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## The Effectiveness of Training Problem Solving Skills on the Resiliency of the Students Residing At the Dormitory of the Industrial University Of Khaje Nasiredin Toosi.

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### ABSTRACT

This paper was carried out with the aim of determining the effectiveness of training problem solving skills on the resiliency of the students residing at the dormitory of the Industrial University of Khaje Nasiredin Toosi. The statistical sample included 34 volunteer students who participated in educational workshops for problem solving and were randomly placed into two experimental and control groups. The problem solving skill was taught for 5 sessions to the experimental group while the control group received no intervention. Both groups were measured by the Connor and Davidson Resiliency Scale, prior to and after the training. Findings: the univariate Covariance analysis (ANCOVA) was used for analyzing data. The results obtained indicated that there was a significant difference of resiliency between the experimental and control groups. To put the other way, training problem solving skills resulted in significant increase of resiliency of the experimental group. This study represents the importance of training problem solving skills in increasing resiliency among the students of the experimental group. The findings of this research are in concert with those of other researches. All the researches indicate that an increase in the problem solving skills would engender higher resiliency.

**Keywords:** Training, Problem solving skills, Resiliency.

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## INTRODUCTION

Man always faces with various problems in life, some of which are so unbearable. On the one hand, the way people deal with the problems is not identical. While observing these people, the question that arises is why some people have special resiliency in dealing with stressful pressures and how they maintain the strength to cope with and resist them, whereas some others face with mental and behavioral fragility under similar circumstances and expose weak and ineffective performances. Garmezy et al (1984) found out that some children, in spite of the circumstances expose appropriate behavioral situation and they show no behavioral problems. This finding helped pose a question that why some people influenced by factors that bring about some mental and emotional problems for some others do not experience these implications. The questions of this type and a range of clinical observations will give rise to more attention to the concept of resiliency (Leshner, 2002; quoted by Glantez and Hartel, 2007). The scholarly and primary activities of some people like Garmezy, Rutter and Werner resulted in an advance of studies in the field of resiliency (Garmezy, 1991; Werner and Smith, 1992). Resiliency is a subject that could be informing in the area of peoples' actions; it is a concept that will direct our attention from failure under hard situations towards positive personal, mental and social growth (Liebenberg and Unger, 2008). Linguistically speaking, the concept of resiliency is concerned with the tendency of an object for the recovery of its own form and structure after having been changed under influence (Strumpfer, 2003). Muller and Louw (2004) defined resiliency as a characterization of a set of characteristics that raises a successful adaptation and development, despite presence of risk factors. Freiberg (1994) defined resiliency as the ability of proactive reaction against the reactive reaction in complex situations (quoted by Kaplan, 1999). Today, developing resiliency and increasing it among adolescents and adults assumes high importance. In this regard, we can refer to the fact that the admission of the young people to the university and the start of the student's life will be an encountering of new life and various changes. A transition from high school to the university entails changes in educational styles, facing new situations and expectations. Moving from one city to another and living at dormitories, distance from the family and its attachment are among the new challenges for some of the students who are just admitted to the universities. Thus, successful adaptation and conformity with these new situations will involve necessary skills and abilities, wherein acquiring and promotion of them are deemed key for success. In this regard we can refer to resiliency and its promotion. With respect to the issue of resiliency and the constituting factors of it, some theories have been raised. Hauser (1999), Masten et al (1990) have defined resiliency as a positive implication and consequence which includes mental health, academic achievement and success in doing growth related assignment, self-esteem and social competency. Garmezy and Masten (1991) define resiliency as a successful process, power or result with threatening conditions. This concept is also defined as the person's return to the normal work after a stressful event or some negative affect. The process of resiliency is not limited to the childhood period and could extend into the elderly times. Resiliency is not just a list of characteristics. Resiliency is a result of a resilient process within the actual life and that the resilient behavior can be learned and acquired. Kumpfer (1999) points out that positive adaptation with life could be both considered as a result of resiliency and engender a higher level of resiliency as an antecedent. He regards this issue as resulting from the complexity of the definition and looking at resiliency as a process. According to the models presented by Everall et al (2006), three performance approach spheres have been defined for resiliency and it is founded on them:

Resiliency is supposed to be a personality trait or the ability of prediction of people against some negative effects of vicissitudes and the likelihood of risk, 2. A positive psychic situation or mental health (e.g. positive understanding, positive self-concept, academic achievement and success in performing duties) despite the presence or likelihood of risks, 3. A dynamic process that affects the actions of personal and surrounding variables and changes over time.

