

Determining the Effect of Acceptance and Commitment-Based Education on Responsibility and Happiness of the Students of Tehran University of Science and Technology

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ABSTRACT

The purpose of the study was to examine the effectiveness of acceptance and commitment-based education on responsibility and happiness of science and technology students. The study was quasi-experimental with pre-test-post-test and the population was all female students of Tehran University of Science and Technology. The sample was thirty people randomly selected and assigned in two groups - experiments and control - of fifteen. Data collection tools were two standard questionnaires - California Psychological Inventory (CPI) and Oxford Happiness - and Acceptance and Commitment Therapy sessions. The data was analyzed in two descriptive and inferential sections. In the descriptive study, descriptive statistical indices frequency, mean and standard deviation were calculated for both groups (experimental and control group) and ANCOVA analysis of covariance was used in the inferential statistics. Spss21 was used to accelerate obtaining the results. The results indicated that acceptance and commitment-based education is effective in responsibility and happiness of science and technology students where acceptance and commitment-based education have a greater effect on students' responsibility given the severity of the effect.

Keywords

Commitment and acceptance-based education, responsibility, happiness

Introduction

Nowadays, in spite of the profound cultural and lifestyle changes, many students lack the basic skills required to deal with life issues. A wide range of social problems like job and economic problems, divorce, addiction, and so on result in various disorders like depression and decreased happiness, dissatisfaction with life and ultimately disrupt in psychological well-being. On the other hand, each of these disorders increasingly affects the others functions of the individual. Happiness affects health and activates the mood and the body's immune system. Moreover, happiness affects mental health and cognitive processes like looking at life and looking at oneself differently (Argyle, 2007).

Happiness is one of the main dimensions of human experience like positive mood, satisfaction with life and cognitions like optimism and self-esteem. Many studies have been conducted on the causes of happiness and there are significant ideas about happiness (Argyle, 2013) Matlin & Gawron (2005; quoted by Athari, 2016).

One of the main and thought-provoking problems in youth is irresponsibility and non-acceptance of various roles and responsibilities in life (Talebi and Khoshbin, 2012). Moreover, Khadivi and Elahi (2013) showed that responsibility has a positive and significant relationship with academic achievement. The future needs responsible people with more choice, people who can plan for themselves based on their own needs rather than the plans of others (Brewer, 2013). Psychological interventions and therapies can be effective in reducing psychological problems and increasing responsibility and happiness of the individuals. One of these methods is the effect of acceptance and commitment education. The overall goal of acceptance and commitment-based education is to enrich and give meaning to people's lives (Whitebird and Kritzer, 2010). Acceptance and commitment therapy is one of the recently developed models whose key treatment processes differ from traditional cognitive-behavioral therapy. Its underlying principles are 1) accepting, or the tendency to experience pain or other disturbing events without attempting to control them and 2) value-based action or commitment with a desire to act as meaningful personal goals rather than eliminating unwanted experiences in interacting with other nonverbal dependencies in a way that leads to healthy functioning. This approach includes experiences and exercises based on exposure, linguistic metaphors, and methods like peace of mind (Hayes, Wilson, Gifford, & Strusshal, 2013). Thus, given the sensitivity and significance of happiness and responsibility in the youth and its effect on their psychological development and the need for intervention in this

field and the lack of coherent and practical studies on the subject, the researcher tries to answer the following question:

Is commitment and acceptance-based education effective in the responsibility and happiness of science and technology students?

Theoretical foundations

Acceptance and commitment-based education

It is one of the most recently developed treatment models whose key treatment processes vary from traditional cognitive-behavioral therapy. Its underlying principle is:

- 1- Accepting or tendency to experience pain or other disturbing events without trying to control them
2. Value and commitment-based action along the desire to act as meaningful personal goals rather than eliminating unwanted experiences that interact with other nonverbal dependencies in ways that lead to healthy functioning. This treatment includes empirical experiences and exercises based on exposure, linguistic metaphors, and methods such as mental care training (Hayes et al., 2013).

In these therapies, rather than changing cognitions, they try to increase the psychological connection of the person with his thoughts and feelings. In commitment and acceptance therapy, the purpose is to create psychological flexibility: creating the ability to make practical choices between various options that are more appropriate, rather than just doing something to avoid disturbing thoughts, feelings, memories, or desires or actually imposing oneself on a person (Forman & Herbert, 2009).

