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*Corresponding author: Ayşe Sibel Demirtaş, Department of Psychological Counseling and Guidance, Alanya Alaaddin Keykubat University, Antalya, Turkey
E-mail: asibeldemirtas@gmail.com

Reviewing editor:
Peter Walla, University of Newcastle, Australia

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APPLIED PSYCHOLOGY | RESEARCH ARTICLE

The effect of cognitive-experiential theory based psycho-educational program on constructive thinking

Ayşe Sibel Demirtaş^{1*} and Mehmet Güven²

Abstract: The purpose of the present study is to develop a psycho-educational program based on Cognitive-Experiential Theory and investigate the effect of psycho-educational program on the constructive thinking of university students. An experimental design with one training and one control group and three measurements (pre, post, follow-up) were used. Twenty-eight students participated in the research, with 14 each in the experimental and control groups. “Cognitive-Experiential Theory Based Psycho-Educational Program” was applied to the training group students’ over a period of nine sessions. No application was conducted on the control group. The measure was applied to the subjects; two weeks before the beginning of the group sessions (pretest) and the completion of the group sessions (posttest). And to determine the permanence effects of the experimental treatment, the measure was reapplied to the subjects in each group after two-month interval (follow-up measurement). Data were analyzed by two-way ANOVA for mixed measures (2 × 3 Split-Plot). The findings of this research indicate that the nine-sessions psycho-educational program that was formed and based on cognitive experiential theory has caused significant increase in subjects’ constructive thinking level. There was no significant difference among the pretest, posttest, and follow-up test on



Ayşe Sibel Demirtaş

ABOUT THE AUTHORS

Ayşe Sibel Demirtaş is an assistant professor in the Department of Psychological Counseling and Guidance at University of Alanya Alaaddin Keykubat. She received her master and Ph.D degree from University of Gazi. Her research interests include constructive thinking, rational-experiential thinking styles, and positive psychology topics such as optimism, hope and mental well-being.

Mehmet Güven is professor in the Department of Psychological Counseling and Guidance at University of Gazi. He has got published books and international articles, and served as the editor of the *Journal of Turkish Psychological Counseling and Guidance*. His research interests include school counseling, school safety, psycho-educational groups, and group counseling.

PUBLIC INTEREST STATEMENT

Constructive thinking refers to a person’s ability to think in a manner that solves everyday problems in living with minimal stress. Persons who evidence high level of constructive thinking use a range of flexible problem appraisals that facilitate coping and maximize the likelihood of effective solutions to life problems. In this study, we developed a psycho-educational program based on Cognitive-Experiential Theory and investigate the effect on the constructive thinking of university students. This psycho-educational program, designed to develop constructive thinking, serves as preventive and developing function of psychological counseling and guidance. The program can be used for both developmental and preventive purposes for practitioners working in the field of psychological counseling. It is also important that it is the first study to develop constructive thinking on the basis of Cognitive-Experiential Theory in Turkey and that researchers and psychological counselors draw attention to the concept of both theory and constructive thinking.

constructive thinking level of the control group subjects'. Research findings were discussed within the context of the related literature and some suggestions were provided for researchers and practitioners in the field of mental health.

Subjects: Psychological Science; Introductory Psychology; General Psychology; Counseling Psychology; Educational Psychology; Educational Research; Higher Education

Keywords: cognitive-experiential theory; constructive thinking; psycho-educational program

1. Introduction

One of the important features that differentiate human beings from other living things is have a cognitive system and thinking ability. The way people using this cognitive system and their thinking styles influence their feelings, behaviors, views and decisions, the way they solve the problems they encounter, and their relationships with others. For this reason, the process of thinking and information processing systems have become an important subject, especially for philosophy, psychology, and education.

The traditional view of human decisional and thinking processes by social scientists has been that people make rational decisions predicated on maximizing pleasure or gains and minimizing pain or losses. Over the past several decades, this traditional model has been increasingly challenged from a variety of theoretical perspectives as well as on empirical grounds (Epstein, 1973; Kahneman, Slovic, & Tversky, 1982; Kirkpatrick & Epstein, 1992). Several of these approaches assume that people process information in two different modes, one identified by terms such as *rational*, *analytical*, *deliberative*, *propositional*, and *extensional* and the other by terms such as *experiential*, *automatic*, *intuitive*, *narrative*, and *natural* (Denes-Raj & Epstein, 1994).

