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The effectiveness of mentoring strategy for developing the creative potential of the gifted and non-gifted students



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ABSTRACT

Creative thinking skills can be found more or less in every individual, or it can be learned. Mentoring is one of the strategies that has been used for developing creative potential. This study aims to determine whether the effectiveness of mentoring strategy for teaching creative thinking skills differs according to intelligence level of the students. The study has been designed as a pre-test/post-test experimental research and the study group consists of total of 91 students, whom are 43 gifted and 48 non-gifted individuals. Torrance Test of Creative Thinking has been used to measure the creative potential of the students. The results of the analysis show that the creativity levels of the individuals did not differ prior to the implementation process in our study group. Another analysis was conducted to determine the effectiveness of the mentoring and the results reveal that the post-test creativity scores of the gifted and non-gifted experimental group were increased and had a large effect size ($d = 0.82, 0.80$). However, the scores of the gifted and non-gifted individuals in our control group show no significant difference. The findings of the study indicate that the mentoring strategy is highly effective in teaching creative thinking skills to gifted and non-gifted students. After implementation, the scores of gifted and non-gifted experimental groups have been compared and it was found that there was a statistically significant difference in favor of the gifted group ($d = 0.33$) and had small effect.

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1. Introduction

In today's world, the accumulation of human knowledge doubles in every seven years. This situation causes a change in the primary goal of traditional education system, as less importance is given to fulfilling students with knowledge, and more importance is to bringing up individuals equipped with advanced thinking skills. In the future world, the need for the individuals with an ability to look at things in a different dimension will increase every day (Pirto, 2011).

Does creativity differ according to the level of intelligence? Is the creativity level of gifted individuals is higher than the non-gifted ones? These questions and similar ones are discussed by the scientists (e.g. Karwowski & Gralewski, 2013; Runco, 2007) and many studies have been conducted to examine the relationship between intelligence and creativity (Cho, Nijenhuis, VanVianen, Kim, & Lee, 2010; Hamivand, 2012; Getzel & Jackson, 1962; Yamamoto, 1966, cit. Jauk, Benedek, Dunst, & Neubauer, 2013; Jausovec, 1996, 2000; Kim, 2005; Preckel, Holling, & Wiese, 2006; Runco & Albert, 1986; Barron, 1963,

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1969, cit. [Preckel et al., 2006](#); [Şahin, 2014b](#); [Virgolim, 2005](#)) and many concluded that the creativity is a skill that can be found more or less in every gifted or non-gifted individual (Maslow, 1970, cit. [Hong & Ditzler, 2013](#)).

1.1. Teaching of creative thinking skills

Many definitions of creativity have been put forward, but because creativity is complex and multifaceted in nature, there is no single, universally accepted definition. Today, there are 101 different definitions in contemporary literature related to creativity, as many different disciplines are interested in the subject ([Aleinikov, Kackmeister, & Koenig, 2000](#), cit. [Terreffinger, Young, Selby, & Shepardson, 2002](#)). Most definitions emphasis on two prominent points; the achievement and the potential ([Jauk et al., 2013](#)). The achievement indicates the product, and the potential simply indicates the skill of producing something new and more appropriate ([Sternberg, O'Hara, & Lubart, 1997](#)). In this study, the development of creative thinking skill is considered within the context of increasing the creative potential – in other words, development of divergent thinking skills.

Creative thinking is a skill that can be learned (e.g. [Cropley, 1997](#); [Runco, 2007](#); [Torrance, 1972, 1987](#)). Creativity training executed as either distinct course segments or embedded exercises ([Scott, Leritz, & Mumford, 2004](#)). [Rose and Lin \(1984\)](#) conducted a quantitative meta-analytic study of creativity training with the use of Torrance tests scored for fluency, flexibility, originality, and elaboration. The results from 46 studies showed an overall moderate effect size. Whereas, [Ma's \(2006\)](#) meta-analysis of creativity training on 34 studies revealed a large effect size. [Scott et al. \(2004\)](#) conducted a meta-analytic study of 70 research studies, and it was determined that well-designed creativity education programs create large effect especially in divergent thinking and problem-finding dimensions. The results of three meta-analyses stated above support the view ([Sak & Oz, 2010](#)) that creative potential does not have pre-drawn boundaries and it is not specific to a particular group of individuals.

