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**Faculty Members' Attitudes and
Knowledge of Gifted Students and their
Education at Saudi Universities**

By □

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Abstract

This study aimed to investigate faculty members' attitudes and knowledge of gifted students and their education at Saudi universities. It also attempted to investigate the correlation between their attitudes and knowledge considering different sub-groups of faculty members. A cross-sectional correlational design was applied and a questionnaire with a sample of 170 faculty members from four Saudi universities was used for data collection. The overall result showed that faculty members from Saudi universities held slightly positive attitudes towards gifted students and their education. In addition, A significant positive correlation between faculty members' attitudes and their knowledge was established. Faculty members who have received courses in gifted education were found to be more knowledgeable and are more likely to hold positive attitudes towards gifted students and gifted education at the university level. In addition, faculty members from theoretical colleges (e.g., College of Education) held significantly higher attitudes than other colleges. The study's results recommend that faculty members at Saudi universities require more training regarding the characteristics of gifted students; their cognitive, social, and psychological needs; and gifted education in general.

Keywords: Gifted Education, Saudi Universities, Gifted Students, Faculty Members.

اتجاهات أعضاء هيئة التدريس في الجامعات السعودية ومدى معرفتهم بالطلبة الموهوبين وتعليم الموهوبين

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ملخص

هدفت هذه الدراسة إلى التعرف على اتجاهات أعضاء هيئة التدريس في الجامعات السعودية ومدى معرفتهم بالطلاب الموهوبين وتعليم الموهوبين. كما استهدفت الدراسة تقصي العلاقة بين اتجاهات أعضاء هيئة التدريس ومدى معرفتهم بخصائص الطلاب الموهوبين وتعليم الموهوبين مع الأخذ بالاعتبار بعض المجموعات الفرعية لأعضاء هيئة التدريس. واتبع الباحث المنهج الارتباطي باستخدام الاستبانة كأداة لجمع البيانات، وأكمل الاستبانة عينة من (١٧٠) عضواً من أعضاء هيئة التدريس من أربع جامعات سعودية. وأظهرت النتائج أن أعضاء هيئة التدريس في الجامعات السعودية يحملون اتجاهات إيجابية تجاه الطلاب الموهوبين وتعليمهم. بالإضافة إلى ذلك، أشارت النتائج إلى وجود علاقة ارتباط إيجابية ذات دلالة إحصائية بين اتجاهات أعضاء هيئة التدريس ومدى معرفتهم بالطلبة الموهوبين وتعليم الموهوبين. وتبين كذلك أن أعضاء هيئة التدريس الذين تلقوا دورات في تعليم الموهوبين كانوا أكثر دراية في تعليم الموهوبين ومن المرجح أن يحملوا اتجاهات إيجابية أكبر تجاه الطلاب الموهوبين وتعليم الموهوبين في المرحلة الجامعية. وأيضاً أشارت النتائج إلى أن أعضاء هيئة التدريس من الكليات النظرية (مثل، كلية التربية) لديهم اتجاهات إيجابية أعلى من الكليات الأخرى. وأوصت الدراسة بأهمية تقديم التدريب لأعضاء هيئة التدريس في الجامعات السعودية فيما يتعلق بخصائص الطلاب الموهوبين؛ احتياجاتهم المعرفية، والاجتماعية، والنفسية؛ وتعليم الموهوبين بشكل عام.

الكلمات المفتاحية: تعليم الموهوبين، الجامعات السعودية، الطلبة الموهوبين، أعضاء هيئة التدريس.

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Introduction:

Advanced gifted education is a vital aspect of the development of any productive society (McGurk, 2006). Supporting gifted learners and providing them with appropriate opportunities is one of the critical goals of worldwide educational systems (Renzulli, 2012). Meeting their needs by modifying the instruction to motivate and challenge them is their right to receive an appropriate education. Gifted students exhibit high intellectual abilities and have the potential to develop creative and innovative outcomes (Gallagher, 2008). With regard to Saudi Arabia, there has been growing interest in providing effective education for the gifted (Aljughaiman & Ayoub, 2017). Gifted students are receiving considerable attention regarding their needs and learning styles. The Saudi Ministry of Education offered various programs for gifted students in K-12 settings.