Commitment and acceptance are key alternatives to experience-based avoidance, involving accepting personal events that are related to a person's history and without making the necessary effort to reduce the frequency or deformity of those events actively and consciously, especially when they cause psychological harm (Hayes and Stroschal, 2012). In committed activity, the individual is encouraged to do his best to reach the goal (Halliburton & Cooper, 2015). Commitment and acceptance therapy has two parts: mindfulness, action, and experience in the present, and people are taught to live in the present and cope with everyday challenges by accepting their feelings and emotions and refraining from experiential avoidance (Smout & Longo, 2012).

Responsibility

Mergler (2007) has defined responsibility as the ability to regulate thoughts, feelings, and behaviors with the will to consider self responsible for the choices one makes and their individual and social consequences. Responsibility is a personality trait usually formed as an attitude in the psychological and behavioral structure of the individual and is a major variable in social behaviors and thus has an interesting place in the teaching of social behaviors.

Happiness

Happiness is one of the main dimensions of human experience like positive mood, life satisfaction and cognitions like optimism and self-esteem. Many studies have been conducted on the causes of happiness and now there are significant opinions about it. These studies cover to some extent large social contexts and sometimes cover many countries, as well as longitudinal and quasi-empirical studies that can show the direction of causality (Argil, 2013).

Matlin & Gawron (2005; quoted in Athari, 2016) define happiness as a positive emotion with life satisfaction and the absence of negative emotions like depression and anxiety. They consider positive relationships with others, purposeful life, personal growth, and love for others and nature as part of happiness, showing that people experience happiness because of positive evaluations of events. Happiness is one of the main dimensions of experience, something like a personality trait (Frisch, 2013).

Literature review

Nicksiou, Run & Moudach (2018) conducted a study on reducing death anxiety and increasing the general health of the elderly: the effectiveness of acceptance and commitment therapy showed that acceptance and commitment treatment has a significant effect on reducing death anxiety and increasing the general health of the elderly. The results of this study were confirmed in the three month follow-up as well.

The results of Tjak, Davis, Morina& Emmelkamp (2018) on the effect of acceptance and commitment-based therapy on psychological and psycho-physical problems of individuals indicated that acceptance and commitment-based therapy is significantly effective in reducing psychological and psychosomatic problems of the individuals.

Conceptual model of the study

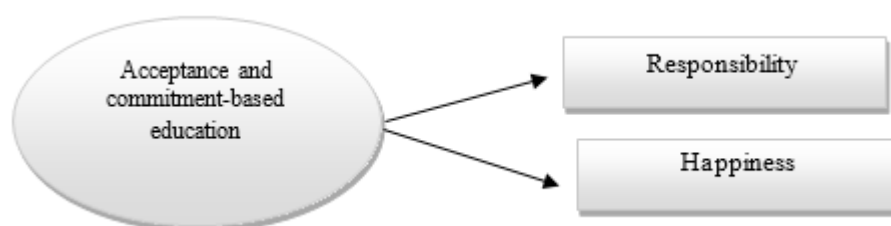


Figure 1: Conceptual model of the study (Hayes et al., 2013)

Methods

The research method was quasi-experimental with a pre-test-post-test design and a control group. The population was all female students of Tehran University of Science and Technology. Data collection method was library and field using a questionnaire. The data was analyzed in two descriptive and inferential sections. In the inferential statistics section, analysis of covariance (ANCOVA) was used. SPSS-21 was used to accelerate gaining the results.

Data collection tool

a. California Psychological Inventory (CPI)

The scale has 42 questions prepared for measuring the level of responsibility of normal people 12 years and older. The subjects agree and disagree with questions such as “Do you continue your job even if it is difficult for you? Do you usually finish what you started?” The cut-off score in this questionnaire is 3. Scores higher than three mean higher psychological responsibility. After reviewing several studies on CPI, Gof (1987) concluded that the range of retest reliability and internal consistency coefficients of each ranged from 0.52 to 0.81. The median of its total validity coefficients is 0.70 (quoted by Khadivi and Elahi, 2013).

B. Oxford Happiness

The scale is a 29-item tool for happiness evaluation. This tool was prepared by Argyle and Lu in 1990. This questionnaire has 29 four-option items, whose options are scored from 0 to 3, respectively, and the sum of the scores of the 29 items forms the total score of the scale. The total score of the subject fluctuates from 0 to 87 (Argyle, 2007). The cut-off score in this questionnaire is three. Scores higher than three mean higher happiness. Argyle and Lu (1990) reported a coefficient of 0.90 with 347 subjects for this questionnaire. Raisi (2010) also reported the Cronbach's alpha coefficient of this questionnaire as 0.87. Additionally, Alipour and Noorbala (2001) confirmed the validity of this questionnaire using face validity method.

