EFFECTIVENESS OF A MINDFULNESS-BASED TRAINING PROGRAM TO IMPROVE CREATIVE SELF-EFFICACY AMONG A SAMPLE OF SECONDARY SCHOOL STUDENTS

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Abstract. To motivating creativity among students, creative self-efficacy is one of the most important indicators, as it refers to individuals' beliefs about their creative abilities, their motivation towards creativity, and possession of the necessary knowledge for creativity. The main objective of this study is to identify the effectiveness of a training program based on mindfulness, in improving creative self-efficacy. 30 eighth grade students, experimental and control groups included 15 students. The training program experimental group received a training program of 13 sessions, while the control group was not included. Assessment using the creative self-efficacy scale showed that the experimental group students scored higher on the creative self-efficacy table and its subscales than the students in the control group, and showed a positive effect of the mindfulness-based training program in improving creative self-efficacy among a group of secondary school students.

1. Introduction

Although the concept of mindfulness has only recently been recognized in the study of modern-day psychology, it has rapidly become an extremely important area of research, particularly in consciousness itself instead of the context of its expression: thought, memory, emotion, *etc.* (Brown et al., 2007).

Mindfulness involves being consciously and attentively aware of one's state of being, and as such has a place alongside time-honoured theories in psychology featuring the significance of an individual's thoughtful awareness of his/her environment, experiences, and behaviour. Examples of self-consciousness theories include Buss (1980) and Duval and Wicklund (1972), of control theory of Carver and Scheier (1981, 1998) and of self-determination. The theory by Deci and Ryan (1987) underlines the importance of attention and awareness in wholly comprehending the situation, in order to enable integrative functioning consistent with one's personal standards and tenets, thus focusing on attention and awareness, both essential to mindfulness.

One of the main goals of mindfulness-based programs is to reduce stress, however, is to train individuals in the practice of mindfulness not as an end to achieving any specific

purpose, but simply to share in the experience. Kabat-Zinn (2009) concluded that adopting mindfulness may result in better self-control and improved function in general, as well as improved relaxation and respite from pain; however, these are not the ultimate goals when approaching life's experiences with mindfulness.

In the field of psychology, the construct of mindfulness is highly significant, requiring the individual to devote his/her undivided attention to the present moment without question or judgement (Bishop et al., 2004).

There have been numerous disparate attempts at defining and quantifying the mindfulness construct: mindfulness can be conceptualized as a mode or state (Bishop et al., 2004), a trait (Brown & Ryan, 2004), a set of skills (Baer et al., 2006), a one-dimensional construct (Brown & Ryan, 2004); consisting of multiple facets (Baer et al., 2006). Some authors (Bishop et al., 2004) offered a dual-component model: self-regulating one's attention to one's immediate experience, coupled with acceptance of one's present moment. Other authors (Baer et al., 2006) suggest five dimensions of mindfulness: 1) observing; 2) describing; 3) acting with awareness; 4) non-judging of inner experience; and 5) non-reactivity to inner experience.

Regardless of the various attempts at defining and quantifying the mindfulness construct, many empirical studies simply document its benefits (Baer, 2003; Dalrymple & Herbert, 2007; Kabat-Zinn, 1982, 2009; Linehan, 1993, 2015), asserting the positive correlation between mindfulness and positive psychological functioning, now it is used in many psychological interventions.

Kabat-Zinn (1994) gave a clear and succinct definition of mindfulness: to be psychologically aware of being wholly attentive to the present moment with acceptance and without judgement. The significance of this intense focus is to achieve awareness, clarity and acceptance of reality, to ease psychological distress. In the absence of mindfulness, human behaviour is prey to all manner of reflexive or automatic behaviours which, if not dealt with, fester and engender feelings of helplessness and hopelessness. Kabat-Zinn (1994) added that non-judgemental acceptance of any situation, giving the present moment total attention, is how mindfulness becomes an influential method in dismantling this destructive cycle of negativity; the acceptance of a situation empowers a sense of control. The state of mindfulness provides an opportunity for self-awareness, self-reflection, and self-regard, previously absent. Enabling the conscious aptitude for processing deep emotions is both redemptive and sanctioning, with the mindfulness component adding intensified ability to exploit the psychological resources of clarity, intelligence, choice, imagination, and creativity.

Bandura (1997) defined creative self-efficacy as the individual's personal judgement of their ability to effectively utilize such psychological resources creatively in a particular situation. According to some authors (Phelan, 2001), creative self-efficacy is an individual's belief in his/her personal creative abilities and potential which enables them to effect change and improve their persona. Tierney and Farmer (2002) defined creative self-efficacy as a personal belief and confidence in one's competence to produce a creative outcome. According Beghetto et al. (2011), it means one's belief in the capability to think, act, and achieve an end creatively. Yu (2013a) sees creative self-efficacy as the facility to transform existing or novel ideas into actuality.

