



REVIEW OF LITERATURE IMPACT OF AN ENRICHMENT PROGRAMME IN IMPROVING THE ACADEMIC AND CREATIVE PROFILE OF GIFTED CHILDREN

¹Dr. Alka Kumari and ²Ved Parkash Yadav

¹Assistant Professor, Department of Education, SunRise University, Alwar, Rajasthan (India)

²Research Scholar, Department of Education, SunRise University, Alwar, Rajasthan (India)

Email: vpvadav.sharda@gmail.com

ABSTRACT: the developmental component plays a very important role in the analysis of these students' abilities, as the school environment and the learning process of these students tend to influence the over-performance of cognitive skills. Likewise, environmental stimulation is another factor which has a considerable impact on the achievement of these students. In any case, high ability is not equivalent to good performance. In this regard, Barbier, Donche and Verschuere developed a study in which they examined the inhibitors and facilitators associated with achievement in the Achievement Orientation Model (AOM) within the teaching and learning processes with high and low- achievement students in the transition from primary to secondary school.

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INTRODUCTION

Attention to diversity is nowadays one of the challenges to be faced by any education professional. Traditionally, the concept "attention to diversity" has merely focused on people with disabilities. However, throughout the years, attention to diversity has been extended to other groups of students with specific educational support needs, including those with high intellectual abilities. In this way, education systems in the 21st century are attempting to provide a successful educational response to those who need a "readjustment" of the teaching performance. This would undoubtedly enable all people to reach their full potential. Within this group of students with specific educational support needs, the group of people with high abilities or giftedness have been relegated to not being seen as a priority. This response may sometimes be inexistent. Furthermore, it frequently seems to be inadequately adapted to the learning needs of these students. Such intervention is also necessary to ensure in all cases the best possible development of each student's abilities.

Different research approaches have thus focused on the study of giftedness in recent years. Nevertheless, no widely accepted definition for this concept has been found. Generally speaking, pupils who have high cognitive abilities to achieve high performance in school are classified as high ability. This association corresponds to the traditional approach to giftedness and it is based on cognitive ability as the

sole factor. In contrast, this association has now been broadened to be considered as a multidimensional construct which includes several characteristics of a person, such as high general cognitive ability, academic achievement, creativity or motivation. This finding has throughout time led to a shift from a traditional approach to one which considers other factors. As a consequence, different characteristic terms within this group now present a tendency to coexist. More specifically, these terms are High Ability, Gifted, Talented, Highly Able, Specially Able, Gifted, or Highly Capable [2]. One of the most widely accepted definitions was the one established in the Marland Report, referring to students with a high level of performance in any of the following abilities or aptitudes, alone or in combination: (1) intellectual ability, (2) specific academic aptitude, (3) creative or productive thinking, (4) leadership ability, (5) visual aptitude and performance in art, and (6) psycho-motor ability. But certainly the most generally accepted definition has been provided by Renzulli, who considers gifted student to be those who possess three sets of characteristics with an equal emphasis on each of them: above-average intellectual ability; a high level of dedication to tasks; high levels of creativity.

On the other hand, there are different models for analysing giftedness and the identification of its diagnostic factors. However, there are common characteristics in all of them which have never been considered, primarily those associated with intellectual

competence. Thus, a great variety of explanatory models focus on the cognitive component as a determining factor for diagnosis. Other models focus on the socio-cultural component, i.e., the family and social context in which the individual develops, among other models.

Despite the discrepancies between the approaches of these theoretical models, they all agree in understanding giftedness as a multidimensional construct. Concerning this, it is important to focus on the diversity of areas (cognitive, social and emotional) in order to make an adequate diagnosis and establish measures for action. In addition, according to Tourón et al., the crucial point in the case of this type of student is not to determine a precise diagnosis of giftedness and all its components—only from an interdisciplinary approach is it possible to promote the student's full development, but to have the necessary human and material resources available at an educational level to provide an appropriate response which promotes both their maximum academic and social development. Given the existence of an associated neurological and socioemotional basis, this may have an impact on the self-esteem and motivation of these students as well as on their self-perception, academic performance and social integration.

