The Development of Creative Thinking in Preschool Teachers: the Effects of SCAMPER Program

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Abstract
This study aims at revealing the effects of the application of SCAMPER program . on creative thinking skills of preschool female teachers. The question " What is the effectiveness of the SCAMPER program in the development of creative thinking for teachers in the pre-school stage ?" constitutes the problem of the study. For this purpose, the one- group study method was used in the second semester of the academic year 2013-2014. The study group consists of 10 female preschool teachers in total. The data acquired upon the study were analyzed through content analysis. This study provides awareness to the teachers with the instructional design prepared via SCAMPER program. As a result of the study shows that teachers were seen to have performed improvement in creative thinking skills.

***Keywords*:** Creative Thinking, SCAMPER Program, Preschool Teachers

Introduction

Kindergarten's teacher plays numerous and overlapping roles and performs many and varied tasks which require different technical skills which are difficult to identify accurately and in detail. If the teacher in the other stages of education is asked to master a specific scientific curriculum and manage the classroom well, the teacher in the kindergarten will be responsible for all what the children learn, in addition to the task of guiding the process of growth of every one of her children in a sensitive stage in their lives.

The creative teacher tries to make her children more efficient at problem-solving, decision-making, and communication with others. Besides, she does not rely on a single source of learning, but she is seeking to merge and synthesis among various and different sources and experiences.

The character of the teacher has deep impact in pushing forward the educational process for children, providing that she has the ability, motivation, rehabilitation, scientific and academic preparation, and continuous training which can achieve all the roles and tasks that she performs.

Hence the idea of the present study emerged through the use of one of the most important recent programs in the field of developing the creation and imagination for the teachers in order to train them to discover, develop and care about the gifted children in the stage of pre-school – SCAMPER Program for developing the imagination and creative thinking. The cognitive, psychological and vocational support can be achieved via SCAMPER program which concerns with the development of creative thinking for teachers in the pre-school stage.

The present study seeks to give answer to the following question:

What is the effectiveness of the SCAMPER program in the development of creative thinking for teachers in the pre-school stage ?

Literature Review

SCAMPER program

SCAMPER program is described as procedural program that helps the development of creative thinking through the imagination, using the method of divergent thinking. It includes a group of twenty games which vary in their contents and focuses on training on creativity via funny style . It depends on playing and providing activities that aim to teach thinking and creative thinking. Thus, it aims to build positive attitudes towards thinking, imagination,

creativity and developing imagination for teachers, and helps divergent thinking. (Roger, 2011;Gladding & Henderson, 2013).

SCAMPER program: A historical overview

Eberle (1996) ,the originator of the program, refers to the most prominent stages of its development as follows:

- At the beginning, Alex Osborne, 1963 introduced a Spurring Checklist which are those key words or phrases that constitute the initial letters of the word SCAMPER, in order to be an assistant strategy during brainstorming sessions.

- Then, Richard de Mille introduced a book entitled *Put your mother on the ceiling* in 1967, which aimed to develop children's imagination.

- After a period of time, especially in 1970, Frank E. Williams and his colleagues, as a director of the national schools project introduced a set of methods aimed at stimulating creative expression for the children. In short, these methods were based on two fundamental dimensions : the cognitive processes: (originality, flexibility, fluency, and a tendency to details) and the emotional or affective processes: (curiosity, willingness to deal with risk, and preferring complexity, and intuition). (Gladding & Henderson, 2013).

Finally, Eberle combined all of these previous experiences and integrate them with each other to build SCAMPER program, which was represented in the efforts of Osborn, especially the Spurring Checklist where he defined every word carefully, and added it to the methods of Williams , so that he has a model called SCAMPER model . It is a three-dimensional cubic. Also, he formulated games and activities according to deMille's style, in the development of creative imagination. Thus, he has the following: (the scientific model, the scientific method, and the activities) and issued his first version: SCAMPER, which contains ten games, then after that, he issued another version: which also, contains ten games.(Matthew, 2010).

