



FRIEDRICH-ALEXANDER  
UNIVERSITÄT  
ERLANGEN-NÜRNBERG  
PHILOSOPHISCHE FAKULTÄT  
UND FACHBEREICH THEOLOGIE



**Prof. Dr. Dr. Albert Ziegler**  
Vice-President of ECHA  
Chair Professor of Educational Psychology and  
Research on Excellence  
University of Erlangen-Nuremberg  
Regensburger Str. 160  
90478 Nuremberg, Germany  
Email: albert.ziegler@fau.de

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To  
Prof. Dr. Alaa Aldin Ayoob

Dear Professor:

I am happy to bring you good news in my capacity as Guest-Editor of the special issue *Gifted Education in Developmental and Threshold Countries* of the scholarly, peer-reviewed journal of *Cogent Education*.

Your paper "Gifted education in Saudi Arabia" co-authored by Prof. Dr. Abdullah Aljughaiman has been accepted for publication. It will probably be published 2017 in Issue 1 or in Issue 2 at the latest.

Thank you very much for your contribution to this special issue!

Sincerely

(Prof. Dr. Dr. Albert Ziegler)

## **Giftedness in Arabic environments: Concepts, Implicit Theories, and the contributed Factors in the Enrichment Programs**

### **Abstract**

The current study aimed at drawing a clear picture to the effective factors in the identification and education of gifted students in Saudi Arabia through two main objectives: First is to identify the most widespread patterns of giftedness and the implicit theories of intelligence, giftedness, and creativity that were adopted by teachers and affected their choices for these pattern of giftedness. Second, is to identify the impact of the most widespread programs, the differences between them, and the direct effects of the associated factors with these programs on students' performance. The participants in this study were 195 teachers and 241 students from different areas of KSA. The Profiles of Gifted Students, Implicit theories scales, Performance assessment scale were administrated. The results showed that regardless of teachers' specialization and experience, they tended to nominate students who are intellectually, creatively, and academically gifted. On the other hand, they strongly biased against students who were gifted in visual arts, psychomotor and leadership fields, as well as gifted underachievers. Gifted students' teachers tended to the incremental theories in all fields, compared to classroom teachers who tended to the entity theories. The results revealed that there were differences between summer enrichment programs and school enrichment program on the gifted students' performance in favor of summer enrichment programs. Also, the results showed that there were direct effects for each of trainers' participations, type of program, sex, age of students, number of students, and trainers' qualifications respectively on students' performance.

### **Keywords:**

Concepts of giftedness; Teacher nominations; implicit theories of giftedness, intelligence, creativity; enrichment programs.

## **Introduction:**

The Kingdom of Saudi Arabia had seen important changes over the past decade in the trends toward gifted education. The process of the identification of gifted students received a great interest. Perhaps the procedures of the identification and caring of gifted students were one of the most topics that occupied the students, teachers, and parents. Students who were identified as gifted students received programs and additional services that did not provide mostly to regular students. In this context, several questions about the concept of gifted, how to identify gifted students procedurally, the patterns of the implicit theories for intelligence, giftedness, and creativity adapted by teachers. The quality of the enrichment programs provided to the gifted, and what are the contributions of factors that are related to programs in gifted students' performance.

The concept of giftedness is one of the endless debated issues among researchers in the field of giftedness in general (Callahan & Miller, 2005; VanTassel Baska & Brown, 2005), and educators and teachers of the gifted in particular according to their impact on formulating the policy and methods of the identification of gifted students. In fact, regardless of the nature of the instruments and scales used in the identification of gifted students, the choice of students who will join the programs and services of gifted students in schools founded on the beliefs and concepts of educators who organized these programs depending on the nature of giftedness, and teachers who are involved in sorting screening and nomination processes for students who will join those programs.

Perhaps the most common problems related to the process of teachers' nominations lied in the lack of a specific concept for gifted or creative students (Fleith, 2000; Smutny, 2000; Lee, 1999). Is the gifted or creative student is the most intelligence or the most creative? What are the behaviors that reflect the creative gifted student? and what about the students who have private giftedness in a specific field, such as linguistic, leadership, art, psychomotor giftedness, or those who have a high mental abilities, but their achievement is low? Which of these patterns of students deserve more to be enrolled in gifted programs from teachers' viewpoint?

Teachers' nominations can be considered as one of the widely used procedures when selecting gifted students to join enrichment programs (Davis & Rimm, 2010; Hunsaker, Finley, & Frank, 1997; Brown, Renzulli, Gubbins, Zhang, Siegle & Chen, 2005; Renzulli, Siegle, Reis, Gavin, & Sytsma Reed, 2009). These nominations are often used to form what is known as talent pool, which contains approximately 5-10% of the number of students who are tested later to choose the best 2-5% of them to be joined to enrichment programs. Therefore, the students who are excluded at this stage lose opportunity to join the services and programs of the gifted students.

The stereotypes that were built by teachers about gifted students may be related to the beliefs they formulate about the concept of giftedness and the associated concepts of intelligent and creativity (Sak, 2004). In spite of that the Saudi Ministry of Education had adopted a definition derived from the definition of Marland (Marland, 1972), which contained varied patterns of giftedness and not just mental giftedness. While the practices in the field of education, both in the identification or enrichment programs focused primarily on the mental giftedness. These practices supported directly or indirectly the configure of the stereotypical image of the giftedness students for teachers that equal between giftedness and the high level of intelligence IQ and / or high academic achievement.

Some researchers had suggested that the behaviors and attitudes of teachers affected by their beliefs about the nature of intelligence (Deemer, 2004; Dupeyrat & Marine, 2005). (Lee, 1996) had found that teachers who believed that intelligence is an entity fixed trait treated their students differently from teachers who believed that intelligence is an incremental trait. The teachers with entity beliefs were more focused on students' abilities, and they see failure as barriers. While teachers with incremental beliefs were more inclined to focus on strategy and effort in learning, and they see failure as opportunities to learn.