Although resiliency is to some extent is a personal trait and to some degree is a result of people's environmental experiences humans are not victims to their own environment or heredity and hence people's reaction could be changed against stress, unpleasant events and difficulties, such that they can overcome the negative effects of their own environment. In other words, resiliency is a positive adjustment in response to severe threatening conditions. (Waller, 2001). We can say that resiliency is a personal ability for preserving life, mental balance under risky circumstance (Connor and Davidson, 2003). Resiliency takes root in some psychological theories. The Freud's attention to the human ability for overcoming unfavorable conditions (Masten and Coatsworth, 1998), the Balby's attachment concept, Black's Ego-resiliency and the Vailant's defensive mechanisms, such concepts asocial interest, fundamental mistakes, courage, being incomplete and

encouragement in the theory by Adler and his colleague Driekurs, the position of self-efficacy expectations in determining adaptive behaviors and the level of personal efforts and resistance in facing obstacles and unfavorable circumstance by Bandura, role of system of beliefs and personal attitudes from the view of Elise and Beck, also role of cognitive assessment in peoples' getting along with situations from the view of Lazarus and Volkmann, the ecological view by Bronfen Burner, peoples' thinking and explanation by Seligman, and in the end, role of giving significance to life for remaining under unpleasant events based on the Frankel's theory (Cory, 2005). An important point is that success at the university requires adaptation with new conditions, including facing with situations related to the dormitory, readiness and presence at classrooms and taking exams. To attain success, a student should promote such abilities as critical thinking related with the life changing events and increase his resiliency, while seeking ways for new adaptation conditions with the environment (Hassim, 2013). The challenges ahead of the new students is a combination of physical and social stressful factors which are known as risk factors, where these factors could produce some thoughts that would endanger growth of mental health and positive adjustment manners. They could be realized as obstacles for their participation in the society (Banato, 2011). Wasonga et al (2003) also state that students require resiliency to overcome their academic problems and adaptation with student life. They are often times vulnerable and are not accustomed with the academic structure and the environment and also the curricula presented there. Masten (2001), regarding success in the student life states that at the microsystem of the university, students need to work to gain education and seek positive academic experiences. They should also have strong religious obligations and turn to psychological counseling so as to go through severe hardships and increase resiliency in order to improve conditions. Thus, according to the studies conducted we can say that psychological interventions could be used for promoting resiliency as training life skills. As Werner and Smith (1992) state resiliency could be reinforced by increasing life skills and social skills. Therefore, training problem solving skills is one of the interventions applied in this regard. Problem solving has always been a part of the human primary thinking and remains as an important dimension of the human life. Sternberg (2009) while defining problem solving states "we get engaged in problem solving when we need to overcome obstacles on the path of answering a question or fulfilling a goal; if we can retrieve a response from memory, we will have no problem, but if we cannot recover a response from our memory, we have got a problem to be solved". Morgan et al (1984) consider the problem as the conflict between the existing situation and another situation we want to create. When a person deals with an assignment or situation where he cannot cope with that situation and cannot respond to it by applying information and skills he has at his disposal, it is said he has a problem (quoted by Seif, 2010). Some research has demonstrated that problem solving skills are related with components of resiliency. Eskin (2013), in exploring the relationship between problem solving, resiliency and adaptation states that scientific evidence indicates that people with high resiliency and adaptation skills, compared to people with low resiliency and adaptation behaviors are less affected by life unfavorable conditions. Meanwhile, problem solving is regarded as an adaptation source or skill and we can say that people with strong problem solving skills have higher levels of conformity and adaptation. Also, Chinaveh (2013) found out that psychological adjustment and adaptation responses of the experimental group students will increase after receiving problem solving skill training. Also, Coskusu et al (2014) have addressed the relationship between the resiliency levels and problem solving skills among students where the results indicated a strong relationship between these two variables. Castro et al (2010) in their qualitative study about the strategies for promotion of resiliency in new teachers found out that these teachers would need problem solving skills and seek help for managing tricky affairs. Dumain (2010) in his research about runaway adolescents stated that there is lower optimism and hopefulness and ineffective problem solving skills. Behzadpoor et al (2014) found out that students who have academic achievement, compared to the ones with weak achievement have higher resiliency and problem solving scores and lower risky behaviors. Since problem solving skills as a cognitive trait is closely correlated with the way person behaves in dealing with life challenges, Schotte and Clum (1987) in their own model of suicide, place emphasis on the correlation between negative life mental pressures, weak problem solving skills and hopelessness in creating these thoughts and based on this pattern someone who has defects in the divergent thinking is not cognitively ready for coping a higher level of life mental pressures and he becomes frustrated under these pressures; therefore, this will engender in weak problem solving skills and bring about frustration and behavior of suicide. Chang (1998) found out that hopeful students have stronger ability to solve problems in relation to the students with lower hopefulness and the students with higher hopefulness used to adopt less avoidance strategy in dealing with stressful conditions. In this regard, Bapiri et al (2010) concluded that training problem solving is effective on reducing frustration and depression and it also improves the coping skills of the adolescents attempting to commit suicide. Therefore, in accordance with a theoretical and research literature review, exploring and importance of problem solving skills and its effectiveness in increasing resiliency of the female dorm students