Procedure

First, after coordination with the university officials in November 2019 and after providing explanations to the officials and students about the research procedure, the case sample was selected using purposive sampling and then randomly assigned to the subjects in the experimental and control groups. Responsibility and happiness questionnaire was administered on the sample. The experimental group with 15 members was started by the therapist to perform the treatment based on acceptance and commitment and received 8 90-minute sessions of acceptance and commitment treatment based on Hayes et al. (2013) approach and the control group was on the waiting list. It has to be noted that the session were held for 90 minutes and weekly (Table 1).

Table 1: Description of acceptance and commitment based therapy sessions (Hayes et al., 2013)

Sessions	Purpose of the session
First session	Familiarity and communication of the members with each other, introductory explanations, conceptualization of the problem, preparation of clients and implementation of the pre-test, and the preparation of a list of enjoyable activities and its inclusion in the weekly program
Second session	Familiarity with the concepts of acceptance and commitment-based education (psychological flexibility, psychological acceptance, psychological awareness, cognitive separation, self-visualization, personal story, clarification of values and committed action), discussion of experiences and their evaluation
Third session	Mindfulness training (emotional awareness and mindfulness awareness), training clients on what skills are observed and described and how skills are not judged, and how these skills work. Moreover, using timeout technique by members when increasing responsibility and commitment, expressing control as a measurement problem.
Fourth Session	First, it focuses on increasing psychological awareness, and then people are trained on how to respond and deal appropriately with their mental experiences and create social goals and lifestyles and practical commitment to them. Examining the positive and negative points of the members and weakening the self-concept and expressing the real self without any emotional judgment and reaction and behavioral commitment
Fifth meeting	Training stress tolerance and increasing tolerance and responsibility (crisis coping skills, distraction, self-reliance using the six senses, and awareness training) and reviewing previous sessions and give feedback to members.
Sixth Session	Emotion management training (the objectives of this training, knowing why emotions are important, recognizing emotion, increasing positive emotion), changing emotions through action opposite to recent emotion, practicing what has been learned, providing feedback by the group and the therapist
Seventh session	Increasing individual and interpersonal efficiencies, interpersonal skills training (description and expression, assertiveness and courage, open trust, negotiation and self-esteem), performance measurement, introduction of the concept of value, indicating the dangers of focusing on results
Session 8	Understanding the nature of willingness and commitment, determining appropriate action patterns with values, summarizing and performing the post-test.

Control group: This group did not receive any treatment. Using the questionnaire, the selection and appointment of group members were considered as the experimental group in the control group.

After the treatment, the questionnaires were taken from both groups as the post-test and finally the information was analyzed.

Results

Description of the research variables

Table 3: Description of the research variables

Variables	Group	Stage	Frequency	Mean	SD
Happiness		Pre-test	15	2.33	0.15

Responsibility	Control	Post-test	15	2.49	0.31
		Pre-test	15	2.41	0.11
	Experimental	Post-test	15	2.91	0.27
		Pre-test	15	11.30	0.21
	Control	Post-test	15	13.02	0.35
		Pre-test	15	11.38	0.19
	Experimental	Post-test	15	19.23	0.34
		Pre-test	15	19.23	0.34

As is seen in Table 2, there are no significant differences between happiness and responsibility of female students of Tehran University of Science and Technology in the pre-test stage in control and experimental groups. However, the values of happiness and responsibility in the post-test phase increased significantly in the experimental group compared to the control group.

Analytical findings

Normality test

Table 3: Normality test

Variables	Value statistic z	Error value	sig
Happiness	0.702	0.05	0.087
Responsibility	0.741	0.05	0.077

Based on the information in Table 3 of the normality test, it is seen that the probability value is insignificant in both variables (the probability value is greater than the error level of 0.05), showing the normality of the variables, which is one of the prerequisites of using covariance analysis test.

Homogeneity of variances

Table 4: Levene's test to examine the homogeneity of variances

Variables	Levene's value	df	Error	Probability
Happiness	2.028	1 and 28	0.05	0.165
Responsibility	1.569	1 and 28	0.05	0.221

As in Levene's test, the probability value is higher than 0.05 level, it is concluded that the assumption of the homogeneity of variances between the two groups is confirmed, which is another prerequisite for analysis of covariance (Table 4).

