
	Post-test	10/60	1/99	6/80	2/18
Self-perception	pre- test	9/20	2/43	8/40	2/78
	Post-test	11/54	1/80	8/40	2/78
Personal freedom	pre- test	10/27	2/99	10/87	2/98
	Post-test	12/07	1/71	10/87	2/98
Feeling dependence	pre- test	9/94	2/69	11/67	1/45
	Post-test	12/47	1/69	11/67	1/45
Repulsive tendencies	pre- test	8/07	2/38	7/47	3/50
	Post-test	10/67	2/20	7/47	3/50
Neurological symptoms	pre- test	7/07	2/19	7/00	2/70
	Post-test	10/60	2/65	7/00	2/70
Individual compatibility	pre- test	52/67	10/05	52/20	9/72
	Post-test	67/94	8/76	52/20	9/72
Social templates	pre- test	12/87	1/51	12/00	1/89
	Post-test	14/14	0/93	12/00	1/89
Social skills	pre- test	8/87	2/95	9/60	1/99
	Post-test	11/20	1/70	9/60	1/99
Antisocial tendencies	pre- test	9/47	2/10	8/94	2/84
	Post-test	12/00	1/47	8/94	2/84
Family relations	pre- test	9/74	3/66	10/67	2/39
	Post-test	12/40	1/64	10/67	2/39
School relations	pre- test	8/40	2/83	8/27	2/19
	Post-test	11/74	1/80	8/27	2/19
Community relations	pre- test	7/87	2/29	8/40	2/80
	Post-test	11/00	1/82	8/40	2/80
Social adjustment	pre- test	57/20	9/81	57/87	7/65
	Post-test	72/47	5/91	57/87	7/65
Total compatibility	pre- test	109/20	19/52	109/40	16/77
	Post-test	140/40	13/12	109/40	16/77

Table 1 shows the mean and standard deviation of pre-test and post-test scores of the components of individual and social adjustment and total adjustment. According to the results of descriptive statistics presented in the scoreboard, the average components of self-reliance, self-perception, personal freedom, feelings dependence, repulsive tendencies, neurological symptoms, social templates, social skills, antisocial tendencies, family relations, school relations and Community relations in the experimental group in the two stages of pre-test and post-test had significant changes and indicates that the PRIZ Creativity Training Program in the experimental group was more effective than the control group (without training). Kolmogorov-Smirnov test was used to evaluate the normality of the distribution of scores. The results showed that the level of significance for the components of individual adjustment and social adjustment in this study was more than 0.05; Therefore, all components of the studied variable are normal and parametric statistical tests (multivariate analysis of covariance) can be used to test research hypotheses. Levene test was used to evaluate the homogeneity of variance of the components. According to the results,

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all the components of individual adjustment and social adjustment with homogeneous and uniform variance and the assumption of homogeneity of variance were established (P <0.05). The homogeneity of the covariance matrix was investigated using M box, which showed that the assumption of homogeneity of the covariance matrix was established.

Table2. Results of covariance analysis test of total difference between groups in post-test of dependent variable of individual adjustment

Variables / Indicators	Criterion statistics	Statistical value	F	df Hypothesis	df error	Sig
group	Pillais Trace	0/98	1/80	6	23	0/04
	Wilks Lambda	0/71	1/80	6	23	0/03
	Hotelling's Trace	0/43	1/80	6	23	0/ 05
	Roy's Largest Root	0/43	1/80	6	23	0/05

The information in Table (2) shows that all four statistical indices of the test criterion were significant for the differences between the groups in terms of the studied variables. Therefore, the two groups were different in at least one of the variables. The follow-up test is listed in Table (3) for individual adjustment.

Table3. Results of multivariate analysis of covariance Difference of variables in groups for individual adjustment

Source of change	Variable	Total Squares	DF	Average squares	F	Sig
group	Self-reliance	10/50	1	10/50	19/82	0/04
	Self-perception	9/85	1	9/85	24/02	0/02
	Personal freedom	4/73	1	4/73	21/50	0/02
	Feeling dependence	6/25	1	6/25	24/03	0/01
	repulsive tendencies	1/74	1	1/74	10/89	0/00
	neurological symptoms	1/02	1	1/02	12/75	0/01
Error	Self-reliance	14/75	28	0/53		
	Self-perception	11/23	28	0/41		
	Personal freedom	6/00	28	0/22		
	Feeling dependence	7/06	28	0/26		
	repulsive tendencies	4/29	28	0/16		
	neurological symptoms	2/30	28	0/08		
Total	Self-reliance	26/50	29			
	Self-perception	40/30	29			
	Personal freedom	14/26	29			
	Feeling dependence	24/36	29			
	repulsive tendencies	65/47	29			
	neurological symptoms	43/55	29			

Aa the results of analysis in Table (3) show, by controlling the effect of the pretest, the F obtained in all components of individual adjustment, ie "self-reliance, self- perception, personal freedom, Feeling dependence, repulsive tendencies, and neurological symptoms" at the level of 0.05 was significant. In other words, there was a significant difference in the post-test scores of individual adjustment of the "experimental group" with the "control group" and the mean of the components in the experimental group increased significantly after training. Therefore, it can be said that the PRIZ creativity training method had an effect on increasing the individual adjustment components of female students and the individual adjustment performance of the subjects depended on the "effect of PRIZ creativity training".