Cognitive-Experiential Theory (Epstein, 1973, 2014) is a dual-process model of cognition differs from other dual processes (e.g. Kahneman, 2003; Sloman, 1996; Smith & DeCoster, 2000; Strack & Deutsch, 2004) because Cognitive-Experiential Theory is not only a dual-process model of cognition but also a global personality theory that is compatible with a variety of other theories, including psychodynamic theories, learning theories, phenomenological theories, and modern cognitive scientific views on information processing.

Cognitive-Experiential Theory posits that humans automatically construct and shape both an explicit and implicit model of the world, a theory of reality that includes a self-theory and a world-theory (Epstein, 1973, 2014). Cognitive-Experiential Theory explains the dual-nature of information processing in humans and identified two interactive, parallel systems with which individuals adapt to their environment: the rational information-processing system, and the experiential information-processing system. *The rational system* is a deliberative, verbally mediated, primarily conscious analytical system that functions by a person's understanding of conventionally established rules of logic and evidence. The rational system includes conscious beliefs about the self and the world. It functions mainly at level of conscious awareness, operates primarily through the medium of language, and has a brief evolutionary history. The rational system is used in complex problem-solving and "is capable of high levels of abstraction and long-term delay of gratification" (Epstein, 1985, 2003). According to Epstein (1994), Cognitive-Experiential Theory has nothing to say about the rational system, other than to emphasize the degree to which it is influenced by the experiential system. The theory has a great deal to say about the experiential system. *The experiential system* is an automatic learning system, the very same system with which non-human animals have adjusted to their environments over millions of years of evolution. As it operates pre-consciously and automatically, people are not normally aware of it. However, under certain conditions, such as the occurrence of unbidden distressing thoughts and conflicts between the heart (experiential system) and the head (rational system), they cannot help but become aware that some aspect of their mind is operating in a way that is different from their conscious thinking (Donovan & Epstein, 1997). In addition to

operating automatically and pre-consciously, the experiential system operates in a manner that is imagistic, holistic, effortless, rapid, intrinsically highly compelling, and intimately associated with emotions (Epstein, 1984; Norris & Epstein, 2011). Because the influence of the experiential system normally occurs outside of awareness, people mistakenly believe that their emotions are direct response to external events, rather than realizing that it is their interpretations of the events in their experiential system that mediates their emotional reactions. Thus, a major assumption in Cognitive-Experiential Theory is that people's past experience automatically and outside of awareness continuously influences how they interpret events, and therefore, how they think, feel, and behave (Katz & Epstein, 1989). It is therefore concluded in theory that problems of maladjustment lie primarily in the domain of experiential system (Epstein, 1990, 2003).

Cognitive-Experiential Theory actually identifies two types of intelligence – rational and constructive. *Rational intelligence* is synonymous with academic or intellectual intelligence while constructive intelligence is synonymous with practical intelligence. Intellectual intelligence is measured by intelligence tests and is associated with conscious, logical, analytical processing (Epstein & Pacini, 2001; Epstein, Pacini, Denes-Raj, & Heier, 1996). In contrast, *constructive intelligence* is a product of the experiential system which functions automatically and under the influence of past experience and affect. Constructive thinking refers to a set of cognitive productive and counterproductive automatic habitual thoughts that affects one's ability to think in a manner that solves problems (Epstein, 1998; Epstein & Meier, 1989). With everyday experience and perception of behavior primarily automatic and directed by the experiential system, the ability to manage one's emotions is significantly important. Like Sternberg's concept of practical intelligence (Sternberg, 1985), constructive thinking was developed to address the question of 'why smart people act dumb' (Epstein & Meier, 1989). Epstein and Meier (1989) state that how emotions are managed is a major factor in the effective use of intellectual ability. There are many examples of "smart" people who are highly successful in one isolated area of their lives, but are unable to manage personal relationships, financial concerns, or other aspects of daily life (Epstein & Meier, 1989). Epstein and Meier (1989) used the term constructive thinking to refer to a person's ability to think in a manner that solves everyday problems in living with minimal stress. Persons who evidence high level of constructive thinking use a range of flexible, reality-based cognitive processes and problem appraisals that facilitate coping and maximize the likelihood of effective solutions to life problems. Low constructive thinkers, on the other hand, are prone to make broad negative attributions and overgeneralizations of themselves following unfavorable life outcomes and to rely on superstitious beliefs and other forms of magical thinking to explain or control their environments.

