

Investigating the Effect of Teaching Problem Solving in Groups on the Procrastination of Students

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Abstract

The present study aims to investigate the effect of teaching Problem Solving in groups on the procrastination of male high school students in the city Larestan. This experimental research has used pretest-posttest with a one-month follow-up and there has been a control group involved. The statistical population of this study includes all of the male high school freshmen of the city Lar. In total, a number of 455 male students filled out the procrastination questionnaire. Among the respondents, 30 students with the highest procrastination score were selected as the samples of this study. The experimental group participated in 8 90-minute sessions and they were taught how to solve problems. On the other hand, the control group was not taught anything in this regard. At the end of all of the eight sessions the pretest was performed. Then, after a month, the questionnaires were distributed among the selected students for a follow up. The statistical data was analyzed using descriptive statistic, analysis of covariance and a second measurement. The results showed that there is a significant difference between the procrastination scores in the posttest after eliminating the effect of the pretest. It can be concluded that teaching both time management and problem solving to students significantly affects their procrastination.

Keywords: Problem solving; Procrastination; Students

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Introduction

Each human being needs to make efforts to get their job done and to succeed. Based on the importance of the problem, the efforts we all make lead us towards our purposes. However, in some cases, although the issues are very important, people don't make much effort to reach their goals and this can be because of the individual differences between people which cause a delay in their works and leads to their procrastination. In explaining the characteristics of lingerers, Yaakub states that these people are not able to estimate the time that is needed to get a job done (1). People encounter hundreds of problems in their everyday lives. Life is basically a problem itself; if it wasn't, living would be boring and exhausting. The fact that human beings are able to solve a problem when they encounter one makes them superior to other creatures and that is why we are valuable. Psychologists have mentioned numerous factors causing procrastination. These factors can be generally categorized as follows: 1. Internal and mental factors, 2. External and environmental factors (2). In the "problem solving" process, the individual must be able to find many solutions while encountering a new problem and then, they must select the best one after going through the decision making process and after taking into consideration the consequences of each of these solutions (3,4).

According to the previous studies, individuals who were familiar with the problem solving skill and used it in their everyday lives experienced less mental pressure or stress (4).

Regarding the onsets of procrastination, there are various factors that theorists and researchers have mentioned including anxiety, being codependent, fearing negative assessment, having low self-esteem (5), fearing failure, hating one's job (6) and so on (7-9). Despite of etiology, procrastination is a disharmonious behavior due to the negative emotional and cognitive consequences it has (10). In this respect, many studies have shown that the highest rate of procrastination is observed in university students and it has many negative consequences that affect their academic performance. For instance, Akinsola, Tella and Tella (11) have made clear that there is a significant relationship between academic procrastination and academic improvement in mathematics. This study shows that the academic performance of university students in math has been significantly higher in the groups with a lower rate of procrastination compared with the groups with an average or a low level of procrastination. The other factors that affect the occurrence of procrastination are gender and nationality. According to this study, approximately 13.5 to 14.5% of men and women with excitement procrastination are native.



Procrastination has become very common among students and it is a factor that makes the students negligent in the work they have to do. Nowadays, teaching high school students life skills has become something that has not been reviewed as much. For this purpose, learning the concept of problem solving can be directly effective in reducing the level of procrastination and that is why it is socially, scientifically and academically essential to conduct such a research. It is also necessary to consider the effectiveness of various trainings on decreasing the level of procrastination. Therefore, it can be argued that there is a direct relationship between reduction of students' procrastination and their problem solving skill. Procrastination will create various difficulties for people, especially students; that is why the present study seeks to answer the following question: can teaching Problem Solving in Groups affect students' procrastination?

Methods

Research model

One of the recommended models for problem solving is the zig-zag process model for problem solving. In this process, there are four steps including Sensing (S), Intuition (I), Thinking (T) and Feeling (F). When the two types of perception (sensing and intuition) are placed in the first two lines, and the two types of judgment (thinking and feeling) are placed in the second line, each four steps are linked with an arrow. The problem solving succession seems like (Figure 1) a Z or Zig-Zag (12). The graph associated with this model has been presented as follows (12):

The model used in the present study is an experimental method with a pretest-posttest and a posttest-a follow-up. There has also been a control group. The purpose of this research is to determine how effective the Problem Solving in Groups training is on the procrastination of high school students of the city Larestan.