Table4. Results of covariance analysis test of total difference between groups in post-test of social adjustment dependent variable

Variables / Indicators	Criterion statistics	Statistical value	F	df Hypothesis	df error	Sig
group	Pillais Trace	0/49	1/65	6	23	0/05
	Wilks Lambda	0/80	1/65	6	23	0/04
	Hotelling's Trace	0/35	1/65	6	23	0/04
	Roy's Largest Root	0/35	1/65	6	23	0/04

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The data in Table (4) showed that all four statistical indices of the test criterion were significant for the differences between the groups in terms of the studied variables. Therefore, the two groups were different in at least one of the variables.

Table5. Results of multivariate analysis of covariance Difference of variables in groups for social adjustment

Source of change	Variable	Total Squares	DF	Average squares	F	Sig
group	Social templates	4/02	1	4/02	23/65	0/01
	social skills	2/79	1	2/79	6/45	0/05
	antisocial tendencies	1/24	1	1/24	3/65	0/04
	Family relations	2/50	1	2/50	16/67	0/02
	School relations	0/40	1	0/40	3/64	0/04
	Community relations	3/23	1	3/23	16/50	0/02
Error	Social templates	4/70	28	0/17		
	social skills	11/80	28	0/43		
	antisocial tendencies	9/50	28	0/34		
	Family relations	4/00	28	0/15		
	School relations	2/90	28	0/11		
	Community relations	5/52	28	0/20		
Total	Social templates	41/90	29			
	social skills	39/12	29			
	antisocial tendencies	70/25	29			
	Family relations	52/42	29			
	School relations	85/20	29			
	Community relations	45/41	29			

As the results of the analysis in Table (5) show, by controlling the effect of the pre-test, the F-test obtained in all components of social adjustment, ie "social templates, social skills, antisocial tendencies, family relations, school relations and Community relations." at the level of 0.05 was significant . In other words, there is a significant difference in the post-test scores of social adjustment of the "experimental group" with the "control group" and the mean of the components in the experimental group has increased significantly after training. Therefore, it can be said that the PRIZ creativity teaching method has had an effect on the components of social adjustment of female students. The results also show that the subjects' social performance was dependent on the "effect of PRIZ creativity training".

4. Discussion

The aim of the present study was to evaluate the effectiveness of the PRIZ Creativity Training Program on individual-social adjustment of first grade high school students in Shabestar. The results of testing the hypotheses showed that the PRIZ creativity training program had an effect on improving the level of individual and social adjustment of female students in Shabestar junior high school. Abedin (2014), Shirazi Nejad (2013), Abtahi and Naderi (2011), Moghars Band (2010), Rahnama and Abdolmaleki (2009), Veronique et al. (2018), Shamionov, Grigoryeva and Grigoryev (2014), Mathisen and Bronnick (2009) is consistent. In explaining this finding, it can be said that the two variables of creativity and social adjustment of students are effective factors in creating and encouraging students' optimal academic performance, so that creative and adaptable academic and environmental individuals also have good academic achievement. Therefore, one of the important ways to improve students' academic performance is to create a creative and flexible structure and provide the necessary context for the flourishing of talents and creative force of learners. Also, helping students to establish a healthy and appropriate relationship with their social environment for emotional and emotional development and the formation of independent identity, interaction and interaction with others can improve students' academic performance (Abtahi and Naderi, 2011).). Through the PRIZ Creativity training program, students become creative personalities who, due

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to desirable personality traits such as self-confidence, independence of thought, innovation, etc., improve the quality level of their individual-social adaptation. As a result, they will be able to be effective in solving many individual-social problems of their society.

The results are also consistent with the findings of Pirkhaefi (2018), Pirkhaefi, Godini and Hosseini (2017), Asnaashari, Foladchang and Daryapor (2017), Pirkhaefi and Haghiri (2016), Daliri (2015). In this regard, it can be said that in the case of individual-social adjustment, when students have not received any education, they express all that was inherently and sometimes involuntarily acquired, and sometimes give higher responses to the negative components. (For example, anti-social interests) while education has caused the results of anti-social interests to decrease and students to better adapt to their personal and social environment, and in the control group who have not received any education, the opposite results is.

In general, the PRIZ Creativity training program strengthens skills such as interacting with others, believing in talents and abilities, having self-esteem and self-esteem, gaining identity and independence, having reasonable expectations of oneself and others, learning social skills, and so on... can help students engage with real-life problems and think in unusual ways if the limitations and limitations of instruction in the classroom are minimized. Use their creative power to solve problems and be creative and independent thinkers. In this way, they will be able to face the desires and challenges of everyday life, find the ability to adapt personally and socially, and form the right social and interpersonal relationship. Findings of this study with research by Bxtst, Bockstedt et al. (2015), Salakhatdinova and Palei (2014), Michalopoulou (2014), Kandemir and Gür (2009), Ypatumai (2006) and Abdoltajedini et al. (2017) In relation to creativity, which significantly promotes creativity in students and creates creative products in them and leads to increased performance, is consistent. Despite all these interpretations, the present study has not been without limitations. The most important of them are: Lack of attention to cultural differences in the implementation of the questionnaire due to being made abroad, Lack of control over the effect of some intervening variables such as personality traits Subjects, their social and economic status, lack of motivation and interest in students to answer the questionnaire, difficulty in generalizing the results due to sample limitations. Therefore, it is suggested: 1) to use the results of this research for educational applications. 2) In order to achieve creativity in students, creativity should be considered as a goal in the development of educational programs. 3) To promote creativity, students with challenging assignments should be rewarded and encouraged if the problem is solved creatively. 4) If possible, conduct this research in different educational levels and other geographical areas with different cultural contexts and other fields other than education and compare the results with the results of the present study.

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