In comparison, Saudi universities are still considered behind regarding the official legislation that supports gifted students and the modification of the learning environments to support gifted students. Indeed, universities should pay more effort into their gifted learners. Faculty members and educators play a critical role in identifying and improving the learning experiences for gifted students. Understanding their attitudes and knowledge regarding gifted students and gifted education is important as they are the cornerstone of facilitating the appropriate environments for gifted students. Educators' attitudes regarding gifted students and their education are integral to the planning and delivery of education for the gifted (Cross et al., 2013).

Davis and Rimm (2004) asserted that the first vital question to ask when developing gifted education programs is "What is our attitude

towards gifted education and students?” (p. 55). An essential role in any gifted education program is played by the educator who has the influence and the potential that affect the development and learning of gifted students (Alsamani, 2015). Therefore, the assessment of faculty members’ attitudes as they deal with gifted students is an important endeavor in improving the quality of gifted programs.

Gifted Education Programs in Saudi Arabia

Educators and leaders in Saudi Arabia began to recognize the needs of gifted individuals by the middle of the 20th century (Aljughaiman & Ayoub, 2017). The Saudi Ministry of Education passed the first legislation in the 1960s that recognized the right of gifted individuals to receive support to meet their abilities (Aljughaiman & Ayoub, 2012). The Saudi Ministry of Education led the gifted programs in Saudi Arabia and created a strategic long-term partnership with King Abdulaziz and his Companions Foundation for Giftedness and Creativity (Mawhiba) to direct, develop, and serve gifted students in Saudi Arabia. They also planned to serve Saudi creative and innovative individuals to support the constant growth and prosperity of Saudi Arabia (Alsamani, 2015).

The provision of gifted education in Saudi Arabia includes (1) acceleration, which allows students to pass one level of study, (2) grouping ability, which allows the gathering of gifted students in special ability groups and provides them with challenging activities, (3) enrichment programs, which allows gifted students to join programs that present some intensive educational programs and creative activities according to their interests and abilities (Alamiri, 2020). Although the Saudi Ministry of

Education has paid great attention to gifted students in k-12 sittings, gifted students in Saudi universities still receive less attention. There is a need for legislation and programs that support gifted students at universities through modified courses, placement, and enrichment activities.

Gifted Education in Saudi Universities

Saudi universities have a growing interest in their gifted and talented students in the last decade and several universities started developing initiatives and centers for gifted students to meet their needs. For example, Saud University launched the gifted and talented program to support gifted students. The university also created an innovation center, which aims to harness knowledge to serve the development and the national economy in strategic areas such as energy, water desalination, information technology, nanotechnology, biotechnology, and petrochemical industries (King Saud University, 2021). There also have been great efforts by King Faisal University starting by launching the National Center for Giftedness and Creativity Research as the first research center specializing in giftedness in Saudi Arabia (King Faisal University, 2021).

More initiatives are being developed in Saudi universities to support gifted students. However, all effects are still considered limited and seen as external activities that are not linked with the official education for gifted students. To meet international development in the education system and to support the country's Vision 2030', there is a need for a strategic and transformative change in the education system that provides a more interactive environment that respects their interests and challenges their abilities. Universities are empowered by their faculty members who play central roles in developing and delivering appropriate education. Their

attitudes, beliefs, and perspectives regarding gifted education and gifted students are critical for researchers and stakeholders to better support the education of those students. Programs for gifted and talented students in universities must take into account the interaction between faculty members and gifted students.

Educators' Attitudes and Knowledge regarding Gifted Students and their Education

Educational research has been studying teachers' attitudes toward gifted students and gifted education for more than a half-century (e.g., Peachman, 1942; Justman & Wrightstone, 1956). However, these studies found mixed results that differ from one context to another and such attitudes change with time (McCoach & Siegle, 2007). Many studies have found teachers holding positive attitudes regarding gifted students and gifted education (Alsamni, 2015; Laine, Hotulainen, & Tirri, 2019; Mojca & Urška, 2019; Kaya & Tortop, 2020). A study by Semmel et al. (1991) investigated gifted education teachers' attitudes and beliefs about gifted education including pull-out classes and found that those teachers held positive attitudes. Another study by Lummis (1999) provided training about gifted education and gifted students and the research examined 63 teachers' attitudes before and after the training. The study found teachers in general held positive attitudes in the pre-test and their attitudes were found positive significant difference in the post-test results.