Many researchers (Dweck, 2012; Dweck, Chiu, & Hong, 1995; Runco & Johnson, 2002; Schroth & Helfer, 2009) confirmed that the implicit theories that were adapted by teachers about the concepts of giftedness, intelligence, and creativity were likely to act as references criteria that can be used to judge the behavior of students, and then it leads to specific expectations. Those expectations in turn lead practices that had an important effects on students' behavior. Teachers' expectations about the child's abilities and his giftedness will determine how to respond to him and the type of opportunities that they will provide to the child. Some studies (Ngara & Porath, 2007) mentioned that the environmental and cultural context had an important role in the formation of these beliefs. These beliefs occupied a great importance when determining the gifted and creative students (Sak, 2004), and this was probably one of the reasons for the underrepresentation for some gifted students descended from different cultural categories or gifted low achievement students in gifted programs (Endepohls-Ulpe & Ruf, 2005; Moon & Brighton, 2008).

With regard to the importance of teachers' nomination in the procedures of the identification of gifted students, it was important to study to what extent these nominations were affected by beliefs and concepts that teachers adapted about the giftedness, creativity, intelligence, and personality. The current study addressed two main issues; first: was to identify the patterns of giftedness that teachers favored when they nominated students to enrichment programs that are administrated in the primary school in various regions of Saudi Arabia and the influencing factors on this (specialization and experience). Second, was to identify the nature of the implicit theories adapted by teachers about the giftedness, creativity, intelligence, and personality concepts, and the ability of these theories to predict teachers' nominations for gifted students.

Some researchers (Davis & Rimm, 2010; Karnes & Bean, 2009) identified varied forms of enrichment programs in which they can provide special care for gifted students, including: internal academies for the gifted, gifted schools, special classes for the gifted, withdraw programs and learning resources, summer enrichment programs, school enrichment programs, weekend programs, and evening programs. They can provide enrichment programs that vary in depth according to the needs of gifted students and the sources of available support through these diverse forms.

Perhaps the most popular programs among those alternatives are school enrichment programs and summer enrichment programs (Coleman & Cross, 2005). In Saudi Arabia, the summer enrichment programs are considered as one of the caring activities of gifted students that their services are spread in most areas of Saudi Arabia. Moreover, they are characterized by continuity as they held annually. The first of these programs began in 2000 through the establishment of (9) programs for male and female students, and the number of these programs continued to increase till they become (51) programs for male and female students (King Abdulaziz and His Companions Foundation for Giftedness and Creativity, 2015) in the summer of 2015.

In light of the increased interest in the summer enrichment programs, the current study aimed at studying the differences between the impact of summer enrichment programs and school enrichment programs on students' performance. Also, it aimed at measuring the direct effects of (program type, gender, age of the students, the number of students in the program, the qualifications of the trainers, the number of trainers' participation in gifted programs) on the gifted students' performance.

### **The History of Gifted Education in Saudi Arabia:**

Saudi Arabia tends to follow modern trends in education with regard to educational approaches and methods for regular students in general, and for gifted students in particular. These students constitute a significant proportion of the schools in the Kingdom, whether they are in public or private schools. Thus, in order to achieve this vision of the best possible education for those gifted and talented students, the public policy gives gifted and talented education a priority.

The first summer enrichment programs for gifted students within Saudi Arabia were launched in the summer of 2000 by establishing nine programs for students, including both part-time and full-time programs in science and technology. These programs were conducted in collaboration with a group of government and private agencies. About 300 high school students were nominated for these programs (Aljughaiman & Ayoub, 2012). In addition, the foundation has established other specialized programs in addition to summer camps, including mentorship and enrichment as part of regular classroom instruction.

Another prominent activity of the Foundation to achieve its mission was the organization of scientific exhibitions for Saudi inventors to display their inventions and to connect them with investors and businessmen in the Saudi community. Moreover, the Foundation held the First Regional Scientific Conference for giftedness and Creativity in the Arab world in August of 2006, which hosted a group of specialists in giftedness and creativity. By the end of 2008, the Foundation had created a long-term strategy including the following five main initiatives. First, partnerships with distinguished schools were formed, including (a) the selection of schools and training of students, teachers and managers, and (b) the development of specific curricula for gifted education, as well as support strategies for parents. Second, enrichment activities were employed, including after-school programs, summer programs, competitions and awards. Third, the "Young Leaders" program was established, which included scholarships, temporary training jobs, mentorship, and skills-building programs. Fourth, creative environments were built, strategies for raising the awareness of educators for the needs of gifted students were implemented (e.g., training and workshops), and materials regarding best practices for gifted education were developed. Fifth, activities were organized to raise public awareness (e.g., the meaning of giftedness, creativity, and other related terms) via social media.

There are only two governmental institutions that foster gifted education in Saudi Arabia: Ministry of Education and the Foundation mentioned earlier. The differences between the goals of the two institutions lied in the target groups for the services. While the Ministry of Education is responsible for creating special gifted programs, the Foundation aims to provide services to the entire population of Saudi Arabia. But, the Foundation cooperates with the Ministry of Education and universities in providing programs for the gifted students. The main goals of the Ministry of Education regarding gifted education are set up as follows: the first goal is to establish an appropriate education policy in Saudi Arabia regarding to the education of gifted children, adolescents and adults. The second goal based on this policy is to create educational

environments that allow gifted individuals to capitalize on their strengths and develop their giftedness. The third goal is to develop educational opportunities in schools and beyond to foster students' giftedness. The fourth goal is to implement activities pertaining to prepare and train teachers and supervisors on methods of identification as well as finding ways to enhance the strengths of all students in all school subjects. The fifth goal is to provide a variety of educational opportunities for all students to identify and capitalize on their potential strengths.