Testees

The statistical population of this study includes 455 of the male high school freshmen in the academic year of 2012-2013 in the city Larestan. The multivariate cluster sampling method was used in this study as follows: 3 schools were selected out of the 6 high schools in the city and 1 freshman class was selected from each school. All of the students in these freshman classes were given the procrastination questionnaire. It was by using the simple random sampling method that 30 of the students who had achieved a high score in the procrastination questionnaire were selected. These 30 students were randomly divided into two groups of 15. After determining the sample volume and checking with the presidents of high schools in the city Larestan, the procrastination questionnaire was distributed among students with the necessary instructions. After the questionnaires were filled out, 30 students with the highest procrastination score were selected as the samples of this study. These selected students were divided into two groups of 15 (the control group and the experimental group). The experimental group participated in 8 90-minute sessions and they were taught how to solve problems. On the other hand, the control group was not taught anything in this regard. The subject covered in each session was: an overview of the previous sessions, reviewing the homework of the previous session, teaching and practicing new skills such as time management, handing in the homework about the taught skill, conclusion.

Theoretical and practical definitions of the variables

Procrastination: Whol, Pychyl and Bennett have noticed two

basic elements while defining procrastination: firstly, procrastination is a syndrome which physically and mentally damages the person and secondly, the person irrationally puts off doing something. What is meant by procrastination in this research is the score the testee achieves in the procrastination questionnaire (14). This score can be between 0 and 80 and if a person gets a higher score, he or she will be considered as a procrastinator.

Problem solving: There have been various definition of problem solving in different studies (15,16). In the perspective of Akinsola, problem solving means having to do an assignment when there is no clear solution. Over the past few years, the therapeutic approach to problem solving has focused on the complying and teaching problem solving skills and approaches as an intervention (11). What is meant by problem solving here is a group training performed as eight 90-minute weekly sessions. The subject matter has been developed based on the books written by Nasser and Nayini about life skills (17) which includes teaching problem solving.

Tools

The Procrastination Questionnaire: This questionnaire was designed by Lee (14) in 1986. It is a general scale for measuring procrastination. The procrastination questionnaire has 20 items. These items are indicative of activities and actions that are postponed. This questionnaire is scored based on a 5-degree scale. Therefore, the respondents select either of these five options to answer the questions: I don't have this characteristic at all (0), I relatively don't have this characteristic (1) neutral (2) I almost have this characteristic (3) and I totally have this characteristic (4). The score the respondent will probably get is between 0 and 80, which means that if the score 80 is achieved, that respondent would have a high level of procrastination. The reverse questions in this questionnaire are the questions 20, 18, 15, 14, 13, 11, 8, 6, 4 and 3. The validity of this questionnaire was calculated to be 0.85 in the research conducted by Akbari and Samani in 2011 using the Cronbach's alpha method. It has also been confirmed that this questionnaire has a desirable reliability.

The process of conducting the research: After determining the sample volume and checking with the presidents of high schools in the city Larestan, the procrastination questionnaire was distributed among students with the necessary instructions. After the questionnaires were filled out, 30 students with the highest procrastination score were selected as the samples of this study. These selected students were divided into two groups of 15 (the control group and the experimental group). The experimental group participated in eight 90-minute time management sessions (determining goals-specifying the needs and demands-programming-controlling time-creating a list of different solutions-making decisions about the best solutions-implementing the solution and reviewing) and they were taught how to solve problems. On the other hand, the control group was not taught anything in this regard. The subject covered in each session was: an overview of the previous sessions, reviewing the homework of the previous session, teaching and practicing new skills such as time management, handing in the homework about the taught skill, conclusion.

Results

The data obtained from the questionnaire was analyzed using the SPSS21 software. There are two steps to this analysis: descriptive statistics and inferential statistics. In terms of the descriptive statistics, the mean and standard deviation of the scores of samples in the experimental group and the control group were reviewed. On the other



hand, in the inferential statistics, by taking into account the hypotheses, analysis of covariance was used with repeated measurements and its results have been presented in the tables below.