In Saudi Arabia, Almakhalid (2012) studied male primary teachers' attitudes regarding gifted students and gifted education in Saudi Arabia applying a mixed methods approach to collect the data. The study results indicated that participants held slightly positive attitudes. Another study by Alsamani (2015) examined gifted education gifted education and general

education teachers' attitudes and knowledge regarding gifted education and gifted students in k-12 settings and found that teachers with higher knowledge about gifted education are expected to hold positive attitudes.

However, several research in the literature indicated that teachers held negative attitudes (e.g., Akgül, 2021). For example, Thomas (1973) assessed the regular education teachers' attitudes toward giftedness and that those teachers held negative attitudes. Colangelo and Kelly (1983) conducted a study to examine the attitudes of gifted students and their teachers regarding gifted education and the results indicated that those teachers held negative attitudes and their students were aware of these negative attitudes. Tomlinson et al. (1996) linked teachers' negative attitudes to the lack of training about gifted education they received and the misunderstanding of gifted students and their educational needs.

Research also investigated teachers' knowledge of gifted education which is considered a comparatively new area (Lam & Law, 2008). There is still a dearth of research in this area regarding gifted education at the university level. Several studies focused on teachers' knowledge of gifted students and gifted education and found that knowledge about gifted education is often shaped by the training delivered to teachers (e.g., Hansen & Feldhusen, 1994; Ferrara, 2006). Studying the attitudes and knowledge of teachers in educational research is functional.

It is established in the literature that teachers with a lack of knowledge of gifted students and gifted education tend to hold negative attitudes (Tomlinson, 1995; Smith & Chan, 1998). A study by Bransky (1987) studied administrators' and teachers' knowledge and attitudes towards gifted students and gifted education of gifted education and found

administrators and teachers of gifted education who were more knowledgeable held more positive attitudes. Alsamani (2015) found that trained gifted education teachers who have more knowledge of gifted education and gifted students tended to hold more positive attitudes. A study by Donerlson (2008) studied the beliefs and attitudes of gifted and regular program teachers towards gifted education and gifted students and found a significant difference in the two groups, which he explained by the lack of experience and knowledge of gifted students' needs.

Researchers, in general, have investigated teachers' attitudes and knowledge of gifted students mainly in k-12 settings (e.g., Alsamani, 2015; Justman & Wrightstone, 1956; McCoach & Siegle, 2007; Troxclair, 2013). These studies found contradictory results that differed from educational context to another. For example, some studies found positive attitudes (e.g., Alsamani, 2015; Troxclair, 2013). No study concerning the attitudes and knowledge of faculty members in Saudi universities have found. Therefore, this research attempted to investigate faculty members' attitudes and the level of knowledge and investigate the relationship between the two variables considering different sub-groups of faculty members such as female and male.

Research Questions

This study attempted to answer four questions regarding the attitudes and knowledge of faculty members regarding gifted students and gifted education in Saudi universities. These research questions are:

- 1- What are faculty members' attitudes toward gifted students and gifted education in Saudi universities?

- 2- What are faculty members' levels of knowledge of gifted students and gifted education in Saudi universities?
- 3- What is the relationship between faculty members' attitudes and knowledge regarding gifted students and gifted education in Saudi universities?
- 4- What demographic factors affect Saudi faculty members' attitudes regarding gifted students and their education in Saudi universities?
- 5- What demographic factors affect Saudi faculty members' knowledge regarding gifted students and their education in Saudi universities?

Research Methods

Participants

210 randomly selected faculty members at the University of Hail were invited to participate in this study. They were from different colleges and departments. However, determining the exact number of faculty members who have received the invitation is impossible as the link was distributed to the faculty members through WhatsApp and some may share the link with others. Among these faculty members, (170) have completed the questionnaire.