REVIEW OF LITERATURE:

The process of talent development with children and young people who participate in programs based on the Schoolwide Enrichment Model (Renzulli and Reis, 1985, 1997, 2014) and Enrichment Triad Model (Renzulli, 1977) has been the focus of research by Renzulli and Reis for over four decades. Summaries of this extensive research base ARE challenging, they do exist (Gubbins, 1995; Reis and Renzulli, 2003; Renzulli, 1988b; Renzulli and Reis, 1994, 2010). These summaries have contributed to the continuing development of this enrichment approach, which is based on key principles that have evolved over time. The most important of these principles is the belief that the creative and productive experiences of children and young adults who participate in planned and purposeful SEM enrichment opportunities have an important influence in their later lives. For example, research suggests that students who complete in-depth, self-selected project experiences develop strong interests and will continue to seek additional creative and productive experiences (Delcourt, 1993; Hebert, 1993; Westberg, 2010). Renzulli and Reis (2014, 2017) have consistently found that students who experience the joys, challenges, and intensities of creative productivity in elementary, secondary school, and college are more likely to pursue creative work and challenges in their adult lives, regardless of the field, major, domain, or career they choose

The SEM integrates the Three Ring Conception of Giftedness (Renzulli, 1978), the Enrichment Triad Model (Renzulli, 1977) and the Revolving Door Identification Model (Renzulli et al., 1981). It has been implemented in thousands of school districts worldwide as a gifted program, enrichment program, and school-based theme approach to learning. In addition to the United States, the SEM is used in schools in China, Mexico, Chile, the Caribbean, Dominican Republic, Grand Cayman, Puerto Rico, Argentina, Brazil, Netherlands, Canada, the Virgin Islands, Spain, Germany, Portugal, Turkey, Bahrain, Iraq, United Arab Emirates, Jordan, Hungary, Holland, Lebanon, Singapore, New Zealand, Indonesia, Switzerland, Croatia, South Korea, England, Japan, Peru, India, Dubai, Phillipines, and Austria (Hernandez-Torrano and Saranli, 2015; Reis and Renzulli, 2003; Renzulli, 2003; Sytsma, 2003). This article summarizes 40 years of research on the SEM and offers insights about its effectiveness at serving gifted and high-ability students in a variety of educational settings and with diverse populations of varying socioeconomic backgrounds (Reis and Renzulli, 2003; Renzulli and Reis, 1994). Van Tassel-Baska and Brown (2007) called the SEM one of the mega-models in the field of gifted education and talent development. In the sections below, the evolution of the model is explained, as is pertinent research underlying each of its components

Comprehensive research syntheses on the SEM have investigated the use of this enrichment approach with students from different social and economic backgrounds, types of schools, and regions of the country and world, showing several important benefits across these varied studies (Reis, 2016; Reis and Renzulli, 2003; Renzulli and Reis, 1994, 2010). From the earliest publications on the SEM, the focus has been on the use of strengths and interests to increase student achievement, engagement, and enthusiasm in school (Reis and Renzulli, 2010; Renzulli, 1977; Renzulli and Reis, 1985). Varied research summaries have demonstrated that the use of SEM enriched and accelerated content can increase achievement, enthusiasm, and engagement for learning (Beecher and Sweeny, 2008; Delcourt, 1993; H'ebert, 1993; Renzulli, 1992b), reverse underachievement (Baum et al., 1994; Renzulli et al., 1999), positively influence students' attitudes toward learning (Olenchak and Renzulli, 1989), enhance students' social and emotional development (Reis and Renzulli, 2004) and enhance the educational experiences of students with a combination of talents and disabilities (Baum, 1988; Baum et al., 2014; Reis et al., 2013). In one comprehensive study, Olenchak (1990) studied the effectiveness of a year-long implementation of the SEM in 11 schools, with 1,698 elementary grade

students, 236 teachers, 120 parents, and 10 principals, finding positive changes in student and teacher attitudes, numerous student creative products, and favorable changes in attitudes toward gifted students in classroom teachers and the general student population. In this study, Olenchak also found large increases in student-centered enrichment activities and work on self-selected interests, greater cooperation between classroom teachers and gifted education specialists, and more favorable attitudes toward special programming on the part of parents.