A review of Arab and foreign studies on enrichment programs (Aljughaiman et al., 2009; Cannon et al., 2009; Delcourt et al., 2007) showed that these programs focus mainly on academic skills and the social and emotional characteristics of gifted students. Reis and et al. (2008) demonstrated that enrichment alternatives affect different emotional and social aspects of the personality of gifted students. Moreover, Wheeler, Waite and Bromfield (2002) stated 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.

## **Method:**

### **Participants:**

The participants in this study were 195 teachers from primary, middle, and high schools from different areas of KSA. The sample was divided according to specialization (gifted students' teachers, n=89; class teachers, n=106) and experience into (>5 years, n=98; <5 years, n=97). While, the other sample consisted of 241 students their ages ranged from 13 to 15 years (M=14.63 years, SD=2.35). The sample was divided to (summer enrichment programs, n=122; school enrichment programs, n=119).

### **Measures:**

#### **The Profiles of Gifted Students:**

The researchers developed eight profiles that showed different patterns of giftedness behavior, and this was to identify the students who were more nominated by teachers for gifted programs. The researcher asked the teachers to identify which of those students deserve to be nominated for gifted programs by using Likert and the estimates ranging from (1) I never agreed to his nomination to (7) fully agreed on his nomination. Moreover, they informed teachers that the student who will get higher scores would be more likely to be accepted in the program. Each profile included a number of characteristics that referred to a specific type of giftedness patterns. None of these profiles included information about the percent of intelligence or any other information about student's grades on standardized cognitive tests. While, they included a general description of the performance and interests of each student. In light of the expectation of different teachers' choices depending on teachers' gender, an equivalent copy had been drafted to refer to different patterns of giftedness. Eight of these cases were as follows:

A student had a high mentality but suffered in situations that require a non-traditional performance (mental field). A student had the ability to think in an authentically and unconventional manner, but he had a non-equivalent capabilities in the field of academic study in the classroom (the creative field). A student who had a very clear leadership characteristics, but he is not among the top 10% students in achievement (leadership field). A student who had a clear talent in writing short stories (linguistic academic field). A student who had a talent in

mathematics (academic field in mathematics). A student who had a very distinctive psychomotor capabilities (psychomotor field), but his achievement was average. A student had a distinctive artistic talent (visual arts fields), but his achievement was average. A student seemed to have a high mental abilities, his achievement was low.

To test the validity of the content of these cases, the eight cases were exposed to seven of professors who are specialized in giftedness and creativity. The injury identified each case in a correct way, and they stated the accuracy of describing these eight cases. The test-retest reliability coefficient was (0.81). For teachers' nominations, high grades referred to the patterns of gifted students that teachers biased to. While, the low grades referred to the patterns that teachers biased against.

### **Implicit Theories Scales:**

The researchers developed the three measures for implicit theories in the light of Dweck theory (Dweck, 2000). These scales are: implicit theory for intelligence scale, implicit theory for giftedness scale, and implicit theory for creativity scale. Each scale consists of 5 items for assessing incremental theories and 5 items for assessing entity theories. Additionally, in this study the researchers used the overall scores of scale. Participants were asked to report their agreement on a 5-point Likert scale from agree strongly (5) to disagree strongly (1). As a result of the CFA, the items loading values were determined to range between 0.34 and 0.81. The fit indices of the implicit theory intelligence scale were  $\chi^2/df = 1.59$ , RMSEA = 0.062, GFI = 0.92, AGFI = 0.91, NFI = 0.91. These results indicated a good fit for the data. In the present sample the Cronbach alpha was 0.78.

The researchers chose to deal with the total score of the scales of implicit theories rather than dealing with the incremental and entity dimensions in each scale. So that the high-grade on each scale referred to the tendency of the individual to the implicit incremental theory, while low-grade referred to the implicit entity theory.

### **Performance assessment scale:**

To assess the gifted student's performance, the researchers developed a scale in the light of the scales of (e.g., Ayoub & aljughaiman, 2016; Lee & Olszewski-Kubilius, 2007; King Abdulaziz & His Companion Foundation for Giftedness and Creativity, 2015; Van Tassel-Baska, Avery, Struck, Feng, Bracken, Drummond & Stambaugh, 2003). This scale consisted of 30 items, and included eight subscales (scientific knowledge, scientific research, critical thinking, creative thinking, problem solving, leadership, motivation, and autonomy). Answers were rated on a five-point Likert scale ranging from strongly agree (5) to strongly disagree (1). The scale was administered to a sample of 247 students to measure the validity of performance assessment scale by confirmatory factor analysis. As a result of the CFA, the fit indices of the scale were observed to be at a good fit  $\chi^2/df = 2.06$ , RMSEA = 0.071, GFI = 0.91, AGFI = 0.90, NFI = 0.92. The Reliability coefficients (Cronbach's  $\alpha$ ) of the scale were 0.84.

### **Procedures**

To identify the giftedness patterns that teachers favored when nominated the gifted students, and to identify the implicit theories which were adopted by teachers about intelligence, giftedness, and creativity, the researchers applied the giftedness profile and the scales of implicit theories on the sample in collaboration with the gifted education departments in various regions of Saudi

Arabia in the academic year 2015-2016. Teachers did not give any criteria for the nomination of gifted students, so that teachers can nominate students based on their concepts and their personality theories. To study the differences between the effect of summer enrichment programs and school enrichment programs on students' performance and to identify the direct effects of factors that were related to programs on the performance, a performance assessment scale was applied. The Participants were chosen randomly from summer enrichment programs and school enrichment programs. The performance assessment scale was distributed to three teachers and every one of them was asked to assess students' performance during their participations in these programs.