Epstein (1998) indicated that if we wish to understand people's everyday maladaptive behavior, we have to understand the nature of their constructive thinking. A good constructive thinker has a relatively high level of self-acceptance, is reasonably but not excessively trusting of others, and has favorable views about the impersonal world, but not naively so. They don't overgeneralize, think categorically, or think in an over-controlled or under-controlled manner. While a good constructive thinker automatically thinks and interprets events in manner that contributes to his own and others' welfare, a poor constructive thinker thinks and interprets events in a manner that produces stress for the self and distress for others.

According to Epstein (1992a) it may be that good constructive thinkers may take better care of themselves (e.g. healthier life styles), may have behave in ways which induce less stress (e.g. they engage in less provocation of others, and are more disciplined and conscientious). It could also be that good constructive thinkers interpret events in less stressful, and more adaptive ways (e.g. viewing stressful event as a challenge versus threat), and that once these interpretations are made, they tend to demonstrate more effective behavioral and emotional coping skills. The sum of this possibilities explains why constructive thinkers experience fewer symptoms over time, and less symptomatology in the face of stressors (Scheuer & Epstein, 1997). Constructive thinking appears to moderate the effects of stressful events on well-being and thus acts as a buffer (Epstein, 1992b).

Constructive thinking is measured by the CTI (Constructive Thinking Inventory; Epstein & Meier, 1989). The CTI was developed by sampling the domain of people's self-reported habitual thoughts in everyday life. Since its development in 1989, the construct and measure of constructive thinking has attracted excessive research. The CTI has been shown to be associated with a wide variety of desirable abilities and attributes, including performance in the workplace; superior achievement in business; successful social relationships; successful romantic and personal relationships; performance in junior high school, high school, and college; mental well-being; and physical well-being (see Epstein (2001); for summaries of CTI research). Also the researches indicated that constructive thinking is associated with specific difficult goals (Drach-Zahavy & Somech, 1999), attachment styles (Frederick, 1996), optimism (Park, Moore, Turner, & Adler, 1997), marital satisfaction (Freeman, 1998) and has a mediating role between personality and subjective well-being (Harris & Lightsey, 2005), between hope and mental well-being (Demirtaş, Baytemir, & Güllü, 2017).

Giving existing theory and the empirical literature reviewed above, it is seen that the constructive thinking that constitutes the dependent variable of this research is a very effective variable related to the achievements in various fields of life. The inclusion of a practical experiential system that automatically responds to everyday life problems as well as the action-oriented, conscious rational side of constructive thinking makes it a comprehensive factor in coping with life problems. From Cognitive-Experiential Theory point of view, being able to use both systems in a complementary and effective way is the key to quality of life. Individuals who work in harmony with rational and experiential systems develop a stable conceptual system, have a high self-perception and rewarding interpersonal relationships. Furthermore, within a constructive thinking system, they have strategies to effectively deal with life problems by developing the ability to use cognitive and experiential information resources (Epstein, 1998; Epstein & Meier, 1989). Training in constructive thinking has been demonstrated to be a useful procedure for improving feelings, thinking, and the behavior of people in their everyday lives (Epstein, 1998). Thus, we suggest that providing constructive thinking education for university students within the compass of a program will have positive effects upon students. Because it is the first experimental study based on Cognitive-Experiential Theory in Turkey and calls the researchers' and psychological counselors' attention to the theory and constructive thinking concept this research has great importance.

The main purpose of this study is to develop a psycho-educational program based on Cognitive-Experiential Theory and investigate the effect of psycho-educational program on the constructive thinking of university students. In line with this aim, the following hypothesis has been constructed:

Hypothesis 1. The level of constructive thinking of experimental group students' increases after the Cognitive-Experiential Theory based psycho-educational program and this rise has permanent effect.