SEM has been used to facilitate teachers' use of compacting and strength-based student choice Type III projects to enhance acceleration (Colangelo et al., 2004). It has also been discussed as a method for integration into initiatives such as Response to Intervention (Reis et al., 2013; RTI). Components of the SEM have been implemented to infuse creative productivity into other important models for gifted and talented youth, including International Baccalaureate (Carber and Reis, 2004). Participation in the SEM has also resulted in increased creativity and creative productivity in children and young adults (Delcourt, 1993; Hebert, 1993; Westberg, 2010). SEM extensions in reading (SEM-R) have led to the implementation of differentiated reading instruction embedded in the reading curriculum as well as higher reading engagement (Reis and Boeve, 2009; Reis and Housand, 2009; Reis et al., 2007, 2008, 2011), comprehension and fluency (Reis and Housand, 2009; Reis et al., 2007, 2008, 2011), and self-regulation (Reis and Housand, 2009).

Some research on the use of the SEM pertains to increased levels of student creative productivity or engagement in school (Baum et al., 2014; Beecher and Sweeny, 2008; Brandon et al., in review; Brigandi et al., 2018; Reis and Morales-Taylor, 2010). Other research focuses on one or more of the three major components, such as the use of enrichment clusters (Reis et al., 1998a; Renzulli et al., 2013), the development of instruments, such as learning or expression styles (Kettle et al., 1998; Renzulli and Sullivan, 2009), the use of the Total Talent Portfolio (Renzulli, 1997), or the use of curriculum compacting (Reis and Purcell, 1993; Reis and Renzulli, 1992; Reis et al., 1998b). Research has also been conducted and published on the successful use of the SEM in urban schools (Briggs et al., 2008; Reis and Morales-Taylor, 2010; Reis and Renzulli, 2010) or rural schools (Reis and Renzulli, in press). In urban schools, the use of enrichment pedagogy can promote engagement and creativity as well as enable students to apply thinking skills in an integrated, inductive, and problem-oriented manner. In rural schools, much more attention is given to identifying diverse enrichment opportunities and finding mentors, sometimes on line, for differing levels

of student enrichment. Individual components of the SEM are often both implemented and investigated without the entire program being used, resulting in research focused only on one component, such as enrichment clusters (Morgan, 2007; Reis et al., 1998a; Renzulli, 2000, 2001b; Renzulli et al., 2004) or curriculum compacting (Reis and Purcell, 1993; Reis and Renzulli, 1992; Reis et al., 1998b; Renzulli et al., 1982).

School enrichment programs represent institutional efforts toward fulfilling the needs of gifted students. Therefore, educational systems in many countries give great care to designing programs that promote giftedness and creativity (Davis, Rimm, & Siegle, 2010). In the Saudi Arabian educational environment, enrichment programs designed on the basis of the Oasis Enrichment Model (OEM; Aljughaiman, 2005) are among the most prominent programs adopted by the Ministry of Education. These programs aim at enhancing the educational experience for the gifted and increasing their interest in schooling. Studies show that enrichment programs in Saudi Arabia have traditionally focused on developing the academic and mental aspects of students but have paid little regard to the practical aspects necessary for achieving success in confronting problems of daily living (Aljughaiman et al., 2009; King Abdulaziz & His Companion Foundation for Giftedness and Creativity, 2010).

They have learned in real-life situations, whereas others use what they have learned to pass traditional academic tests, yet may be unable to solve problems from daily life. Hence, the essence of giftedness includes not only an individual's mental, analytical, and creative abilities but also the individual's ability to manage and utilize such abilities in particular situations, applying each or all of these abilities as required (Gottfredson, 2003; Grigorenko & Sternberg, 2001; Sternberg, Wagner, Williams, & Horvath, 1995).

During the past two decades, researchers have striven to develop comprehensive models and theories of giftedness. Modern constructs respond to new perspectives that view giftedness as a multidimensional concept that can be applied in several domains. There is an urgent need to apply such theories to fill the gap between the content learned by students and how they actually apply this content in daily life. One theory that advances a multidimensional view of intelligence is successful intelligence theory. Successful intelligence theory posits that intelligent behavior arises from a balance between analytical, creative, and practical abilities and that these abilities function collectively to allow individuals to achieve success within their particular sociocultural contexts (Sternberg, 1997, 1999b, 2003, 2005b).