Program description

SCAMPER program is described as a procedural program that helps the development of creative thinking through the imagination, using the method of divergent thinking. It includes a collection of twenty games which differ in their content and share the method of their introduction. It focuses on training on innovation via funny style . It depends on playing and provides activities that aim to teach thinking, creativity and creative thinking. Thus, it aims at building positive attitudes among children towards thinking, imagination, creativity ,the development of imagination and thinking in general and creative thinking in particular. It also helps divergent thinking. (Jagiello, 2012,P.7).

The target groups for this program

SCAMPER program targets large segment of society. It is suitable to children's use, starting from the age of three years and up to adults and university students, providing that making few adjustments in its instructions.

[A] SCAMPER Acronym
SCAMPER was developed by Robert F. Eberle. The acronym stands for a series of thinking processes focused on a single objective. SCAMPER stimulates the thought processes and encourages inventiveness.

Substitute. Have a person or thing act as, or take the place of, another. Questions : What might you do instead? What could you do as well or better?
Combine. Bring items together and unite them. Questions : What might work well together? What could be added together?
*Adapt***.** Make an adjustment to suit a purpose or condition. Questions : What could be adjusted to suit a purpose or condition? How could you make it fit?
Modify, magnify, or minify. Take the original item and alter it to change the form, enlarge it and make it greater in form or quantity, or make it smaller, lighter, or less frequent. Questions : What would happen if you change the form or quality? Could you make it larger, greater, stronger etc.?
*Put to other uses***.** Plan for using the item for purposes beyond those originally intended. Questions : How could you use it for a different purpose? What are some new ways to apply it?
*Eliminate***.** Think about omitting all or part of the quality. Questions : What could you subtract or take away? What could you do without?
*Reverse or rearrange***.** Think of a different plan, scheme, or layout. Questions : What would you have if you reversed it? Could you change the parts, order, or layout sequence? (Roger, 2011;Gladding, Henderson, 2013)

[B] Cognitive processes that contribute to the creative expression
1. Originality - depending on originality of ideas and story line.
2. Fluency - depending on the development of ideas. Interconnectedness.
3. Flexibility - depending on the scope of the composition. Flexibility in processing ideas.
4. Elaboration - level of elaboration of initial ideas. Expansion of story line.

[C] Emotional (affective) processes that contribute to the creative expression:

1) *Curiosity*: it is a preliminary exploratory behavior directed towards the acquisition of knowledge. It includes using of all the senses in research, testing, and guesses validation, and rush into the unknown or uncommon, to achieve a strong desire to know the thing It can be expressed in the following points:
- Urgent and strong desire to learn things.
- Questioning and frequent debate and research.
- The ability to think deeply.

2) *Willingness to Take a Calculated Risk*: it is an activity that includes meditation, forecasting, wisdom, insight, and calculate the probability of success and failure before the event. The character that bears the risks is characterized by will, willingness and setting goals for gains and benefits. Also, he has the features of calculating the factors of chance and luck, love of adventure and the unknown and carry anxiety. All of these characteristics are known for each one bears the risks. It can be expressed in the following points:
- Freedom of guessing, and not fear of the error.
- Meditation, forecasting and prediction.
- Love of adventure and the unknown.

3) *Preference for Complexity*: it is a desire and willingness to accept the challenge, and represents the desire to work or deal with the details, and a tendency to scrutiny and search for complex ideas and difficult problems. The challenges can be appeared in the form of complex ideas difficult to solve or difficult problems or drawings and complex designs or complicated theory.
It can be expressed in the following points:
- The desire to organize and arrange chaotic cases.
- The desire to work with many details and complex problems.
- Willingness to accept the challenge.

4) *Intuition***:** it is a perception which requires insight, agility, understanding and direct discrimination of truth or reality independent of the logical operations. Then, it is the perception, the direct and rapid understanding of the worthy uneducated knowledge. (Majid, Tan, Soh, 2009; Roger, 2011).