2. Method

2.1. Research model

The randomized pretest–posttest control design, a realistic experimental design, was used in the study. Two groups were formed (experimental and control) using random assignment to investigate the effect of Cognitive-Experiential Theory Based Psycho-Educational Program on students' constructive thinking level. The nine-sessions psycho-educational program was applied on the experimental group. No application was conducted on the control group. A follow-up test was applied to the experimental and control groups eight weeks after completion of the psycho-educational program to examine the permanent effect of the program. The Constructive Thinking Inventory (CTI) was applied to participants in both experiment and control groups as the pretest, posttest, and the follow-up test.

Table 1. Independent samples *t*-test results for constructive thinking pretest scores from the experimental and control groups

Dependent variable	Group	<i>n</i>	Mean rank	Std. deviation	<i>df</i>	<i>t</i>	<i>p</i>
Constructive thinking	Experimental	14	230.785	22.901	26	0.776	0.445
	Control	14	223.071	29.332			

2.2. Study group

To determine the study group, Constructive Thinking Inventory and personal information form were applied to 459 university students attending to different programs at Gazi University Faculty of Education during the fall term of 2015–2016. Of these students, 392 are girls and 67 are male. Then, the scores obtained from the Constructive Thinking Inventory pretest measures were ranked from low to high and volunteers for the study were identified from the low-scoring students and assigned to the experimental and control groups. The assignment to the groups was started from lowest scoring students. Thus, the research was conducted on 14 university students and 28 university students, 21 of whom were girls and 7 of whom were male, in the control group. Independent samples *t*-test was conducted on the data to test whether the experimental and control groups were equivalent in terms of constructive thinking levels. The results obtained are presented in Table 1.

According to the results presented in Table 1, no statistically difference was found between the mean pretest scores of the two groups ($p > 0.5$).

2.3. Data collection tools

2.3.1. Personal information form

The personal information form was developed by the researcher to determine the students' socio-demographic information such as their ages, education grades, departments, and email addresses. Also, in personal information form, the students were asked whether they would participate a psycho-educational program which will be conducted by the researcher. But no information was given in connection with the experimental study.

2.3.2. Constructive thinking inventory

In order to collect the research data CTI was used developed by Epstein and Meier (1989) and adapted Turkish Culture by Tosun and Karadağ (2008). Also, within this research the validity and the reliability study was done on university students by the researcher.

The original form of CTI is a 108-item self-report instrument that was devised for measuring adaptive experiential functioning by Epstein and Meier (1989). The instructions for the CTI ask subjects to rate on a five-point Likert-type scale the frequency these automatic constructive and destructive thoughts occur in their everyday life. (e.g. "When something bad happens to me, I feel that more bad things are likely to follow", "I usually react actively instead of thinking and complaining"). On the basis of factor analysis of a large item pool representing this domain, six specific subscales were identified: Behavioral Coping, Emotional Coping, Categorical Thinking, Esoteric Thinking, Personal Superstitious Thinking, Naive Optimism. The CTI also has three primary scales, including The Global Scale, Emotional Coping, and Behavioral Coping. The CTI has well-documented evidence of satisfactory reliability (internal-consistency coefficients of its major scales range from 0.80 to above 0.90) and validity, as determined by its coherent relations with a variety of indexes of effective functioning, including work success, relationship satisfaction and mental and physical well-being (Epstein, 1992a, 1992b; Epstein & Brodsky, 1993; Epstein & Katz, 1992; Katz & Epstein, 1991).

The CTI was adapted Turkish Culture by Tosun and Karadağ (2008). To examine the factor structure of the inventory, exploratory factor analysis was conducted using Kaiser Meyer Oklin = 0.71 and Bartlett analysis ($p > 0.01$). When this finding was re-investigated using varimax orthogonal rotated

technique, the results indicated that the inventory was 85 items, 7 sub-scales: Emotional Coping, Behavioral Coping, Superstitious Thinking, Categorical Thinking, Esoteric Thinking, Naïve Optimism and Defensiveness. The factor loadings of the items are changed between 0.31 and 0.61. The validity variable of the original form was not fulfilled for the Turkish version of the form. It can be explained that inventory items and factors are different from each other culturally (Epstein, 2001; Tosun & Karadağ, 2008). The seven sub-scales have %47 of the total variance. Cronbach alpha internal consistency coefficient was calculated to define internal consistency of the factor of inventory, and changed between 0.53 and 0.75, it was also calculated as 0.79 for all items of the inventory.