## Results:

### Patterns of giftedness:

To identify the giftedness patterns that teachers favored when nominated their gifted students, the two researchers calculated means for each category of teachers according to specialization (teachers of gifted students, and teachers of regular classes), and experience (more than 5 years' experience, and less than 5 years' experience). Table (1) clarified the mean scores and standard deviations for teachers' nominations to different patterns of gifted students.

**Table 1. Mean and standard deviations for teachers' nominations to different patterns of gifted students**

Patterns of gifted	Teacher Specialist				Teacher Experience			
	Giftedness		Classroom		> 5 years		5 years<	
	M	SD	M	SD	M	SD	M	SD
Mental giftedness	6.63	0.97	6.04	0.73	6.46	0.68	5.96	0.74
Creative giftedness	6.47	0.82	6.23	0.61	6.35	0.82	6.23	0.69
Academic giftedness (Math)	5.84	1.13	5.72	1.17	5.77	1.14	5.71	1.06
Academic giftedness ( linguistic)	5.52	0.96	5.38	0.91	5.43	0.96	5.44	0.88
Leadership giftedness	4.66	0.85	4.64	0.62	4.65	0.73	4.64	0.79
visual arts giftedness	5.12	0.92	4.71	0.98	5.08	0.89	4.85	1.04
Psychomotor giftedness	4.79	1.08	4.56	0.88	4.91	1.04	4.75	0.95
Gifted (underachievers)	4.39	1.23	4.36	1.21	4.32	0.87	4.24	1.16

Specialization: The results of table (1) indicated that teachers' highest nominations were in favor of the mentally gifted students (M = 6.63), creative students (M = 6.47), and academically gifted students in math (M = 5.84), then linguistically gifted students (m = 5.52). The teachers' nominations to gifted students in art (M = 5.12), psychomotor gifted students (m = 4.79), gifted students in leadership (m = 4.66), and the underachievement gifted students (m = 4.39) came at the end of their nominations in close degrees.

Teachers' nominations in regular classes were for creative students (M = 6.23), and for the mentally gifted students (m = 6.04), while their nominations for the academically gifted students in math (M = 5.72), and linguistically gifted students (m = 5.38) in a middle position with close degrees. Whereas their nominations for gifted students in art (m = 4.71), gifted students in leadership (m = 4, 64), psychomotor gifted students (m = 4.56), and the underachievement gifted students (m = 4.36) came at the end of their nominations with equal degrees.



Experience: The results revealed that teachers experienced more than 5 years were more likely to nominate mentally gifted students ( $M = 6.46$ ), creative students ( $M = 6.35$ ), and academically gifted students in math ( $M = 5.77$ ), linguistically gifted students ( $m = 5.43$ ). While their nominations to gifted students in art ( $M = 5.05$ ), gifted students in psychomotor ( $m = 4.91$ ), the gifted students in leadership ( $m = 4.65$ ), and underachievement gifted students ( $m = 4.32$ ) were equally low. The highest nominations of teachers experienced less than 5 years were in favor of creative students ( $M = 6.23$ ), followed by mentally gifted students ( $M = 5.96$ ), and academically gifted students in math ( $M = 5.71$ ), linguistically gifted students ( $m = 5.44$ ). Gifted students in art ( $m = 4.85$ ), and then psychomotor gifted students ( $m = 4.75$ ), leadership students ( $m = 4.64$ ), and finally gifted students in underachievement came at the end of their nominations ( $m = 4.24$ ).

**Teachers' implicit theories:**

To identify the implicit theories which were adopted by teachers about intelligence, giftedness, and creativity, the means were calculated in light of specialization (gifted students teachers, regular classes teachers), and experience (more than 5 years' experience, less than 5 years' experience (Table 2).

**Table 2. Means and standards deviations for teachers' implicit theories**

		Implicit Theory of					
		Intelligence		Giftedness		Creativity	
		M	SD	M	SD	M	SD
Teacher Specialist	Giftedness	4.95	0.61	4.56	0.89	4.38	0.77
	Classroom	2.13	0.78	2.70	1.07	2.71	1.04
Teacher Experience	> 5 years	4.93	0.96	4.20	1.06	4.51	0.93
	< 5 years	2.39	1.27	3.12	1.29	3.16	1.14

The results in table (2) indicated that gifted students' teachers were more likely to adopt incremental implicit theories in the field of intelligence, giftedness, and creativity (4.95, 4.56, 4.38 respectively), compared to teachers of regular classes who were more inclined to adopt entity implied theories in the three fields (2.13, 2.70, 2.71 respectively). Additionally, teachers who had more than five years' experience were more inclined to the incremental implicit theories (4.93, 4.20, 4.51 respectively) compared to teachers who had less than five years' experience. Teachers who had less than five years' experience were more inclined to entity implicit theories (2.39, 3.12, and 3.16 respectively).

**Summer enrichment program vs school enrichment program:**

The independent samples t test was carried out to evaluate the differences between the effect of summer enrichment programs and school enrichment programs on students' performance.