Research (e.g., Stemler, Sternberg, Grigorenko, Jarvin & Sharpes, 2009; Sternberg & Davidson, 2005; Sternberg et al., 2000) indicates that individuals demonstrate a mixture of creative, analytical, and practical abilities, but to different degrees. What makes someone gifted is having high measures of these three abilities in isolation or combination, as well as the ability to use them to one's best advantage. Therefore, giftedness involves the ability to strike a balance in managing the three abilities efficiently. Students who excel in creativity can generate ideas of high quality, but they need high analytical ability that enables them to assess and evaluate ideas to be more effective. Making use of one's ideas is as important as one's ability to create new ideas. So, gifted students are equally in need of practical intelligence to translate their ideas into a practical program for action. This requires the ability to convince others of the worth of their ideas and skill in developing an approach for applying these ideas practically. Successful intelligence theory highlights the importance of the integration between more than one factor in achieving giftedness. Hence, people with successful intelligence can identify their own strengths and elicit the utmost benefit from them. In addition, they can identify, evaluate, and compensate for weaknesses. People who enjoy successful intelligence can also adapt to their environment by striking a balance between the use of analytical, creative, and practical abilities (Sternberg, 1999b). In addition, the integration between the three abilities can be utilized in different domains. These abilities are flexible, so they can be promoted through training and enrichment programs (Dweck, 1999; Sternberg, 1999a, 2003; Sternberg & Grigorenko, 2007). The current study is a trial to study the effects of a school enrichment program designed by the researchers (based on the OEM) and adopted by the Ministry of Education in Saudi Arabia to develop the analytical, creative, and practical abilities of elementary students.

Through participation in evaluating gifted enrichment programs in Saudi Arabia and reviewing the studies conducted on enrichment programs in other environments (Cannon, Broyles, Seibel, & Anderson, 2009; Delcourt, Cornell, & Goldberg, 2007; Kalkan & Ersanli, 2008; Newman et al., 2009; Reis & Renzulli, 2010; Subotnik & Rickoff, 2010), the researchers noted that these studies focused primarily on the effect of enrichment programs on traditional variables such as thinking skills, motivation, academic achievement, attitudes toward learning, and the improvement of gifted behavior among participants. In addition, the research focused on evaluative and administrative aspects of the programs, such as evaluating the preparation and planning processes of such programs, the difficulties and obstacles that hinder their

implementation, and the observations of stakeholders. In the view of the researchers, such indicators fail to sufficiently represent the current understanding of the nature of giftedness in its myriad aspects.

Current theories and models view giftedness as a multidimensional rather than a one-dimensional construct (Aljughaiman et al., 2009; Brody, 2003; Coleman, 2003; Gagné, 2003; Gardner, 1983; Mandelman, Tan, Aljughaiman, & Grigorenko, 2010; Perkins, 1995; Renzulli, 2005; Sternberg, 1995; Sternberg, Castejón, Prieto, Hautamäki, & Grigorenko, 2001). The integration of analytical, creative, and practical abilities represents a pivotal component in current conceptions of giftedness. Therefore, the match between the content of enrichment programs and the expected outcomes represents an essential issue in designing programs for the gifted. Educational institutions seek to promote giftedness in different domains of life. This investment must reach beyond mere academic life and extend to practical life.

The interest in identifying gifted students and nurturing their abilities in Saudi Arabia started in the last quarter of the 20th century. Nevertheless, this interest did not crystallize into a methodological and academic endeavor until 1990. In 1968, the educational policy in Saudi Arabia stated that "Each student has the right to develop his/her talent, and his/her ability" (Aljughaiman et al., 2009, p. 35). However, no programs or any kind of real educational services were adopted until 1995 when the Ministry of Education started a program called "Talent Search." In 1998, the Ministry of Education established a number of gifted education programs around the country. Most of the enrichment programs in Saudi Arabia are based on the OEM. The OEM for nurturing the gifted was developed over a period of 10 years (Aljughaiman et al., 2009). During that period, a great number of experts and scholars in the field of gifted education participated in its development, assessment, and evaluation. The model comprises a synthesis of the best practices and the wealth of international experience in gifted education adapted to fit the cultural setting and educational system of Saudi Arabian society. During its development, the model was piloted in a large number of schools for males and schools for females. The constructs of the model have benefited from the most effective international and local models in the field of gifted education. In addition to the information obtained from field experimentation, feedback obtained from researchers and educationalists have contributed to the improvement of the OEM. The most significant goals of the OEM include helping gifted and talented students identify their strengths, realize the fields most suitable for their scientific and professional future, and engage in the various experiences necessary to nurture their capabilities and utilize their energy to achieve the