Method

Participants

10 female pre school teachers participated in this study , all of them had a bachelor degree in education. The age of participants ranged from 23-25 years . They worked as a pre school teachers for five years.

Instruments

Stanford-Binet Intelligence Scale is an individually administered intelligence test that was revised from the original Binet-Simon Scale by Lewis M. Terman, a psychologist at Stanford University. It is a cognitive ability and intelligence test . The test measures five weighted factors and consists of both verbal and nonverbal subtests. The five factors being tested are knowledge, quantitative reasoning, visual-spatial processing, working memory, and fluid reasoning. The test has a strong reliability and validity coefficients.

The Figural Torrance Tests of Creative Thinking. s appropriate at all levels, kindergarten through adult. It uses three picture-based exercises to assess five mental characteristics: fluency, flexibility , originality and originality. The test has a strong reliability and validity coefficients.

Procedures

Participants were selected, then pretest data were collected using The Figural Torrance Tests of Creative Thinking .Then, the SCAMPER program was conducted by the author with the selected teachers for 14 weeks with 50 minute sessions conducted three times a week. The trainer stimulates the trainees to produce original ideas, and practice creative imagination by hearing the texts of the games and interact with them. The trainer introduces the cards for activities to help turning these creative imaginations into behaviors that can be monitored and then provides feedback .

Results

The hypothesis of the study is that there are significant differences among mean rank scores in pre -post testing in creative thinking (fluency, elasticity, originality, elaboration, and total score) in favor of post testing. Table 1. shows Z Value result for the differences in post-test mean rank scores. The table shows that (Z) values were (-2.823) for fluency, (-2.831) for flexibility, (-2.807) for originality, (-2.809) for elaboration and (-2.810) for the composite

score . This value is significant at the level (0.01) .This indicates that use of the SCAMPER program had a positive effect on creative thinking in the target teachers.

Table 1. *Z Values results for the comparison of mean rank at pre- and post intervention in creative thinking*

Variables	**Negative Ranks**		**Positive Ranks**		**Z Value**	**Sig.**
	Mean	Sum	Mean	Sum		
fluency	3	15	Zero	Zero	-2.823	0.01
flexibility	3	15	Zero	Zero	-2.831	0.01
originality	3	15	Zero	Zero	-2.807	0.01
elaboration	3	15	Zero	Zero	-2.809	0.01
Composite	3	15	Zero	Zero	-2.810	0.01

Discussion and conclusion

The present study evaluated the effects of the SCAMPER program on the creative thinking (fluency, elasticity, originality, elaboration) of preschool female teachers. The study results showed that the SCAMPER program was effective in increasing creative thinking (fluency, elasticity, originality, elaboration) of preschool female teachers who participated in this study.

It can be suggested that the SCAMPER technique can ensure cognitive development of the students in the related subjects by providing them with the opportunity to act beyond mental patterns, and encouraging them to think creatively by motivating them to change or combine their opinions.

As also mentioned by Serrat (2009), it can be said that this situation arises from the fact that SCAMPER technique ensures an individual to question a situation, produce solutions for the problem, and enable the individual to carry out individual work, group work and exchange of ideas during the process of producing solutions.

It was found out that teachers actively attended this process and had an increased interest in the activities provided, displaying their creativity .Works performed by Thomas (2000), Coşkun (2004), Aladağ (2005), Çıbık (2006), Yılmaz (2006), and Feyzioğlu et al.,(2012) support this result.

Limitations and Suggestions for Future Research

One limitation of the current study was the limited number of teachers .This research should be replicated as designed but with additional teachers. A second limitation was the design of study as it followed one- group design . It is recommended that future studies should use two-groups design in order to compare the performance of the experimental with the control one.

Further research is still required to explore the potential benefits the SCAMPER program for preschool female teachers. Such research may include large scale studies, and a further exploration of the exact influence of teacher training, classroom conditions and treatment duration and intensity.

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