will be emphasized. This paper was carried out with the aim of determining the effectiveness of training problem solving skills on the resiliency of the students residing at the dormitory of the Industrial University of Khaje Nasiredin Toosi. Therefore, the main question of this paper is whether training problem solving skills affects the promotion of the female students' resiliency rising at the University's dormitory.

## METHODOLOGY

This present research was an experimental research with an outline of pretest and posttest along with a control group. The statistical population of the research included all the female students (80 people at the B.A course) residing at the dormitory of the Industrial University of Khaje Nasiredin Toosi. To sample the population, first bulletins and notifications based on holding problem solving sessions in all stories of the said dormitory were posted, then a session with the presence of these students with relation to the introduction of the said workshop, objectives and characteristics of the period under question was held. Then, 36 people of the students became volunteers to participate in the problem solving skills workshops and were registered. Thus, this number was randomly assigned to two 17 people groups (experimental and control groups). Both groups were once again measured; the first measurement was conducted by implementing a pretest while the second was carried out by a posttest. The group exposed to the independent variable was the experimental group while the group which received no independent variable was called control group. Training problem solving skills was administered to the experimental group in 5 sessions of three hours each. It is noteworthy that the content of the session in the workshop was obtained from the related sources and with the support of the research (Fata et al, 2007). This program involves the following subjects: session I: introduction of group members, introduction of the program and group laws, introduction of the problem solving skill, definition of the problem solving, Session II: Coping and types of it, obstacles to problem solving (effective and ineffective thoughts), people's characteristics lacking problem solving abilities, session III: problem solving skills phases, emotional self-awareness, problem definition, Session IV: Technique of 5 whys, technique of thinking falling, Session V: assessment of guidelines and session conclusion. For any session, some assignments were considered in the session intended where each of the people would do them in accordance with their own actual conditions; meantime, while receiving feedbacks from the previous session, the previous session assignments were reviewed. After eliminating problems new content was presented. A posttest was administered to all the members after the end of sessions and after completing training both groups.