In this study, the confirmatory factor analysis was conducted on 459 university students to examine the construct validity of the adapted version of the inventory by the researchers. The results indicated that the hypothesized seven factor model represented an acceptable fit to the data ($\chi^2 = 8649$, $SD = 3394$, $\chi^2/SD = 2,54$, $p = 0.00$, $RMSEA = 0.05$, $NFI = 0.88$, $CFI = 0.87$, $GFI = 0.89$ ve $SRMR = 0.08$). Cronbach alpha internal consistency coefficient was calculated to define internal consistency of the factor of inventory, and changed between 0.50 and 0.80, it was also calculated as 0.87 for all items of the inventory. Test-retest reliability (for three weeks interval) coefficients for the CTI changed between 0.50 and 0.79, it was also 0.82 for all items.

2.4. Preparing the psycho-educational program

The program that was used in this study was designed to improve the experimental group's constructive thinking level and was based on Cognitive-Experiential Theory. The most important basic principle of constructive thinking is that people's experientially derived beliefs automatically determine their interpretation of events, feelings, and behavioral tendencies and bias their conscious reasoning. Therefore, by becoming aware of and then appropriately changing their maladaptive implicit beliefs and manner of processing information, people can improve the quality of their lives (Epstein, 2014).

Before the development of the program, the researcher contacted with Seymour Epstein and asked his authorization and suggestions about the program. Then, all related literature was reviewed. Following this review, an appropriate framework was developed to ensure awareness about the rational and experiential systems and by changing the automatic thoughts improvement of constructive thinking. The book on constructive thinking (Epstein, 1998) which presents the principles of constructive thinking and provides many examples and exercises was examined in detail. The following steps (Brown, 2004) were applied while designing the education program: (1) The overall objective of the program was determined (2) The characteristics of target group were examined (3) The objective and acquisition of each session was determined (4) The numbers of group sessions, time, and the place were determined (5) The materials, the forms, and the case studies were prepared (6) The education strategies were written (7) The assessment tools were prepared. Finally, Cognitive-Experiential Theory Based Psycho-Educational Program was sent to five field experts from Department of Psychological Counseling and Guidance in Faculty of Education at Gazi University to be evaluated and the program was finalized after receiving the feedbacks.

The overall objective of the program is as follows:

*Based on the basic principles of the cognitive-experiential theory, raising awareness of rational and experiential information processing systems and improving constructive thinking instead of destructive thoughts arising from the experiential system.

2.5. Applying the psycho-educational program

Cognitive-Experiential Based Psycho-Educational Program consisted of nine-weeks and nine-sessions application process and each session is 90 min. The program was applied to participants in the experimental group by the researcher in the afternoons for a week. The study was conducted with a leader, the first author of this paper, and a deputy leader who was a leading expert in the field and who was pursuing Ph.D; the study was recorded as well as supervised and finalized by the second

author of this paper (Demirtaş, 2016). Students in the control group did not experience any treatment.

The general outlines of the sessions and brief information are provided below:

Session 1: To help participants warm the group, explain expectations from the psycho-educational program, determine goals and have knowledge about the relationship between thoughts and feelings.

Session 2: To help participants understand the basic principles of the Cognitive-Experiential Theory, the personality theory based on the Cognitive-Experiential Theory and gain awareness about the relationship between thinking and behavior and rational and experiential information processing systems.

Session 3: To help participants understand the functioning of the experiential system, to gain awareness about the destructive thoughts arising from the experiential system.

Session 4 and 5: To help participants evaluate their automatic thinking.

Session 6: To help participants develop constructive thinking by correcting destructive thoughts arising from the experiential system.

Session 7: To help participants contact with the experiential system to increase awareness about developing constructive thinking.

Session 8: To help students evaluate emotional and behavioral coping strategies for daily life problems and gain awareness about constructive thinking and overcome daily problems.

Session 9: At the end of the group experience, to help participants be aware of the skills gained to cope with the problems they face in daily life, evaluate the changes provided by being in the group and share feelings and thoughts about being in the group.