Tierney and Farmer (2002) proposed that a firmly-held belief in self-efficacy encourages an individual to exert continuing effort to produce mature creative outcomes, particularly in challenging situations, thereby enhancing his/her self-confidence in their creative abilities. To Michael et al. (2011), determining one's creative self is contingent on both the individual level of self-efficacy and confidence in one's capabilities and anticipation of creative-action outcomes, in the framework of one's future objectives. Michael et al. (2011) and Yu (2013a) believe that high levels of creative self-efficacy enable individuals to generate a network of motives, data sources, and pathways necessary to accomplish their objectives, usually preferring to use these aptitudes creatively, looking upon difficulties as challenges to be overcome by their own effort, in addition to addressing the problem and resolving it by way of creative realization. For Cheng et al. (2012) and Michael et al. (2011), individuals with high creative self-efficacy levels demonstrate this proficiency in the creativity used to accomplish a given task.

An individual's creative self-efficacy and performance can be developed by training and effective management, also through appropriate activities aimed at proficiency in experiencing both cognitive and motor interaction with the situation. Ford (1996) and Beghetto (2006) claimed that understanding the key role of creative self-efficacy in improving creativity, with constant support from the teacher, can encourage a positive atmosphere in the classroom, bearing in mind that the degree of reinforcement is determined by the teachers knowledge of the theoretical and applied frameworks of the creative process.

Many researchers (Yu, 2013a, 2013b; Lee & Kemple, 2014; Lim & Choi, 2009) studying creativity have suggested that accomplishment of creative outcomes depends on a high level of creative self-efficacy. Tierney and Farmer (2002) defined creative self-efficacy as the personal belief of individuals in their ability to generate novel or remarkable results. Along with Michael et al. (2011) and Beghetto et al. (2011), they noted the ability of individuals with a high level of creative self-efficacy to access high levels of both self-motivation and other cognitive states to deal with the anxieties of specific circumstances, accept a high possibility of failure, and remain invulnerable to potentially negative self-evaluation often accompanying creative solutions. Empirical evidence suggested a positive correlation between creative self-efficacy and creative output (Tan et al., 2008), subjective happiness and satisfaction with life (Beghetto, 2009), and mastery and performance, as well as target achievements. Creativity-trained individuals were inclined to show more confidence in their personal creative capabilities, in addition to demonstrating willingness to take greater risks in generating novel ideas (Byrge & Tang, 2015; Perry & Karpova, 2017).

Based on the results of previous studies that showed creative self-efficacy improved through training, this study aimed to identity the effect of a training program based on mindfulness to improve the level of creative self-efficacy among secondary school students in Jordan, and specifically to test the following study hypothesis: students in experimental group in post-test have higher level of creative self-efficacy compared to the control group.

2. Methodology

2.1. Study sample

30 eighth grade students at Asad Bin Al-Furat secondary school in Zarqa Governorate, with low scores on the creative self-efficacy participated in this study. The experimental and control group included 15 students. Table 1 shows the pre-test equivalence between experimental and control groups in the level of creative self-efficacy.

Table 1. Results of independent sample student's *t*-test by groups (source: created by authors)

Variables	Group	Mean	Standard deviation	*t*-value	Significance
Creative thinking self-efficacy	Control	2.05	0.15	−0.681	.50
	Experimental	2.08	0.15		
Creative performance self-efficacy	Control	2.02	0.22	−1.176	.25
	Experimental	2.14	0.28		
Creative self-efficacy	Control	2.03	0.15	−1.213	.23
	Experimental	2.11	0.18		

The results of independent sample student's *t*-test showed no differences between experimental and control groups in the level of creative self-efficacy or its subscales, thus meaning equivalency between the two groups.

2.2. Study instrument and training program

The authors added training program based on the theoretical framework and the content of some programs included in previous studies (Bamber & Kraenzle Schneider, 2016; Dundas et al., 2016; Franco et al., 2010; Shahidi et al., 2017) with its various techniques and activities. The authors adhered to the philosophical foundations, as the training program was built according to the techniques of training on mindfulness. And psychological foundations in terms of taking into account the counseling needs of the study sample. In the program training there are many techniques and strategies such as discussion, role playing, feedback, ask question, and group discussion. To evaluate the training program, an evaluation was connected at the end of each session, and after completing the training program on all the skills included in the training program.

The main objective of the current study was to prepare a program based on mindfulness, to improve the level of creative self-efficacy among eighth grade students. The sub-goals of the training program are as follows: 1) train students to reflect and practise reflection as a daily habit; 2) train students to be aware of and pay full attention to their ideas; 3) train students in self-acceptance; and 4) train students in conscious awareness of their bodies and minds. The program consisted of 13 sessions, as shown in Table 2.