Homogeneity of regression line slope

Table 5: Interaction of independent and covariate variables

Variables	Source of change	Sum of squares	df	Mean squares	Fisher	Probability
Happiness	Group and pre-test	1.328	2	0.664	7.08	0.12
Responsibility	Group and pre-test	2.192	2	1.069	8.74	0.08

Given that the probability value in Table 5 is greater than 0.05, one can conclude that the null hypothesis is accepted and the alternative one is rejected, and the presumption of homogeneity of the regression line slope is observed.

The linearity of the correlation between the covariate and the independent variables

Table 6: One-way analysis of covariance

Source of change	Sum of squares	df	Mean squares	Fisher	Probability
Happiness	0.033	1	0.033	3.01	0.015
Responsibility	0.045	1	0.045	5.12	0.003

Table 6 shows that the probability value is less than 0.05 and f value of the covariate variable is significant. Thus, it is concluded that the presumption of linearity of the correlation variable and the independent variable is established.

Testing research hypotheses

Hypothesis 1: Acceptance and commitment-based education is effective on the responsibility of science and technology students.

Table 7: One-way analysis of covariance of Hypothesis 1

Source of change	Sum of squares	df	Mean squares	Fisher	Sig	Effect size
Corrected model	2.165	2	1.082	8.566	0.001	0.301
Intercept	0.755	1	0.755	5.972	0.021	
Responsibility pre-test	0.045	1	0.045	5.121	0.003	
Group (independent variable)	2.046	1	2.046	16.195	0.000	0.434
Error	3.411	27	0.126			
Total	227.582	30				
Total corrected	5.576	29				

Given the value of $F = 16.19$ and as the probability value is less than 0.05 level, the research hypothesis is confirmed with 0.95 confidence concluding that acceptance and commitment-based education is effective in responsibility of science and technology students. Indeed, acceptance and commitment-based education enhances the responsibility of science and technology students (Table 7).

Hypothesis 2: Commitment and acceptance-based education is effective in the happiness of science and technology students.

Table 8: One-way analysis of covariance Hypothesis 2

Source of change	Sum of squares	df	Mean squares	Fisher	Sig	Effect size
Corrected model	1.349	2	0.674	7.256	0.003	0.343
Intercept	0.652	1	0.652	7.018	0.013	
Responsibility pre-test	0.033	1	0.033	3.010	0.015	
Group (independent variable)	1.226	1	1.226	13.196	0.001	0.301
Error	2.509	27	0.093			
Total	223.206	30				
Total corrected	3.858	29				

Given the value of $F = 13.19$ and as the probability value is less than 0.05 level, the research hypothesis is confirmed with 0.95 confidence concluding that acceptance and commitment-based education is effective in science and technology students' happiness. Indeed, acceptance and commitment-based education improves the happiness of science and technology students (Table 8).

Conclusion

The purpose of the study was to examine the effectiveness of acceptance and commitment-based education in responsibility and happiness of science and technology students, whose results are as follows:

- The first hypothesis results indicate that acceptance and commitment-based education is effective in the responsibility of science and technology students. Indeed, acceptance and commitment-based education improves the responsibility of science and technology students. This is in line with the results of Mahmoud Fokheh et al. (2019), Shirvani et al. (2018), Haj Rezaei et al. (2018), Veisi et al. (2016), Tjak, Davis, Morina & Emmelkamp (2018), Hancock & Cassandra (2016) and Johnsen & Friborg (2015). In explaining this hypothesis, one can state that in acceptance and commitment therapy, the content of thoughts, feelings and bodily senses is not examined unlike cognitive-behavioral therapy, but the ways in which people deal with their experiences are examined. This approach puts the stress on the fact that the challenge and conflict with beliefs should be reduced. One can state that acceptance and commitment approach helps students identify their personal values neglected so far, determine the activities needed to achieve these values and ultimately helps students to perform the necessary activities to reach their goals with respect to responsibility.
- The results of the second hypothesis indicate that acceptance and commitment-based education is effective in the happiness of science and technology students. Indeed, acceptance and commitment-based education enhances the happiness of science and technology students. This is in line with the results of Mahmoud Mahmoud Fokheh et al. (2019), Shirvani et al. (2018), Haj Rezaei et al. (2018), Veisi et al. (2016), Tjak, Davis, Morina & Emmelkamp (2018), Hancock & Cassandra (2016) and Johnsen & Friborg (2015). In explaining this hypothesis, one can state that commitment and acceptance try to change the potential functions of unwanted thoughts and feelings and do so by modifying the psychological context where they are experienced. The American Psychological Association recommends acceptance and commitment-based therapy as a valid experimental treatment with strong research support regarding chronic pain. Acceptance and commitment-based therapy is one of the third wave type cognitive-behavioral therapies, which uses acceptance and mindfulness strategies to increase psychological flexibility besides behavioral change strategies. Thus, increasing acceptance, awareness of the present moment, and commitment to action in line with values is emphasized. In commitment and acceptance approach, the goal of a healthy life is not to feel good, but to have a good feeling. When the strategy of emotional avoidance is used, this belief becomes stronger and more intense as avoidance implies that certain things should be avoided. Thus, the approach can enhance students' happiness by helping eliminate negative ideas and thoughts.