[Torrance \(1972\)](#) reviewed the results of some 142 studies, 103 of which used the Torrance tests of creative thinking as a criterion. Those having the highest percentages of success in teaching children to think creatively are those that emphasize the Osborn-Parnes training program, other disciplined approaches, the creative arts, and media-oriented programs.

A number of approaches and techniques have been used to promote several aspects of creativity ([Sak, 2004](#); [Sak & Oz, 2010](#); [Smith, 1998](#); [Sternberg, 2003](#)). [Smith \(1998\)](#) defined 172 different techniques that can be used to enhance divergent thinking in one of his reviews. The survey results state that the mentoring is one of the strategies that may be used in improving creative potential ([Cramond, Matthews-Morgan, Bandalos, & Zuo, 2005](#)). In fact, [Bloom \(1985\)](#) describes the mentoring as a golden standard of the instructional strategies.

1.2. Mentoring

As an educational concept, mentoring dates back thousands of years. Historical biographies of eminent persons frequently highlight the role of mentors in their development ([Grassinger, Proath, & Ziegler, 2010](#); [Sak, 2010](#)). The literature is replete with many definitions of mentoring. The meaning of the term “mentoring” as used in this article is a relatively chronologically stable dyadic relationship between an experienced mentor and a less experienced mentee, characterized by mutual trust and benevolence, with the purpose of promoting learning, development, and, ultimately, progress in the mentee ([Grassinger et al., 2010](#)).

In Torrance's (1984, cit. [Casey & Shore, 2000](#)) longitudinal research maintained on 200 creative children during 22 years, it was determined that every successful individual has a special teacher who can change his life ([Casey & Shore, 2000](#)). It can be said in theory that mentors provide their mentees with stimulus of mentally advanced level and become a positive model with their behavior ([Little, Kearney, & Britner, 2010](#)). In this regard, students often look to their teachers for advice, direction, and assistance in learning ([Bisland, 2001](#)). According to [Cropley \(1997\)](#);

Children learn rapidly from the observation of models provided by prestigious adults. Thus, despite the kinds of thing that they tell their students to do, teacher/mentor find that students also learn by observing their mentor. The teacher/mentor can, for instance, support creativity with particular attitudes and actions. The first mode of action centers on the teacher/mentor as a model; teacher/mentor can influence students' behavior through the kinds of behavior they themselves display... (p. 78).

A lot of articles regarding mentoring programs for adolescents or adults are available (see meta-analysis by [Allen, Eby, Poteet, Lentz, & Lima, 2004](#); [Dubois, Halloway, Valentine, & Cooper, 2002](#); [Underhill, 2006](#); see review by [Ehrich, Hansford, & Tennent, 2004](#)). There is lack of a meta-analysis or a review of mentorship of gifted individuals. The literature contains relatively little empirical literature regarding gifted mentoring programs ([Gray, 1982](#); [Hebert, 1997](#); [Hebert & Neumeister, 2000](#); [Ryan, Whittaker, & Pinckney, 2002](#); [Şahin, 2014a](#); [Terry, 1999](#); [Wright & Borland, 1992](#)).

The experimental studies with gifted individuals reveals that providing the gifted students with an intellectually stimulating experience combined with strong motivational and emotional support ([Hebert & Neumeister, 2000](#)) leads to an academic area improvement in school ([Hebert, 1997](#)), development in independent project preparation skills ([Gray, 1982](#); [Şahin, 2014a](#)), learning a variety of things and problem-solving techniques to deal with personal issues ([Terry, 1999](#)), positively affected self-esteem ([Wright & Borland, 1992](#)), staying on task, better organization, problem solving and academic

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