Analysis of covariance

The precondition of this test is the equality of the variances of the groups. The F-test was used in order to determine the equality of variances. The results of this test have been presented in the following Table 1.

As it is shown in Table 1, the f-value was not significant with the degree of freedom 1 and 28 ($P \geq 0.05$). Therefore, it can be concluded that there is no significant difference between the variance of the procrastination scores of the samples of the experimental and control group in the posttest with the mentioned precondition (Table 2).

As it is presented in the table above, the mean of procrastination of the experimental group was 31.9 for the control group and it was 21.7 after eliminating the effect of the posttest. This is indicative of how the combined method of teaching time management and problem solving in groups affects the students of the experimental group.

Results of the analysis of variance between the testees with repeated measurement: by reviewing the data presented in (Table 3), it is clear that there is a significant difference between the procrastination scores of the samples of the control and experimental group in the pretest-posttest and the posttest- follow up test ($P=0.0001 < 0.01$ and $F=76.04$). Similarly, according to the information presented in the table, it is clear that it is a significant difference between the criterion scores (pretest- posttest and posttest-follow up test) ($P=0.009 < 0.05$ and $F=7.8$).

Discussion

By taking a look at the results obtained from data analysis, it was clear that teaching problem solving in groups has a significant effect on the procrastination of the students. After reviewing previous researches, no research was found on the effectiveness of this factor that would be compatible with the present study. Thus, researches with subjects close to this one will be mentioned. Previous studies on procrastination (18-23) have shown that there is a significant relationship between procrastination, reduction of self-confidence,

academic improvement, academic motivation, reduction of academic learning and self-regulation. In order to explain the results, it can be argued that individuals procrastinate and postpone their works in various times of their lives and this leads to many damages. This can be clearly seen in students in various academic grades. Procrastination and postponing studying and doing homework makes students descend. There are various cases where students waste their time, do useless activities, lack a good schedule for studying and leave most of the work for the night before the test. Unfortunately, in most cases, when we encounter a problem, we either leave it be or become confused or endure a lot of pressure. This will lead to significant dissatisfaction with them. The problem solving skill is exponentially important for high school students as well. This is because of the fact that they are teenagers and going through puberty and they face numerous problems and they need to be able to solve problems to make good decisions and know their identification. Therefore, it is important to teach problem solving to students with the purpose of measuring the problem. If they are taught to solve their problems, they would be able to use their intellect to find more solutions and be motivated to evaluate the best solutions. It is by going through this process that the teenagers are able to find various strategies, select the best solution and implement it. This skill will ultimately make them advance in their personal lives and they would be academically improved.

There are some limitations to this study. Given the fact that the sample of this research includes students, the results cannot be expanded to all people. Also, high school students have been selected; therefore, the results cannot be expanded to students from other grades. It must be pointed out that the cultural difference between the students cannot be controlled by the researcher. It is recommended to conduct this study on female students and on those at lower grades. By taking into account the results of this study, some suggestions can be offered to parents, teachers, educators, managers, authorities and education programmers and others who are interested in the subject. Given the importance of procrastination and its effect on students' academic performance, a step must be taken towards helping students decreasing their academic procrastination. For this purpose, there can be some workshops for teaching life skills in order for the students to escalate their ability.

Table 1. Determination of the equality of the variance of the procrastination scores in the posttest.

F-value	First degree of freedom	Second degree of freedom	Significance level
2.6	1	28	0.1

Table 2. Mean and standard deviation of the procrastination scores in the posttest.

Group	Number	Unmoderated mean	Standard deviation	Moderated mean
Experimental	15	22.3	4.5	21.7
Control	15	31.4	3.4	31.9

Table 3. Summary of the results of the analysis of variance among the testees with repeated measurement and that difference of the procrastination scores of students in the pretest-posttest and posttest follow up test.

Statistical indexes		Total of squares	Degree of freedom	Mean of squares	Fisher (F) statistic	Significance level (P)
Source of changes						
Between the testes	Groups	2548.017	1	2548.017	76.04	0.0001
	Error	938.13	28	33.5		
Among the testes	Criterion	27.3	1	27.3	7.8	0.009
	Group criteria	18.1	1	18.1	5.2	0.03
	Error	97.3	28	3.4		



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