highest possible level of self-assertion and excellence (Aljughaiman, 2005). Taking these goals into consideration, the OEM allows gifted students to benefit from the pedagogical programs, instructional styles, and educational opportunities that nurture giftedness and excellence in a comprehensive, gradual, and progressive manner.

Field studies illustrate gifted students achieve advanced learning outcomes through pull-out strategies and other applications of enrichment programs. A study by Olenchak and Renzulli (1989) reveals enrichment programs play a pivotal role in promoting elementary students' learning toward achieving advanced levels of creative production. In addition, students demonstrate a greater interest and desire to learn during enrichment activities and the self-directed individual work that are an integral part of such programs. Reis et al. (2008) indicate the significance of school enrichment programs in promoting reading by improving reading fluency, reading comprehension, and positive attitudes toward reading. The study further recommends the effectiveness of enrichment activities that challenge students' thinking and improve their reading fluency. The role of enrichment programs is not only limited to developing students' cognitive outcomes. Field studies (Al-Barakat & Al-Karasneh, 2005; Reis et al., 2008) demonstrate that enrichment alternatives affect different emotional and social aspects of the personality of gifted students. In a 2002 study, Wheeler, Waite, and Bromfield state that developing different aspects of an individual's personality relies on giving them the freedom to practice activities, promoting their motivation, and encouraging them to practice self-learning. Such practices can all be promoted through enrichment programs.

A review of Arab and foreign studies on enrichment programs (Aljughaiman et al., 2009; Cannon et al., 2009; Delcourt et al., 2007; Kalkan & Ersanli, 2008) shows extant programs focus mainly on academic skills and the social and emotional characteristics of gifted students. However, these programs fail to place sufficient emphasis on teaching gifted students how to plan and evaluate to generate new outcomes, and to apply these outcomes in daily life (Reis & Renzulli, 2010). Many studies and models relating what students learn and what they actually apply in daily life have recently emerged. One of these theories is successful intelligence theory (Sternberg, 2010). Successful intelligence theory was developed to help students make the most of their gifts and abilities in their academic and nonacademic lives. According to successful intelligence theory, there are different kinds of mental gifts: the analytical, the creative, and the practical. Giftedness cannot simply be measured by a student's score on a standardized test; rather, giftedness

should be reflected in all three of these essential dimensions (Sternberg & Grigorenko, 2002).

Analytical abilities encompass those components of intelligence that perform functions related to information processing. Analytical skill is typified by the ability to break a problem into its components and understand those components. Analytical abilities are applied to analyze, evaluate, compare and contrast, and make judgments. Students with high analytical ability tend to perform well on traditional IQ tests, which generally measure analytical thinking. In these tests, analogical questions require relational analysis, whereas questions testing synonymous relationships require analyzing multiple-choice items and selecting the choice that best matches the word in the question stem. Reading comprehension requires text analysis, whereas problem matrices require analyzing the internal relations between figures or numbers organized in columns or rows (Stemler et al., 2009; Sternberg, 2004).

Creative abilities are exhibited in individuals who demonstrate insight, intuition, and an ability to adapt successfully to novel situations. Creative individuals are not necessarily successful in dealing with standard IQ tests as they tend to view problems differently from test developers and may solve a problem other than the one intended on the test (Sternberg, 2010; Sternberg, Lubart, Kaufman, & Pretz, 2005). Therefore, individuals with high creative ability do not necessarily achieve high scores on standard IQ tests, but these individuals may yet contribute significant achievements in domains such as science, mathematics, arts, and technology. In addition, creative ability is of great importance in the economic growth and development of emerging regions. Gifted businesspeople are those who can view commercial phenomena in the market differently from others and realize undiscovered areas of potential. Businesspeople who amass significant wealth are those who are able to capitalize on the need for a new product or service, or are able to invent a new way of delivering an existing product or service.