During the practice of the psycho-educational program; the techniques such as giving information about the theory's concepts (rational and experiential systems, destructive automatic thinking list), group discussions, case studies, role-playing, constructive thinking exercises, writing diary, imagination, meditation, focusing, and homework assignments were used. Also, each session began with a summary of the previous session (except for the first session) followed by discussing the homework, explaining the current session's agenda, and warm-up activities. The sessions ended with summarizing, giving feedback and homework (except for the eighth session), and a closing activity.

2.6. Applying the posttest and the permanence test

After completion of the psycho-educational program, the researchers applied the CTI to the experimental and the control group as a posttest. The permanence test was applied eight weeks after the posttest.

2.7. Data analysis

To determine which statistics test (parametric or non-parametric test) will be used normality assumptions were examined using the Levene *F*-test, measures of central tendency, range of Skewness and Kurtosis, and Shapiro-Wilk Test.

- (1) Levene *F* tests the null hypothesis that the population variances are equal. The analysis results showed that the difference is not statistically significant ($p > 0.05$).
- (2) Measures of central tendency analysis results showed that Mean: 226.92, Median: 231,00 and Mode: 231,00 values have normal distribution.
- (3) As a result of Skewness (-0.369 ; Std. Error of Skewness 0.441) and Kurtosis (-0.087 ; Std. Error of Skewness 0.858) range, values are acceptable for normality distribution.

(4) Being used for examining the convenience of scores for normality; the Shapiro–Wilk Test is used in case that the group size is smaller than 50 (Shapiro & Wilk, 1965; Thode, 2002). In this study, the Shapiro–Wilk test is used and the results showed the values have normal distribution ($p = 0.41$). Taking into consideration all these results it was determined that the data shows normal distribution; so the parametric tests can be used.

In this study, Two-Way ANOVA for Mixed Measures design (2*3 split-plot) was used in intragroup and between groups pretest–posttest follow-up test comparisons. SPSS 21.0 was used for data analysis and the significance level was used as 0.05.

3. Findings

The findings of the study on the effects of Cognitive-Experiential Theory Based Psycho-Educational Program on constructive thinking levels of university students are as follows.

As shown in Table 2, the mean posttest scores for the experimental group after the training were higher than the mean posttest scores (230.785; 283.357). The mean follow-up test score was similar to the posttest (279.785). Examining the control group, no significant difference was observed between their mean pretest, posttest, or follow-up test scores (223.071; 217.714, and 216.928). According to this result, we can say that there is a rise on constructive thinking levels of experimental group but there is no rise on control group.

Two-Way ANOVA for mixed measure test was used to test Hypothesis 1 (The level of constructive thinking of experimental group students' increases after the cognitive-experiential theory based psycho-educational program and this rise has a permanence effect). Because Mauchly's Test of Sphericity was significant ($p < 0.05$) Greenhouse-Geisser correction was used ($\epsilon < 0.75$). The results are presented in Table 3.

When Table 3 is examined, a statistical difference can be observed between groups ($F_{(1-26)} = 20.436$; $p < 0.01$). As can be seen Table 3, group*measure effect is also significant ($F_{(1,310-34,064)} = 50.822$; $p < 0.01$). According to this result, it can be said that Hypothesis 1 has been accepted.

Pretest, posttest, and follow-up test results of Global Constructive Thinking for Experimental and Control Groups are presented in Figure 1.

Because the interaction is significant, simple main effect test was conducted. The results of the analysis are shown in Table 4.

Table 2. Descriptive statistics for the pretest, posttest, and follow-up test scores of the experimental and control groups from the constructive thinking measure

Measurement	Pretest		Posttest		Follow-up test	
	x	SD	x	SD	x	SD
Experimental N = 14	230.785	22.901	283.357	20.174	279.785	22.739
Control N = 14	223.071	29.332	217.714	36.895	216.928	33.980

Table 3. ANOVA results for the experimental and control groups' global constructive thinking pretest & posttest & follow-up test scores

Source	Sum of squares	df	Mean square	F	p	Partial Eta S.
Between groups	98,373.369	27				
Group (E/C)	43,293.440	1	43,293.440	20.436	0.000	0.440
Error	55,079.929	26	2,118.459			
Within groups	32,119.333	36.684				
Measure (pre-Post-follow)	9531.452	1.310	7,275.095	32.417	0.000	0.555
Group*Measure	14,943.167	1.310	11,405.707	50.822	0.000	0.662
Error		7,644.714	34.064	224.423		
Sum		130,492.702	63,684			

Figure 1. Pretest, posttest, and follow-up test results of global constructive thinking for experimental and control groups.