**Table 3. Independent samples t test for the differences between the effect of summer enrichment programs and school enrichment programs on students' performance**

Variables		No. of Participants	M	SD	df	T	Effect Size
Scientific knowledge	Summer program	122	14.42	1.30	239	10.10**	0.30
	School program	119	12.07	2.19			
Scientific research	Summer program	122	18.61	1.82	239	8.52**	0.23
	School program	119	15.63	3.36			
Critical thinking	Summer program	122	22.89	2.85	239	8.90**	0.25
	School program	119	19.03	3.81			
Creative thinking	Summer program	122	17.81	2.43	239	6.45**	0.15
	School program	119	15.37	3.36			
Problem solving	Summer program	122	13.44	1.93	239	8.61**	0.24
	School program	119	10.99	2.45			
Leadership	Summer program	122	18.52	2.01	239	9.03**	0.25
	School program	119	15.28	3.37			
Motivation	Summer program	122	18.30	2.33	239	7.36**	0.19
	School program	119	15.71	3.06			
Autonomy	Summer program	122	14.03	1.41	239	11.10**	0.34
	School program	119	11.28	2.33			
Total performance	Summer program	122	138.02	13.54	239	9.79**	0.29
	School program	119	115.36	21.42			

The results of the independent samples t-test (table 3) indicated that there were significant differences between the effect of summer program and school program on scientific knowledge ( $t=10.10$ ,  $P<0.01$ ), scientific research ( $t=8.52$ ,  $P<0.01$ ), critical thinking ( $t=8.90$ ,  $P<0.01$ ), creative thinking ( $t=6.45$ ,  $P<0.01$ ), problem solving ( $t=8.61$ ,  $P<0.01$ ), leadership ( $t=9.03$ ,  $P<0.01$ ), motivation ( $t=7.36$ ,  $P<0.01$ ), autonomy ( $t=11.10$ ,  $P<0.01$ ), and total performance ( $t=9.79$ ,  $P<0.01$ ). All the differences were in favor of summer enrichment program. The Values of effect size ranged from (0.15) to (0.34). These values referred to a high effect size.

### **Structure Equation Model:**

To identify the direct effects for each of: the type of program (part-time, full-time); sex (male, female); age of students (elementary, medium, secondary); the number of students (less than 25 students, more than 25 students); trainers' qualification (Bachelor, high studies); the number of trainers' participations in the programs ( $\leq 1$ ,  $\geq 2$ ) on the performance of gifted students. Path Analysis by using LISREL software (Version, 8.8) was used to find the influence of the independent variables on the dependent variable. The model is presented in Figure 1.

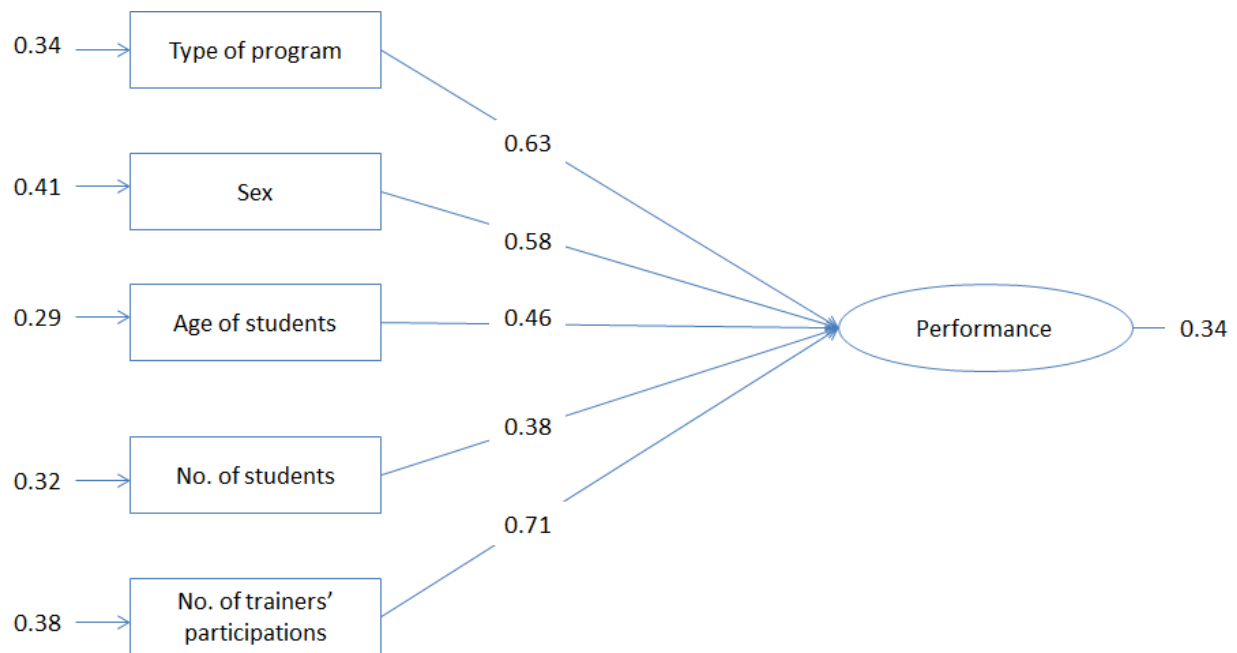


Fig. 1. Structural model for study variables

According to Figure 1, standardized path coefficients and t values were observed to be between the type of program and students performance as .63,  $t=7.24$ ,  $p<.05$ , sex and performance as .58,  $t=6.30$ ,  $p<.05$ , age of students and performance as .46,  $t=5.41$ ,  $p<.05$ , number of students and performance as .38,  $t=4.27$ ,  $p<.05$ , trainers participations and performance as .71,  $t=10.29$ ,  $p<.05$ , between trainers qualifications and performance as .19,  $t=1.73$ ,  $p>.05$  respectively.

These values indicated that the model fit the data adequately. Examining the fit indices,  $\chi^2=164.03$ ,  $df=139$ ,  $p>.01$ ,  $\chi^2/df=1.18$ , values indicated that the model fit the data adequately. The RMSEA=.06, GFI=.94, AGFI=.93; NFI=.94, values indicated a good level of fitness. Additionally, predictor variables accounted for (72%) of the percent of the variance in performance. According to the findings, the model was verified and confirmed that the predictor variables had positive and significant effects on performance.