Practical ability represents an individual's ability to apply analytical and creative abilities in daily practical situations. People with high practical ability can join any institution, identify what is required to succeed in their new position, and implement the required skills to achieve their desired results (Cianciolo et al., 2006; Grigorenko et al., 2004; Sternberg et al., 2000; Tan & Libby, 1997). People with significant levels of practical ability can realize the factors that lead them to succeed quickly and help them to shape and adapt to their environment. As a result, these people generally manage to achieve many of their goals. Many people have high analytical and creative ability but are unable to apply such abilities to

successfully negotiate with others or to compete and succeed in their jobs. In contrast, persons with a practical gift are able to utilize their abilities to the full extent and accomplish their goals.

All individuals possess some combination of analytical, creative, and practical abilities (Sternberg, 2005a, 2006). What counts is the individual's ability to coordinate between the three abilities and to know when to apply them. For example, a person with high creative ability who is unable to apply this ability in practical situations and unable to convince others with the worth of his ideas will frequently face frustration. Giftedness is defined by the successful balance a person maintains between these three abilities, not merely by high ability in any single area. As such, successful gifted individuals can be described as good mental self-managers. The integration of these abilities changes and develops over time as intelligence develops in different domains. These abilities are similarly characterized by their flexibility, so they can be improved through education and training (Sternberg, 2010; Sternberg & Grigorenko, 2000).

Gifted students are urgently in need of opportunities to nurture and develop their knowledge acquisition and thinking skills (Sternberg, 2005b; Sternberg & Grigorenko, 2007). The initial findings demonstrated that there were statistically significant differences between the medians of the experimental and control groups on analytical and creative abilities in favor of the experimental group. The effect size had a value of 0.81 for analytical abilities and 0.34 for creative abilities. These findings indicate that the enrichment program content promoted analytical and creative abilities among participants. Thus, though gifted students may already be distinguished by analytical and creative abilities, these can still be further developed and improved. The findings demonstrated that there were no statistically significant differences in the practical abilities and the total scores of the three abilities between the experimental and control groups. This may indicate that the program did not support the gifted participants in improving their practical abilities and in applying their learning to their lives. This result indicates the need to provide special attention to the development of practical abilities. Because enrichment programs as typically constructed are not sufficient to foster these abilities, such programs need to provide activities enabling students to practice metacognitive skill sets, such as planning, observation, reviewing, evaluation, goal-oriented behaviors, and so on. Students need to use these skills in a functional and integrated manner together with analytical and creative skills (Stemler, Grigorenko, Jarvin, & Sternberg, 2006).

Moreover, results showed the program had a statistically significant effect on creative abilities. The

value of the effect size was 0.56 for creative abilities, which lends more support for the positive effect of enrichment programs on creative abilities (Reis et al., 2008). The emphasis of the enrichment program in this study was on developing skills needed for generating ideas and relatively novel products. The strategies used in this study to improve these skills seem effective. Most of the activities in this enrichment program encouraged students to have positive attitudes toward idea generation and new ideas. The indirect activities to foster mental flexibility were also seen to be effective as evidenced by results of the posttest. This result conformed to results from other studies (e.g., Kaufman & Sternberg, 2006; Sternberg et al., 2011). This result can also be explained in light of the program content, which emphasized the development of the creative abilities of the participants.

On the contrary, findings demonstrated that the program had no significant effect on practical abilities. This can be explained by the lack of specific activities in the program content that focused on the development of student practical abilities. Moreover, the current curricular content delivered in the majority of the schools is focused on traditional areas of academic achievement, and hence does not emphasize improving practical intelligence. Therefore, students are less able to apply skills learned at school to their daily problems. Another possible explanation for this result is that practical intelligence represents the ability to use knowledge gained from experience to successfully modify the environment (Sternberg et al., 2011), which means developing skills needed to foster this intelligence requires time and real-life challenges (Sternberg, 2010; Sternberg & Grigorenko, 2007).