The gender distribution of the respondents was (93) males (54.7%), and 77 females (45.3%). Concerning respondents' experiences, 13.2% had five years or less of experience. 27% reported they had 6 to 10 years of experience and 29.3% had 11 to 15 years. Another 12.1% reported they had 16 to 20 years of experience and finally, 18.4% of the respondents had more than 20 years of experience. Regarding the respondents' ages, only 4% were 30 years old or less, 37.4% were between 31 and 40 years old,

40.2% were between 41 to 50 years old, and 17.8% were 51 years old or older. Receiving training in gifted education, only 29.3% of the respondents have received training and the majority (70.7%) have not received any training in gifted education. In addition, 69% of the respondents perceived themselves as gifted, while 31% did not consider themselves as gifted.

The Instruments

The main research method to define respondents' attitudes and knowledge was the correlational survey model. In the study, the utilization of the correlational survey model was to determine a relationship between faculty members' attitudes and knowledge regarding gifted education and gifted students in Saudi universities. The literature review shows the majority of studies applied questionnaires to study attitudes (e.g. Alsamani, 2015; Begin & Gagné, 1994; Chipego, 2004; Siegel & McCoach, 2007) and knowledge (e.g. Weiss & Gallagher, 1986, Alsamani, 2015). The application of the questionnaire helps in the generalization of the results.

The questionnaire tool comprised of three parts in addition to descriptive information about the study and the consent form. The first part was about collecting demographic and characteristics questions to determine the relationship between these variables and the direction of the attitudes and the level of knowledge. These questions were about, gender, level of experience, college category, courses in gifted education, and self-perception of being gifted. The second section was about respondents' attitudes including (14) items that participants can show their agreement level from 'strongly agree' (coded as 5) to 'strongly disagree' (coded as 1) utilizing a 5-point Likert scale.

The attitudes scale applied in this study was adapted from a scale named “Opinions about the gifted education and gifted pupils”, created by Gagné and Nadeau (1991). The next step was to create a draft by applying several modifications to the items to meet the Saudi education system at the university level. For example, The ‘acceleration’ was removed as there is no such system at the targeted universities. To determine faculty members’ attitudes, Gagné (1991) and Curtis's (2005) recommendations were followed that items means below (2) refer to a very negative attitude, and means from 2 to 2.75 are considered a slightly negative attitude. The means between (2.75) to (3.25) indicates ambivalence, means from (3.25) to (4) refer to a slightly positive attitude, and means above (4) to (5) refer to a very positive attitude.

This third part was about assessing faculty members’ level of knowledge towards gifted education and gifted students using a 5-point Likert scale that consisted of twelve items. Respondents were asked to rate their level of knowledge from ‘5’ as the highest level of knowledge to ‘1’ as the lowest level of knowledge. A scale developed by Weiss and Gallagher (1986) investigating teachers’ knowledge of gifted education and gifted students was adapted for this study. Modification and development of the items were carried out to match the current practices and the university context.

A draft of the questionnaire was developed of two sub-scales (attitudes and knowledge) in addition to several demographic questions (e.g gender, age, self-perception of being gifted). After that the draft was reviewed and revised by several experts in gifted education, they checked the clarity and suitability. The experts shared their thought about several items that may not suit gifted education at the university level and several suggestions were made and a final copy of the questionnaire was produced.

Results

Confirmatory Factor Analysis (CFA).

Several rounds of confirmatory factor analysis (CFA) was performed using *Mplus version 7.2* (Muthén & Muthén, 1998-2012) to examine whether the (2) dimensions, i.e. attitude towards gifted education and knowledge of gifted education emerged from the data. The result showed a very good fit ($\chi^2 = 147.96$, $df = 89$, $\chi^2/df = 1.6$, $RMSEA = .06$, $SRMR = .07$, $CFI = .93$, and $TLI = .91$). The standardized factor loadings of the CFA results are presented in Table (1) (i.e., factors, corresponding items, standardized factor loadings, and Cronbach’s α of each dimension).