Furthermore, it is clear that the most powerful influences on performance were trainers' participations, type of program, sex, age of students, number of students, and trainers' qualifications respectively.

### Discussion:

The results of the current study suggested that teachers regardless of their specialization or years of experience in teaching biased in their nominations highly to mentally, creatively, and academically (language and math) gifted students. In contrast, the teachers were clearly biased against the underachievement gifted students and those gifted students in art, psychomotor, and leadership. This result meant that these last patterns of gifted students were most at risk of marginalization and loss in the Saudi educational system. This result could be interpreted through two things: the educational practices are directed to the mental, creative, and academic gifted students only, whereas it did not direct much attention to the gifted students in other fields. These practices might significantly contributed to the formation of concepts and beliefs that linking the concept of giftedness and high mental ability or intelligence quotient IQ. Anyone

who had followed the practices of the identification of gifted students in Saudi Arabia found that they mainly focused on the IQ and academic achievement. Thus, gifted students in other fields had less opportunities in joining giftedness program, whatever their special giftedness were visible. The cultural habits and values prevailing in the Kingdom of Saudi Arabia may not gave support to some kinds of giftedness, such as artistic, drawing, and musical giftedness which affected the perception of teachers and parents to some gifted students in these fields. The study of (Alamer, 2010) that was conducted on Saudi environment revealed that teachers and parents couldn't appreciate some behavioral characteristics for gifted students for religious and cultural reasons. Also, they couldn't appreciate giftedness in the fields of music, visual arts, and leadership especially for females. This result was also consistent with the study of (Schroth & Helfer, 2009) which showed that the teachers did not appreciate the giftedness in the motor, musical, and visual arts fields. (Sternberg, 2007) confirmed that the ignorance of the cultural factors prevailing in identifying gifted students might lead to the loss of a number of gifted students and the nomination of some non-gifted students. According to the implicit quintet theory which was suggested by (Sternberg & Zhang, 1995), the standard of social value is one of the basic criteria in identifying giftedness.

Some teachers, especially gifted students' teachers might be aware of such giftedness and their importance, but the existing practices and the used methods of identification did not provide the opportunity to those gifted students who had other talents to join these programs. Enrichment programs are directed to the mentally and academically gifted students. So, they found that the nomination of mentally gifted students is much better than nominating other students. This may clarify that gifted students teachers were the most categories biased to mentally gifted students more than the teachers of regular classes. Also, this explained that the teachers who had long experience biased more to the mentally gifted students than the less experienced teachers.

Perhaps it was stupendous that the leadership giftedness came at the end of all nominations. This result was consistent with the study of Brighton and others (Brighton, Moon, Jarvis & Hockett, 2007) which showed that the teachers did not direct the attention or more appreciation to some of the characteristic of leadership displayed by gifted children. This may be due to the teachers' belief that leadership giftedness cannot be identified objectively, also as it is not easy to be developed.

In what concerning the implicit theories, the results revealed that giftedness teachers were the most likely to adopt incremental implicit theories in the fields of intelligence, giftedness, and creativity compared to regular classes teachers. The teachers with more experience were more inclined to the incremental implicit theories compared to less experienced teacher who were more inclined to the entity implicit theories. The results showed that there were statistically significant effect for the variable of specialist on the different implicit theories. The results indicated that teachers of gifted students were more inclined to the formation of the incremental implicit theories in the field of intelligence, giftedness, and creative compared to regular classes teachers which were more inclined to adopt entity implicit theories. This result can be understood through the scientific background and the teaching practices for gifted students' teachers that make them the most familiar with the nature of giftedness in general. As their teaching for gifted students for several years can play an important role in the formation of these incremental beliefs. This may raise a dialectic issue about whether the educational practices were the reason behind the formation of these beliefs, or that the adapted beliefs by teachers and

organizers of giftedness programs were responsible for such practices. The relation seemed to be reciprocal, as that beliefs can guide practices, and practices can support the formation of beliefs.

Regarding to the impact of the experience, the results revealed that teachers with experience more than five years were more likely inclined to incremental implicit theory in the field of intelligence compared to teachers with less than five years' experience who were more inclined to entity implicit theories. This result suggested that the more experienced teachers were increasingly tended to adopt incremental theories about intelligence. The cumulative results which they had as a result of teaching practices helped to form a more mature beliefs about the viability of the mental characteristics to be modified over time through experience and learning. However, there were no differences in the fields of giftedness, creative, and personality.

Regarding to the differences between summer enrichment programs and school enrichment program on the gifted students' performance, the results indicated that there were differences in performance in favor of summer enrichment programs. Several studies (Hughes, 2003; Neihart, Reis, Robinson & Moon, 2002; Tieso, 2005) agreed that summer enrichment programs provided real services, opportunities, and experiences for gifted students to work with others who have the same interests and abilities in the program. Teachers benefited from this freedom in developing social traits among students through forming flexible groups within the activities.

Additionally, trainers' participations, type of program, sex, age of students, number of students, and trainers' qualifications respectively had a great influence on students' performance. The results of these studies agreed with (Aljughaiman & Ayoub, 2013; Aljughaiman, Ayoub, Maajeeny, Abuoaf, Abunaser & Banajah, 2009; Cannon, Broyles, Seibel & Anderson, 2009; King Abdulaziz & His Companion Foundation for Giftedness and Creativity, 2014; Roysse, Thyer & Padgett, 2010).