It is also possible that, in general, the activities of the enrichment program did not improve the analytical, creative, and practical abilities equally and sufficiently. In this regard, Sternberg asserted that what counts regarding a person's gift is his ability to coordinate the uses of the three construct abilities of intelligence and to know when to use each. Giftedness cannot be identified only by the high measure a person may attain on one of the three abilities; rather, it can best be identified by the balance a person strikes between the three abilities (Sternberg et al., 2009; Tan et al., 2008).

As for the design of enrichment programs, it is not sufficient for such programs to merely encompass activities that promote skills (i.e., analytical and creative thinking skills) or affective elements (i.e., personal, social) without paying attention to the integration of these elements in a manner that promotes an individual's ability to make use of such abilities in real-life situations (Newman et al., 2009; Rindermann, Sailer, & Thompson, 2009; Sternberg, 2010). In addition, the fact that educational programs lead to

advancement in different thinking abilities (Delcourt, 1993; Field, 2007; Gentry, Moran, & Reis, 1999; Hébert, 1993; Moon, Callahan, Tomlinson, & Miller, 2002; Reis & Renzulli, 2003; Westberg, 1999) does not mean students will be able to apply such advanced thinking skills in real practical situations, which is increasingly considered a hallmark of a program's success. These considerations point toward future directions for the development of more successful enrichment programs. It is increasingly necessary that enrichment programs be developed to include activities that focus on the use and management of various analytical and creative mental skills, together with social and personal affective aspects, in an integrated rather than separate manner.

The gifted and talented students (GTS) receiving extra educational services, advanced curriculum, additional courses, better teachers, and more challenging learning environments than their non-gifted peers at the gifted and talented education programs (Dean, 2011). However, advocates of GTS programs stress that additional enrichment services are required for students with high mental abilities in order to reach their academic potential (Johnsen & VanTassel-Baska, 2006).

The GTS need educational programs different from the conventional programs that presented to them in the regular schools. Thus, they need educational services that satisfy their needs, since they possess abilities that make them different from their peers. Many GTS do not receive suitable services to meet their learning needs in the regular classroom (Reis, 2007). The objective of the educational programs is to enable them to become autonomous, creative, and productive learners in the society (Diezmann & Watters, 2000). The educational programs have to be characterized with several qualities for GTS, such as flexibility, so it can be altered every now and then to suit their needs, to develop their physical, mental, and affective aspects, to develop leadership skills, and to provide them with educational experiences (Hébert, 2010).

The educational programs of the GTS have to present educational subjects that suit their capabilities and interests; it should also broaden their horizon, provide opportunities for learning, and provide them with enough space to practice thinking about any project they may think about. Consequently, educational programs of the GTS must provide an educational environment rich with varied resources, the enrichment, and enough time to explore and train on the skills of the creativity and research (Phillipson, Phillipson, & Eyre, 2011; Kanevsky, 2011). The justification for the existences of the GTS educational programs is that the regular programs are incapable of satisfying their needs; therefore, they need special

educational program. It is necessary to find a good quality of education by designing special enrichment programs in order to develop personal, cognitive, and social aspects (Hymer & Michel, 2002; O'Donovan, 2007). Most of the available educational institutions do not satisfy the needs of the GTS, and what the teachers do in the class, changing and adapting to satisfy their needs is not enough; consequently, the enrichment programs play a significant role in satisfying of GTS needs (Rotigel & Fello, 2004).

Although a strong empirical foundation is required to advance educational practices, the literature concerning gifted education is still lacking comprehensive empirical studies to provide guidance for educational policy and practices to serve gifted students (Plucker & Callahan, 2014). Among the various practices, acceleration and enrichment have been used widely as program and curriculum models (Schiever & Maker, 2003). Both acceleration and enrichment programs have served diverse gifted students based on conceptual knowledge; however, our knowledge on practices for gifted students is often ambiguous when determining their effectiveness. Particularly, research on enrichment programs is often provided without a clear description of the specific program being studied.