Table 2. Program content (source: created by authors)

Session no.	Content
Session 1	Introduction: mutual familiarization between the author and participants in the training program. Explain the general and special goals of the program to the experimental group. Emphasizing the importance of participation and interaction during training.
Session 2	Explain the mindfulness concept, its importance and the factors that result in mindfulness. Identifying the components of mindfulness and its impact on the various aspects of individual life.
Session 3	Application: the author practiced some mindfulness exercise in the front of the students, the author asked the students to practice some mindfulness exercises.
Session 4	Positive thinking: the author explain the positive thinking concept and train students to think about finding and implementing positive solutions for problem situations.
Session 5	Flexibility of ideas: The author explained the flexibility. Students were trained to deal with various events in multiple and flexible ways.
Session 6	Acceptance: the author explained acceptance concept. Students were trained to develop new ideas toward achieving self-acceptance and acceptance of others.
Session 7	Mindfulness exercised through the senses: students were trained to exercise mindfulness using sight, hearing, touch, breathing and different parts of body.
Session 8	Focus on performing tasks: students were trained to focus on the present moment, let go of the past or worry about future, and focus attention on the present moment.
Session 9	Mindful listing: the author explained the concept of mindful listing, the methods used to increase mindful listing, and students were trained to listen to others with focus.
Session 10	Precognition: the author explained the concept of precognition, its importance, and students were trained to practice precognition.
Session 11	Self-confidence: the author explained the concept self-confidence methods of self-exploration, knowing and developing of self-strength and overcoming weaknesses. Students were trained to develop there self-confidence.
Session 12	Self-awareness: the author explained the concept and importance of self-awareness, the methods used to increase the self-awareness, and students were trained to self-awareness skills.
Session 13	The final session was devoted to a discussion of the benefits of the training program, giving feedback to participating students, and completing the study instrument.

The creative self-efficacy scale was developed by Abbott (2010) and consisted of 28 items. 16 items measure creative thinking self-efficacy and 12 items measure creative performance self-efficacy. The reliability of creative self-efficacy scale using Cronbach's alpha = 0.89, and in this study Cronbach's alpha of creative self-efficacy scale was 0.77.

2.3. Data collection and analysis

The researcher followed these procedures: 1) translation of creative self-efficacy scale from English to Arabic; 2) Arabic version of creative self-efficacy scale completed by 30 students to check validity and reliability; 3) verification of equivalence of experimental and control groups; 4) application of training program to the experimental group was completed over a period of two months, comprising two 45-minute sessions weekly, while the control group was not subjected to any treatment; 5) both groups completed the creative self-efficacy scale at the

end of the training program; 6) study data was processed using mean, descriptive statistics, independent sample student's *t*-test, and analysis of covariance (ANCOVA).

2.4. Results

Study hypothesis is as follows: students in experimental group in post-test have higher level of creative self-efficacy compared to the control group.

To achieve the study hypothesis, descriptive statistics mean were calculated pre-test and post-test for the level of creative self-efficacy for experimental and control groups, as shown in Table 3.

Table 3. Pre-test and post-test for the level of creative self-efficacy by group (source: created by authors)

Dimensions	Group	Pre-test		Post-test	
		Mean	Standard deviation	Mean	Standard deviation
Creative thinking self-efficacy	Control	2.05	0.15	2.15	0.27
	Experimental	2.08	0.15	3.13	0.11
Creative performance self-efficacy	Control	2.02	0.22	2.23	0.47
	Experimental	2.14	0.28	3.24	0.24
Creative self-efficacy	Control	2.03	0.15	2.19	0.33
	Experimental	2.11	0.18	3.18	0.13

Table 4. Results of analysis of covariance (source: created by authors)

Dimensions	Source	Sum of squares	Difference	Mean square	*F*-value	Significance	Eta-squared
Creative thinking self-efficacy	Pre-test	0.036	1	0.036	0.795	0.38	0.03
	Group	6.925	1	6.925	152.857	0.00	0.85
	Error	1.223	27	0.45			
	Collected total	8.430	29				
Creative performance self-efficacy	Pre-test	0.017	1	0.017	0.111	0.74	0.00
	Group	7.405	1	7.405	49.258	0.00	0.64
	Error	4.059	27	0.150			
	Collected total	11.687	29				
Creative self-efficacy	Pre-test	0.030	1	0.030	0.448	0.50	0.01
	Group	7.228	1	7.228	106.721	0.00	0.79
	Error	1.829	27	0.068			
	Collected total	9.248	29				

The results of ANCOVA analysis (Table 4) showed that the level of creative self-efficacy of the experimental group in the post-test was higher than of the control group, and the eta-squared was 0.79. The level of creative thinking self-efficacy of the experimental group in the post-test was higher than of the control group, and the eta-squared was 0.85, showing

the level of creative performance self-efficacy of the experimental group in the post-test was higher than of the control group, and the eta-squared was 0.64, which indicate the effectiveness of the training program based on mindfulness in improving the creative self-efficacy among eighth grade students.