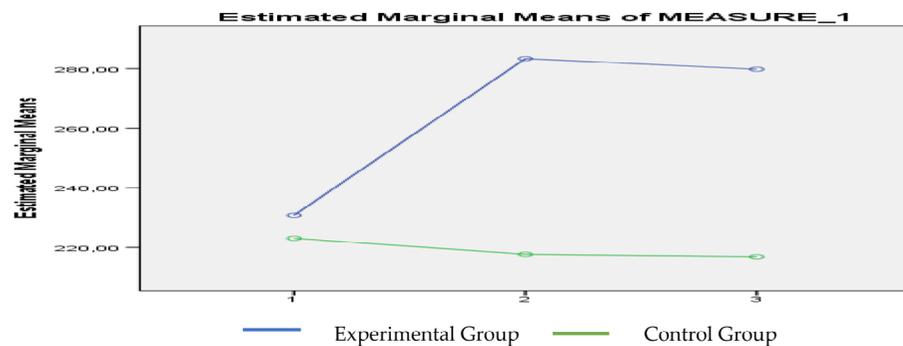


Table 4. Multiple comparisons results for the experimental and control groups' global constructive thinking pretest & posttest & follow-up test scores

Measure	Group	Group	Mean difference	Std. error	p
Pretest	Experimental	Control	7.714	9.946	0.445
Posttest	Experimental	Control	67.214*	10.591	0.000
Follow-up test	Experimental	Control	61.429*	10.674	0.000

According to the results presented in Table 4, a statistically significant difference was found among the pretest, posttest, and follow-up test scores in favor of the experimental group ($p < 0.01$). Based on this findings, Cognitive-Experiential Theory based Psycho-Educational Program is seen to have created a positive change in the constructive thinking in the experimental group, and it was an effective method for increasing their constructive thinking.

4. Discussion, conclusion and suggestions

In this study, the effect of the Cognitive-Experiential Theory Based Psycho-Educational Program upon the constructive thinking of university students was examined. The overall results of this research supported the assumptions of this study. The findings of this research indicate that the nine-sessions psycho-educational program that was formed and based on Cognitive-Experiential Theory has caused significant increase in subjects' constructive thinking. Two-month follow-up results demonstrated that the effect of program had been maintained. Further, there was no significant

difference between the pretest, posttest, and follow-up test constructive thinking level of the control group subjects'. In other words, the Cognitive-Experiential Theory based psycho-educational program prepared for university students was seen as an effective approach to increase constructive thinking.

According to Cognitive-Experiential Theory, any therapy must produce permanent changes in the experiential system in order to be successful. The theory does not say that the changes in the rational system are not important, but argues that it is important that the changes in the rational system can facilitate the desired changes in the experiential system. According to the theory, there are five basic ways to produce the desired changes in the experiential system, each with its own advantages and limitations (Epstein, 2014). The first way is the use of rational systems by providing counselors with information on Cognitive-Experiential Theory and training on constructive thinking to correct the experiential system, as well as by running pure cognitive therapy that is not accompanied by behavioral techniques. The second is the use of behavioral reprogramming that occurs in behavioral therapy. The third is the use of cognitive and behavioral procedures that take place in cognitive behavioral therapy. The fourth is the use of psychodynamic therapy to reveal and treat interactions between unconscious resources of behavior and needs, beliefs and advocacy. The fifth is the use of humanistic-experiential approaches that communicate with the unconditional positive acceptance of individual-centered therapy, the fantasy techniques used in gestalt therapy and psycho-synthesis, and the experiential system itself.