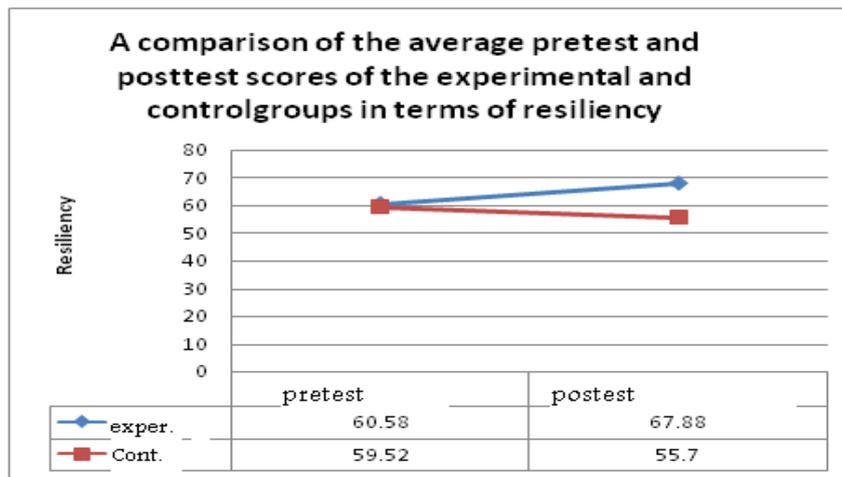
### Research tools

To determine the resiliency extent of the students in the sample group the Connor and Davidson Resiliency Questionnaire (CD-RISC) (2003) was used. This questionnaire was prepared by Connor and Davidson (2003) by reviewing research sources of 1979-1991 about the sphere of resiliency. The developers of this inventory maintain that this tool is well able to divide resilient or non-resilient people within the clinical and non-clinical groups that could be applied in clinical and research situations. This questionnaire has 25 items which is scored on a Likert scale between 0 (totally incorrect) to 5 (totally correct). Foreign reliability: Connor and Davidson reported the Cronbach's alpha coefficient for resiliency 0/89; also the reliability coefficient resulting from the retest was 0/87 in a four week interval. Iranian reliability: this scale was standardized in Iran by Mohamadi. He utilized the Cronbach's alpha for the determination of the scale reliability and reported 0/89 as the reliability coefficient. Foreign validity: The Connor and Davidson scores on resiliency were positively and significantly correlated with the Kobasa's tenacity scale while they were found to be negatively and significantly correlated with the stress perceived scale and the vulnerability scale compared to the Sheehan stress, where these results suggested a concurrent validity of this scale. Iranian validity: To determine ten validity of this scale, first the correlation of each phrase was estimated with the total score of the category, then the factorial analysis was applied. An estimation of the correlation of each score with the total score except for phrase 3, indicated coefficients between 0/41 and 0/64. Then, the phrases of the scale were factorial analyzed by way of main components. Prior to the extraction of factors based on the matrix of phrases correlation two indices of KMO and the sphericity test were estimated. The KMO value was 0/87 and the two Chi value in the Bartlett test was 5556/28 where both indices indicated the sufficiency of evidence for the conducting the factorial analysis.

**RESULTS**

**Table 1: Comparison of average scores of the pretest and posttest on resiliency in the experimental and control groups**

Dependent variable scores in experimental and control group	No.	Average	SD	Min. score	Max. score	Variance
Resiliency pretest (experimental group)	17	60/588	14/027	38	91	196/757
Resiliency posttest (experimental group)	17	67/882	10/349	50	86	107/110
Resiliency pretest (control group)	17	59/29	11/352	43	80	128/890
Resiliency posttest(control group)	17	55/705	14/158	34	86	200/471



As seen in the table and diagram (1), the mean resiliency of the students residing at the dormitory of the university of Khaje Nasir Toosi for the experimental group was 67/88 from 60/58 after training problem solving skills while in the control group who received no intervention, the average resiliency became 55/70 from 59/52.

Research hypotheses were investigated by using the Univariate Covariance analysis (ANCOVA) and as it was referred to, using the Covariance analysis test requires respecting some of the essential hypotheses which are normal scores of the dependent and control variable, homogeneity of variance and that of regression lines. In this research these presumptions were tested. The Kolmogorov-Smirnov test which is applied for the measurement of fitting data with the normal curve indicates that none of the goodness of fit tests is significant and this indicates that all the scores are not distant from the normal curve. Thus, the first presumption of the Covariance analysis test is not distorted.

**Table 2: The Kolmogorov-Smirnov test for measuring fitting data with a normal curve**

Dependent variables	Resiliency pretest	Resiliency posttest
No.	34	34
Average	60/058	61/794
SD	12/576	13/686
Smirnov Z	0/500	0/632
Sig.	0/964	0/819

**Table 3: Leven test for investigating the homogeneity presumption of the variances**

Dependent variable	F size	First freedom degree	Second freedom degree	Sig.
Resiliency	2/365	1	32	0/134

The homogeneity of the error variances is one of the main covariance analysis presumptions that are done by the Leven test. In the table of the Leven test it is applied for investigating this presumption. As stated in this table, the F value related to the Leven test is not significant. This insignificance of the Leven's test indicates that the error variance between the experimental and control groups are not specifically different. Therefore, the second main presumption of the Covariance analysis test is met.

**Table 4: Regression line being parallel**

Source of variance	Square sum	Freedom degree	Cubes average	F test	Sig.
Group * Resiliency of the pretest	44.622	1	44.622	0.319	0.577

There are various methods for investigating this presumption. One of the credible methods is that there should not be a reciprocal action between the pretest variable and the group. As seen in the table, this presumption is met between the group and the retest of the resiliency score: i.e. regression lines are parallel.