### **Conclusion:**

Identifying the different kinds of giftedness that teachers biased to made us more aware of the marginalized and most vulnerable to lose gifted students. The current study cautioned teachers and educational leaders generally with talent that do not pay attention to in the nomination process, and the need to pay attention to these talents in the future when planning talented programs in general and procedures of identification in particular. They have to work to raise awareness among teachers through in-service training of those marginalized talents that are exposed to the risk of loss as a result of ignoring them in the screening stage. Teachers should be trained to focus on students' strengths more than focusing on their weaknesses in the nomination of students in gifted programs. They had to recognize that there are different types of giftedness, so there is no specific program that can fit all types of giftedness. Every type of giftedness has its own program. The implicit theories for teachers about gifted, intelligence, creativity concepts can have many educational implications not only on the identification process of gifted students, but also on the development of gifted students' education.

Those who are in charge of planning enrichment programs should keep attention to the importance of developing appropriate programs to include those gifted students that may be marginalized or deprived for many years of participation in gifted programs (Aljughaiman & Ayoub, 2012). Any committee is responsible for developing a program for gifted students should firstly care about the determination of the gifted students, how to recognize them procedurally, and connect all of this with the nature of the programs that will be provided to them. It is

important to think about all of these issues in order to build a policy that can be defended in the field of gifted education.

### **Challenges and Planning for the Future:**

In sum, we perceive a number of challenges and opportunities for gifted education in Saudi Arabia. A current key challenge for gifted education in Saudi Arabia is the orientation of communities worldwide toward a “knowledge community,” which requires an increase in attention to gifted education, excellence, innovation, and creativity. The increase in sharing knowledge about tools and services above and beyond the distribution of natural resources requires considerations of scientific, technological, administrative as well as technical areas, which in turn requires increased attention for giftedness, excellence and creativity. Similarly, there is a global competition in various aspects of life that is based on excellence and innovation. This trend is evident in that most Arab countries joined the World Trade Organization (WTO) over the past 10 years. The growing global competition to attract and recruit high able people has prompted many highly able individuals to leave the Arab world in order to pursue a global career. However, the Saudi Arabian economy in particular is in need of diversification based on providing excellence, scientific and technical leadership.

The opportunities include: (a) a firm conviction plus a large and comprehensive awareness among the leaders of Saudi Arabia about the importance of educating and supporting gifted students; this is shown through their personal interest in talent institutions, initiatives and ideas provided by experts in this field; and (b) the general acknowledgment of the need to develop gifted and talented programs in Saudi Arabia, and the existence of a big gap compared with developed countries in this field. Thus, this acknowledgment provides an opportunity because it is the main motivation to pursue the development of these programs in the first place. The needs of gifted students are diverse. In addition to academic needs, individual needs, social needs, thinking needs and the needs of self-fulfillment are also important. Effective ways to meet the needs of gifted students involve applying different methods that will lead to academic acceleration, enrichment, and other experiences. However, programs for gifted students do not work very well unless they are carefully planned, adequately prepared, and conscientiously implemented in school. Furthermore, the programs for gifted students need to be very flexible, capable of development and adaptation by teachers to meet the needs of the individual students. In this regard, gifted education in Saudi Arabia still has a long way to go.

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## References

- Alamer, S. (2010). Views of giftedness: The perceptions of teachers and parents regarding the traits of gifted children in Saudi Arabia .Unpublished Ph.D, MONASH University.
- Aljughaiman, A. M., & Ayoub, Alaa E. A. (2012). The Effect of an enrichment program on developing analytical, creative, and practical abilities of elementary gifted students. *Journal for the Education of the Gifted*, 35(2), 153–174.
- Aljughaiman, A. M., & Ayoub, Alaa E. A. (2013). Evaluating the effects of the oasis enrichment model on gifted education: A meta-analysis study. *Talent Development & Excellence*, 5(1), 99–113.
- Aljughaiman, A., Ayoub, A., Maajeeny, O., Abuofaf, T., Abunaser, F., & Banajah, S. (2009). Evaluating gifted enrichment program in schools in Saudi Arabia. Riyadh, Saudi Arabia: Ministry of Education
- Ayoub, A. & Aljughaiman, A. (2016). A predictive structural model for gifted students' performance: A study based on intelligence and its implicit theories. *Learning and Individual Differences Journal*, 51, 11–18.
- Brighton, C. M., Moon, T. R., Jarvis, J. M., & Hockett, J. A. (2007). *Primary grade teachers' conceptions of giftedness and talent: A case-based investigation* (RM07232). Storrs, CT: The National Research Center on the Gifted and Talented, University of Connecticut.
- Brown, S. W., Renzulli, J. S., Gubbins, E. J., Zhang, W., Siegle, D., & Chen, C. H. (2005). Assumptions underlying the identification of gifted and talented students. *Gifted Child Quarterly*, 49, 68-79.
- Callahan, C. M., & Miller, E. M. (2005). A child-responsive model of giftedness. In R. J. Sternberg (Ed.), *Conceptions of giftedness* (2<sup>nd</sup> ed., pp. 38-51). New York: Cambridge University Press.
- Cannon, J. G., Broyles, T. W., Seibel, G. A., & Anderson, R. (2009). Summer enrichment programs: Providing agricultural literacy and career exploration to gifted and talented students. *Journal of Agricultural Education*, 50, 27-38
- Coleman, L. J., & Cross, T. L. (2005). *Being gifted in school: An introduction to development, guidance, and teaching*. Waco, TX: Prufrock.
- Davis, G., Rimm, S., & Siegle, D. (2010). *Education of the gifted and talented* (6<sup>th</sup> ed.). Needham Heights, MA: Allyn & Bacon.
- Deemer, S. (2004). Classroom goal orientation in high school classrooms: Revealing links between teacher beliefs and classroom environments. *Educational Research*, 48(1), 73-90.
- Delcourt, M., Cornell, D. & Goldberg, M. (2007). Cognitive and affective learning outcomes of gifted elementary school students. *Gifted Child Quarterly*, 51(4), 359-381.
- Dupeyrat, C., & Mariné, C. (2005). Implicit theories of intelligence, goal orientation, cognitive engagement, and achievement: A test of Dweck's model with returning to school adults. *Contemporary Educational Psychology*, 30, 43-59.
- Dweck, C. S. (2000). *Self-theories: Their role in motivation, personality and development*. Taylor & Francis: Philadelphia, PA.
- Dweck, C. S. (2012). Implicit theories. In P. A. M. Van Lange, A. W. Kruglanski, & E. T. Higgins (Eds.) *Handbook of theories of social psychology: Volume Two* (pp. 43-61). Thousand Oaks, CA: Sage.
- Dweck, C. S., Chiu, C., Hong. Y. (1995). Implicit theories and their role in judgment and reactions: A world from two perspectives. *Psychological Inquiry*, 6, 267-285.