In this research, the first way (the use of rational systems by providing counselors with information on Cognitive-Experiential Theory and training on constructive thinking to correct the experiential system) was used to foster the constructive thinking level of participants. The most important basic principle of constructive thinking is that people's experientially derived beliefs automatically determine their interpretation of events, feelings, and behavioral tendencies and bias their conscious reasoning. Therefore, by becoming aware of and then appropriately changing their maladaptive implicit beliefs and manner of processing information, people can improve the quality of their lives (Epstein, 2014). In this study, participants were informed that focusing on their emotions, bodily states, dreams, and uninvited thoughts are important to define implicit beliefs that affect perceptions, interpretations of events and behavioral tendencies that are sources of difficulties they experience in their daily lives. Also, they were taught that the experiential system is an information processing system which is prone to categorical thinking and generalization rather than more detailed thinking.

Training in constructive thinking has been demonstrated to be a useful procedure for improving feelings, thinking, and the behavior of people in their daily lives (Epstein, 1998, 2001). The most intensive study of constructive thinking was conducted with college students by Epstein (1998). There were two components to the course, one directed at the rational system and the other at the experiential system. The one directed at the rational system consisted of lectures and reading assignments in which students learned about Cognitive-Experiential Theory. In the second, and according to Epstein more important component of the course, students learned about the operation of their experiential systems through self-observation and by responding to specially devised exercises. A comparison of scores on the CTI at the beginning and end of the semester indicated that learning about CET and keeping records of how one interprets potentially stressful events is therapeutic.

At the end of current study general evaluation form of group processes was applied which was prepared by the researcher. There are six open-ended questions on which participants could discuss their experiences with the group experience: (1) What was the purpose of this group participation? (2) How much did you achieve attaining the purpose of the group experience? (3) What do you think you got in the end of this group experience? (4) How the group helped you after the changes you won? (5) What kind of awareness did you gain about yourself as a result of this group experience? What did you learn about yourself? (6) Which events and activities helped you the most in this group? How? (7) Have you ever had special moments in your group? The answers from the

participants seems consistent with Epstein's (1998) study. The participants stated that this psycho-educational program helped them to gain a new perspective on how to deal with emotions and stress. Some participants pointed out that they thought there was nothing they could do about having disturbing feelings before but now they learned to control their negative emotions. In addition, nearly all stated that participating in this program positively affects their daily and academic life. Participants noted that they are able to evaluate the thoughts whether they are functional or dysfunctional; they are aware of destructive thoughts and try to change destructive thoughts in daily life with constructive alternatives. In another study, Monkong et al. examined the effectiveness of program developed from cognitive-Experiential theory and life-skills technique on adolescent coping with stress (2009). The results indicated that the training program with modify theoretical concepts of cognitive-experiential theory and life skills technique on adolescent enabled the participants to improve knowledge, attitude and practice in coping with stress. Consisted with the literature the findings of current research indicate that the nine-sessions psycho-educational program that was formed and based on cognitive experiential theory has caused significant increase in subjects' constructive thinking level.

According to the results; the following recommendations were made for trainers and researchers in the field of mental health.

- (1) This study examines the effect of Cognitive-Experiential Theory Based Psycho-Educational Program upon the constructive thinking. It is recommended to investigate the effect of Cognitive-Experiential Theory Based Psycho-Educational Program upon other variables such as coping with stress, subjective well-being, decision-making.
- (2) This study examines the effect of Cognitive-Experiential Theory Based Psycho-Educational Program upon the constructive thinking on university students. For future studies it is recommended to design Cognitive-Experiential based psycho-educational programs on different samples.
- (3) In this study, a placebo group couldn't be used. For future studies it is recommended to have a placebo group in order to separate placebo effects from the actual effects of the intervention being studied.
- (4) The findings of this research indicate that the nine-sessions psycho-educational program that was formed and based on Cognitive Experiential Theory has caused significant increase in subjects' constructive thinking level. It is recommended to organize constructive thinking courses at universities.

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The authors declare no competing interest.

Author details

Ayşe Sibel Demirtaş¹

E-mail: asibeldemirtas@gmail.com

ORCID ID: <http://orcid.org/0000-0001-7793-9583>

Mehmet Güven²

E-mail: mehmetguven@gazi.edu.tr

¹ Department of Psychological Counseling and Guidance, Alanya Alaaddin Keykubat University, Antalya, Turkey.

² Department of Psychological Counseling and Guidance, Gazi University, Ankara, Turkey.

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