**Table 5: Covariance test for investigating the main hypothesis**

Source of variance	Square sum	Freedom degree	Average square	F	Sig.	Partial Eta square
Group	1180/433	1	1180/433	8/618	0/006	0/218
Error	588/829	31	18/985			
Total	23367/00	34				
Corrected Total	734/971	33				

As seen in tis table, the sum of squares and average squares related to groups are  $F=1180/433$  and  $8/618$  being significant at the  $0/05$  level. In other words, there is a significant difference between the groups after altering the pretest scores and training problem solving skills has had a significant effect on the female students' resiliency. The partial Eta square (effect size) for the effects of the independent variable on the dependent variable is  $0/218$  indicting that 21% of the variations are explained by the independent variable, which is to say training problem solving skills affects the resiliency of the female students for as much as 21%.

**CONCLUSION**

This paper was carried out with the aim of determining the effectiveness of training problem solving skills on the resiliency of the students residing at the dormitory of the Industrial University of Khaje Nasiredin Toosi. The results of this research indicated the effects of the intervention of training problem solving on increasing resiliency scores. In other words, there are some differences with regards to the posttest scores of the experimental n control groups The findings of this research are in line with the research results by Garmezy and Masten (1991) who stated resilient behavior can be learned and acquired and results of Kumpfer (1999) who viewed resiliency as a process and Everall et al (2006) who concluded that resiliency could be a dynamic process that affects actions of the personal and surrounding variables and changes over time and also results by Werner and Smith (1992) who found out that resiliency could be reinforced by increasing life skills and social skills. All the researchers maintain that resilient behaviors are learnable, dynamic and change behaviors that can be learned and could be promoted by training life skills. Therefore, research results demonstrate that the experimental group's resiliency extent changed with the educational intervention of problem solving skills and has been increased. Also, the results of this research are consistent with those of Behzadpoor et al (2014), Eskin (2013), Chinaveh(2013), Castro et al (2010). All these researchers have found out the relationship between problem solving g skills and resiliency extent. According to the results obtained we can say that by looking at the student life, particularly those who live in university dormitories we can state that these students will face with new situation as they enter the academic arena and their success requires adaptation with new conditions, residence in then dormitory and various events. They should also adopt planning with respect to their friends who have different educational, familial and cultural backgrounds. Therefore, the resiliency extent as a protective factor can help tm adjust themselves with the challenges ahead and as a psychological factor, it engenders them to expose more adaptive behaviors. In other words, when placed in

hard conditions, the resilient people not only have more resistance and tolerance compared to the non-resilient people but they also expose more decent and proper behaviors. These people will easily life realities, have faith that life is significant and have conspicuous abilities to rapidly adapt themselves with great changes (Luthans et al, 2006). Thus, increasing resiliency skills and promoting the students' psychological capabilities are of high importance and on the other hand, some protective factors are necessary for creating and reinforcing resiliency, of which we can refer to problem solving. Problem solving is a cognitive ability that enables the person to looking at the problem and its definition, to collect necessary data for identification of then situation, problem, obstacles of the problem solving, and directs him towards the problem solving behavior (Sternberg, 2009). To account for the efficacy of the problem solving skill on resiliency extent we can say that people with such skills have been successful at forming guidelines and know how to behave in stressful situations. They will not lose their resistance in the wake of problems and expose successful resilient behaviors and they have come to a belief that there is a way for any problem. They have learned to cope with problems more resiliently with some behavioral and cognitive efforts so that they can reach results which are favorable to them.

The following are recommended in line with research objectives

- University authorities should have a deeper and more comprehensive look at the student as a valuable and effective human source who can take big strides in the path of society development and prosperity. They should also reveal planning for educational programs and psychological and life skills in addition to policy making for the formal education and reinforcing their behavioral and cognitive growth. Truly, a healthy society entails a healthy and effective human force.
- Since training problem solving as a method and a program for the promotion of cognitive and behavioral capabilities like resiliency could prove effective in a healthy personal adjustment with his own conditions, it should be considered not only for the students but also for the whole population.
- Problem solving as a skill requires to be presented in consistent sessions proportionate with educational packages including tasks, assignments and role play within each session.

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