It is noted that the control group recorded higher score in the post-test compared to the post-test. The reason for this may be due to the lack of seriousness of the control group in answering the creative self-efficacy scale items in the pre-test. Another reason the control group members felt a state of competition with the experimental group members.

3. Discussion

The main objective of this study investigated the effectiveness of a training program based on mindfulness to improve creative self-efficacy among eighth grade students. The results showed that that the experimental-group students scored higher on the creative self-efficacy table and its subscales than the students in the control group. The researchers explained the results in the light of the concept of mindfulness which refers to the intentional focus of attention on the present moment without judgement based on personal experience, emotions, or ideas. Mindfulness is a preventive factor for successfully facing difficult situations, thus encouraging the individual to work hard, address obstacles, and improve performance. Mindfulness also helps the individual to focus on the present moment and situation, to avoid focusing or thinking about past and future events, and increases motivation to deal with existing obstacles to avoid failure, considering different ways by which to achieve one's goal, rather than fixating on a single idea or method. Mindfulness enhances mental flexibility and encourages visualizing alternative ways to achieve goals when faced with obstacles.

Likewise, the researchers explained this results in the light of the components of the training sessions, where students were trained to self-monitor ideas without judging them, and this helped to develop their ability to control the thinking process and develop a degree of awareness of ideas and understanding, and exclude negative thoughts without interacting with them. Sessions of the training program include self-regulation of emotions and not thinking about previous problems or future concerns, which helps to control emotions, reduce anxiety, stress, and pessimism, and divert attrition to achievement of goals. The students were also trained in the exercise of the five senses of mindfulness, which had an effective impact in focusing on the current moment, as reflected in their behaviours and their vision of life.

Understanding and practising mindfulness requires a complex skill-set including observation, that is being able to pay close attention to a person or situation and identify different triggers or incentives; awareness, being fully alert and responsive; and description of a person or situation factually, without judgement or reactive evaluation (Baer et al. 2006). While Colzato et al. (2012) noted that although open-monitoring meditation (targeting observation) may increase creative thinking, focused-attention meditation (acting with awareness) may not only be unrelated to creativity, but may also inhibit creativity task ability (Baas et al., 2014; Zedelius & Schooler, 2015). Previous studies (Baird et al., 2012; Carson et al., 2005; Zabelina et al., 2015; Zedelius & Schooler, 2015) found that contra-mindfulness concepts including relaxation of inhibitions and allowing the mind to wander are predictors of creative thinking

and achievement (Bott et al., 2014; Byrge & Tang, 2015; Karpova et al., 2011; Kienitz et al., 2014; Ma, 2006; Perry & Karpova, 2017; Scott et al., 2004). Research results internationally confirmed enhancement of creativity skills, to a greater or lesser degree, through deliberate training. These effects have been validated for a wide range of training programs in different countries and cultures, with participants of different gender and age, oncourses of varying length and intensity, sometimes only a single session (West et al., 2012; Ding et al., 2014).

The results of this study are partially similar to some previous studies. Sanaei et al. (2014) conducted study to examine the effectiveness of a training program based on mindfulness, to improve self-efficacy among cancer patients. They found a positive effectiveness of the mindfulness-based program in improving self-efficacy, in favour of the experimental group that had undergone the program. Ghorbannejad et al. (2017) examine the effectiveness of a training program based on mindfulness in improving self-efficacy and intelligence beliefs among male secondary school students. They found a positive effect on the experimental group who underwent the training. Some authors (Firth et al., 2019) conducted a study to examine the effectiveness of a training program based on mindfulness to improve self-efficacy and academic performance among undergraduate students. They found a positive improvement in favour of the experimental group that had undergone the training program. Other authors (Vally et al., 2019) conducted study to examine the effectiveness of a training program based on mindfulness in improving creative self-efficacy, creative production, and neuro-executive functioning among undergraduate students. They found a positive effectiveness in favour of the experimental group that had undergone the training program.

4. Conclusions and recommendations

Employing mindfulness skills in school teaching contributes to increasing students' ability to be open-minded, to focus on educational activities and to apply this knowledge in various situations; this contributes effectively to improving their academic achievement and completing educational tasks. According to Brausch (2011), the practice of mindfulness can be applied in the academic siting for its role in students learning of self-regulation of attention, which is one of the important elements in academic achievement. Also mindfulness has a role in increasing the level of students' ability to face academic challenges and stressful situations to hic they are exposed. The study sample was limited to eighth grade male students in government school in Zarqa, Jordan. The training program was limited to components of mindfulness; participation was only available to students in the experimental group. Future studies should examine the impact of other training programs to improve creative self-efficacy, with a wider range of study samples from both school and university students.

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