References

- [1] Argyle, M. (2008). *Psychology of happiness*. Translated by Gohari Anaraki, Mahnaz; Neshatdoost, Hamid; Palahang, Hassan and Bahrami, Fatemeh (2013). Isfahan: University Jihad Publications.
- [2] Raisi, H. (2010). *Evaluation of the effectiveness of happiness education on reducing blood pressure in patients with hypertension in Isfahan*. Master Thesis, Faculty of Educational Sciences, University of Isfahan.
- [3] Alipour, A., Noorbala, A.A. (2001). Preliminary evaluation of the reliability and validity of the Oxford Happiness Questionnaire in Tehran University students. *Quarterly Journal of Thought and Behavior*, 5 (2), 56-62
- [4] Frisch, M.B (2006). *Psychotherapy based on improving the quality of life*. Translated by Khamseh, Akram. (2013). First Edition. Arjmand Publications
- [5] Talebi, A., Khoshbin, Y. (2012). Social responsibility of young people. *Social Science Quarterly*. 1 (5). 58-62
- [6] Athari, M. (2016). *The relationship between optimism and happiness and marital satisfaction*. Master Thesis. Payame Noor University of Ahvaz

- [7] Khadivi, A.A., Elahi, I. (2013). *Investigating the relationship between responsibility and academic achievement of female high school students (seventh grade) in Mahabad*. Women and Family Studies, 6 (22), 59-37.
- [8] Argyle, M. (2007). *The psychology of happiness*. 2nd ed. London: Rutledge Press, Taylor & Francis group.
- [9] Brewer, M. (2013). *Teaching your child responsibility*. Pagewise. Inc
- [10] Whitebied, R. R., & Kreitzer, M. J. (2010). Mindfulness-Based Stress Reduction and Diabetes. *Diabetes Spectrum*; 22(4): 226–230.
- [11] Hayes, S. C., Wilson, K. G., Gifford, L., & Strosahl, K. D. (2013). *Acceptance and commitment therapy: an experiential approach to behavior change*. New York: Guilford Press.
- [12] Forman, E. M., & Herbert, D. (2009). *New directions in cognitive behavior therapy: acceptance based therapies, chapter to appear in W. O'donohue, Je. Fisher, (Eds), cognitive behavior therapy: Applying empirically supported treatments in your practice*. 2nd ed. Hoboken, NJ: Wiley, 263-26.
- [13] Halliburton, A. E. & Cooper, L. D. (2015). Applications and adaptations of acceptance and commitment therapy (ACT) for adolescents. *Journal of Contextual Behavioral Science*, 4(1), 1-11.
- [14] Smout, M. F. & Longo, M. (2012). Psychosocial treatment for methamphetamine use disorders: A preliminary randomized controlled trial of cognitive behavior therapy and acceptance and commitment therapy. *Substance Abuse*, 312, 98-107.
- [15] Mergler, A. S. (2007). Relationships between personal responsibility, emotional intelligence and selfesteem in adolescents and young adults. *The Australian Educational and Developmental Psychologist*, 24(1), 5-18.
- [16] Nicksiou, D. L., Run, J. & Moudach, T. K. (2018). Reducing death anxiety and increasing hardiness in soldiers: The effectiveness of acceptance and commitment therapy. *Behavior Therapy*; 42(2):323-35.
- [17] Tjak JA, Davis ML, Morina N, Emmelkamp P. (2018) A meta-analysis of the efficacy of acceptance and commitment therapy for clinically relevant mental and physical health problems. *Psychother Psychosom*. 84(1): 30-6.