- Endepohls-Ulpe, M & Ruf, H. (2005). Primary school teachers's Criteria for the identification of gifted pupils. *High Abilities Studies*, 16(2), 219-228.
- Fleith, D.S. (2000). Teacher and student perceptions in the classroom environment. *Roeper Review*, 22, 148-52.
- Hughes, P. (2003) Autonomous learning zones. *Paper presented at the 10th Conference of the European Association for Learning and Instruction*, Padova, Italy.
- Hunsaker, S. L., Finley, V. S., & Frank, E. L. (1997). An analysis of teacher nominations and student performance in gifted programs. *Gifted Child Quarterly*, 41, 19-24.
- Karnes, F. A., & Bean, S. M. (2009). *Methods and materials for teaching the gifted* (3<sup>rd</sup> ed.). Waco, TX: Prufrock.
- King Abdulaziz & His Companion Foundation for Giftedness and Creativity (2010). *Evaluating summer gifted programs*. Riyadh, Saudi Arabia.
- King Abdulaziz & His Companion Foundation for Giftedness and Creativity (2015). *Definition of enrichment programs*. Riyadh, Saudi Arabia.
- King Abdulaziz & His Companion Foundation for Giftedness and Creativity. (2014). *Measuring quality summer enrichment programs*. Riyadh, Saudi Arabia.
- Lee, K. (1996). A study of teacher responses based on their conceptions of intelligence. *Journal of Classroom Interaction*, 31, 1-12.
- Lee, L. (1999). Teachers' conceptions of gifted and talented young children. *High Ability Studies*, 10(2), 183-196.
- Lee, S. & Olszewski-Kubilius, P. (2007). The Effects of a service-learning program on the development of civic attitudes and behaviors among academically talented adolescents. *Journal for the Education of the Gifted*. 31(2), 165–197.
- Marland, S. P., Jr. (1972). *Education of the gifted and talented: Report to the congress of the United States by the U.S. commissioner of education*. Washington, DC: U.S. Government Printing Office.
- Moon, R. R., & Brighton, C. M. (2008). Primary teacher's conceptions of giftedness. *Journal for the Education of the Gifted*, 31(4), 447-480.
- Neihart, M., Reis, S., Robinson, N., & Moon, S. (2002). *The social and emotional development of gifted children: What do we know?*. Waco, TX: Prufrock Press.
- Ngara, C. & Porath, M. (2007). Ndebele culture of Zimbabwe's views of giftedness. *High Ability Studies*, 18(2), 191-208.
- Reis, S., Eckert, R., McCoach, D., Jacobs, J. & Coyne, M. (2008). Using enrichment reading practices to increase reading fluency, comprehension, and attitudes. *The Journal of Educational Research*, 101(5), 299-314.
- Renzulli, J., Siegle, D., Reis, S., Gavin, M. K., & Sytsma Reed, R. E. (2009). An investigation of the reliability and factor structure of four new scales for rating the behavioral characteristics of superior students. *Journal of Advanced Academics*, 22(1), 84-108.
- Runco, M. A., & Johnson, D. J. (2002). Parents' and teachers' implicit theories of children's creativity: a cross-cultural perspective. *Creativity Research Journal*, 14(3), 427-483.
- Sak, U. (2004). About creativity, giftedness, and teaching the creatively gifted in the classroom. *Roeper Review*, 26(4), 216-222.



- Schroth, S. T. & Helfer, J. A. (2009). Practitioners' conceptions of academic talent and giftedness: Essential factors in deciding classroom and school composition. *Journal of Advanced Academics*, 20(3), 384-403.
- Smutny, J. F. (2000). *How to stand up for your gifted child: Making the most of kids' strengths at school and at home*. Minneapolis, MN: Free Spirit Publishing, Inc.
- Sternberg, R. J. (2007). Cultural concepts of giftedness. *Roeper Review*, 29(3), 160-166.
- Sternberg, R. J., & Zhang, L. F. (1995). What do we mean by giftedness? A pentagonal implicit theory. *Gifted Child Quarterly*, 39, 88-94.
- Tieso, C. (2005). The effects of grouping practices and curricular adjustments on achievement. *Journal for the Education of the Gifted*, 29(1), 60-89.
- Van Tassel-Baska, J., Avery, L., Struck, J., Feng, A., Bracken, B., Drummond, D. & Stambaugh, T., (2003). *The William and Mary classroom observation scales- revised*. Center for Gifted Education, The College of William and Mary-School of Education, USA .
- VanTassel-Baska, J., & Brown, E. F. (2005). An analysis of gifted education curricular models. In F. A. Karnes & S. M. Bean (Eds.) *Methods and materials for teaching the gifted* (2<sup>nd</sup> ed., pp. 75-105). Waco, TX: Prufrock Press.
- Wheeler, S., Waite, S. & Bromfield, C. (2002). Promoting creative thinking through the use of ICT. *Journal of Computer Assisted Learning*, 18, 367-378.