Despite examination of studies with experimental effects is meaningful for practitioners to determine usefulness of programs (Asher, 2003), there are limited meta-analytic studies about the effects of enrichment programs on gifted students. Statistical significance alone is not a guarantee of practical usefulness, and effect size allows researchers and practitioners to look at the magnitude of the obtained difference between the sample mean and the hypothesized population mean (Warner, 2008). Asher (1986, 2003) noted that meta-analysis, which examines effect size strength rather than statistical significance, helps researchers and practitioners to understand the results of various studies better. Kulik and Kulik (1984) completed a meta-analysis related to ability grouping in secondary schools, and they found that when high-ability students were grouped together in enrichment classes, it had positive impacts on their intellectual progress. Also, Vaughn, Feldhusen, and Asher (1991) conducted a meta-analysis on gifted pull-out programs and found positive impacts on achievement outcomes. Because all of the studies except one were published before 1985, there is little overlap between Vaughn et al.'s meta-analysis and current metaanalysis on the effects of enrichment programs for gifted students. Only one study from the meta-analysis of Vaughn et al. is included in this study. Recently, Steenbergen-Hu and Moon (2011) published a meta-analysis on the effects of acceleration; they specifically defined acceleration as "a type of

educational intervention based on progress through educational programs either at rates faster than or at ages younger than one's peers" (p. 39). Because the focus of their study was on the effects of acceleration, there was no overlap between the studies included there and the current study.

Among various programs aimed at fulfilling the needs of gifted students, enrichment programs promote higher levels of thinking and creativity in a subject area and allow students to explore that subject in depth (Fox, 1979). Historically, during early years of gifted education, acceleration is the main accommodation for gifted students. However, acceleration raised concerns about addressing socio-emotional needs of gifted students. Therefore, educators in gifted education became interested in enrichment programs as a way of an accommodation to address both academic and socio-emotional needs of gifted students (Kulik, 1992).

Enrichment programs is to provide exploratory activities, in-depth materials on a topic, materials for the development of higher level thinking processes and skills, self-selected independent projects, or authentic products or services for a real-world audience (Fiddymont, 2014; Renzulli & Reis, 1997). Enrichment programs have emphasized the importance of profound knowledge and skills within a subject to develop students' higher mental processes and creative production. To evaluate the effects of various enrichment programs, researchers have explored academic achievement, attitude toward the subject, and career-related motivation (Lee, Olszewski-Kubilius, & Peternel, 2010; Markowitz, 2004; Reis & Boeve, 2009; Stake & Mares, 2001; Walsh, Kemp, Hodge & Bowes, 2012). In this study, an enrichment program or enriched curriculum in this study refers to programs or curriculum that have modified content with more depth or breadth than generally provided or that have a modified process to develop a students' higher intellectual thinking and to provide opportunities for creative production (Schiever & Maker, 2003). Whereas, acceleration is defined as an educational intervention based on the mastery of higher grade level knowledge than typical grade level content, or speeding up the pace of material presented, enrichment provides richer and more varied content through modification and supplementation of content in addition to standard content in the regular classroom (Schiever & Maker, 2003). Enrichment programs with suitable curricula for gifted students may provide opportunities for optimal development of their talents. Researchers have proposed enrichment programs as a way of nurturing social and behavioral skills as well as academic skills (Hynes, O'Connor, & Chung, 1999; Schacter, 2001), and the literature on enrichment programs for gifted students includes suggested best practices to serve

those students throughout different grade levels (Miller & Gentry, 2010; Olszewski-Kubilius & Lee, 2004; Olszewski-Kubilius & Limburg-Weber, 1999). The term enrichment is often used in practice without a clear definition; however, this study explored the distinct effects of enrichment programs separated from the effects of acceleration programs in order to help researchers and practitioners to better understand the results of various program effects.

Academic achievement is one of the most critical outcome variables in educational research, ranging from global indicators, such as postsecondary attainment and school GPA, to some specific indicators, such as standardized test scores in a specific disciplinary area or quality of a specific performance (Fan & Chen, 2001).

Many researchers in gifted education have explored the affective development of students, and they have noted that social and emotional competence is a good predictor of success in life (Gardner, 1983; Goleman, 1995; Hébert, 2011). Many of the studies on enrichment programs also examined the effects of social and emotional development on gifted students. Issues related to the social and emotional development of gifted students often comprise special-populationrelated issues (e.g., identity or environmental effects), developmental issues (e.g., characteristics, gender related issues, locus of control, completion, perfectionism, self-concept, self-esteem, moral development), relationship issues (e.g., relationships with peer, family, or teachers), and school-related issues (e.g., academic planning, career planning; Clark, 2013; Cross & Cross, 2012).

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