**Table (1)
The standardized factor loadings of the CFA results**

Items	Attitude	Knowledge
Putting gifted students in special programs independently affects other students and makes them feel inferior.	.613	
The enrichment programs for gifted students encourage them to be more enthusiastic about learning.	.427	
The gifted education programs are unnecessary and should be completely canceled.	.715	
Whatever the university provision, gifted students will succeed in any circumstance.	.418	
By dividing students into gifted and others, we rise the labeling of students as good-less good.	.535	
Some educators lose their authority by gifted pupils.	.507	
Gifted students are often interested in things that are not useful.	.505	
Gifted students are usually arrogant.	.568	
Methods and instruments for identifying gifted students.		.798
The theoretical models of giftedness (e.g. Guilford, Bloom, William’s strategies and Renzulli models).		.719
The evaluation and assessment of gifted students’ progress.		.859
The appropriate educational strategies that utilize with the gifted students (e.g. acceleration, enrichment, ability grouping).		.827
Implementation of classroom behaviour management techniques for gifted students.		.759
Characteristics of gifted students.		.749
The ability to use educational technology techniques for gifted students at the university.		.710
Cronbach’s Alpha	.728	.896

Most of the factor loadings of each factor are substantial, ranging from .427 to .859 which also contributed to reasonably good internal consistency for each factor. The Cronbach's α values which showed the internal consistency of the two dimensions are also considered reasonably high.

1- What are faculty members' attitudes toward gifted students and gifted education in Saudi universities?

Subsequent to the Confirmatory Factor Analysis, descriptive analysis was performed to see the attitudes level of faculty members towards gifted students and gifted education in Saudi universities. The results of the analysis showed that the average of the attitude factor score is considered to be high level of attitudes ($M= 3.55$, $SD= .59$). This result implied that the faculty members in Saudi universities reported that they had good attitudes towards giftedness.

Table (2)
Descriptive analysis of faculty members' attitudes

ITEMS	M	SD
putting gifted students in special programs independently affects other students and makes them feel inferior.	2.98	1.211
the enrichment programs for gifted students encourage them to be more enthusiastic about learning.	4.62	.616
the gifted education programs are unnecessary and should be completely cancelled.	4.14	1.020
whatever the university provision, gifted students will succeed in any circumstance.	2.93	1.159
by dividing students into gifted and others, we rise the labelling of students as good-less good.	3.02	1.101
some educators lose their authority by gifted pupils.	3.65	.993
gifted students are often interested in things that are not useful.	3.54	.980
gifted students are usually arrogant.	3.52	.899
average	3.55	.59

2- What are faculty members’ levels of knowledge of gifted students and gifted education in Saudi universities?

A descriptive analysis was performed to see the knowledge level of faculty members towards gifted students and gifted education in Saudi universities. The analysis results showed that the average knowledge factor score is considered to be a high level of knowledge (M= 3.59, SD= .92). This result showed that the faculty members in Saudi universities reported that they had good knowledge of gifted students and gifted education.

**Table (3)
Descriptive analysis of faculty members’ knowledge**

	m	sd
methods and instruments for identifying gifted students.	3.49	1.105
the theoretical models of giftedness (e.g. Guilford, Bloom, William’s strategies and Renzulli models).	3.11	1.255
the evaluation and assessment of gifted students’ progress.	3.48	1.227
the appropriate educational strategies that utilize with the gifted students (e.g. acceleration, enrichment, ability grouping).	3.42	1.195
implementation of classroom behaviour management techniques for gifted students.	3.42	1.170
characteristics of gifted students.	3.76	1.005
the ability to use educational technology techniques for gifted students at the university.	3.77	1.141
average	3.49	.92

3- What is the relationship between faculty members' attitudes and knowledge regarding gifted students and gifted education in Saudi universities?

Table (4)

A correlation analysis of attitudes and knowledge dimensions

correlations			
		attitude	knowledge
attitude	pearson correlation	1	.185[*]
	sig. (2-tailed)		.016
	n	170	170
knowledge	pearson correlation	.185[*]	1
	sig. (2-tailed)	.016	
	n	170	170

***. correlation is significant at the 0.05 level (2-tailed).**

A correlation analysis was performed on the factor scores of the attitudes and knowledge dimensions. The result showed that there was a weak significant correlation between the faculty members' attitude and knowledge towards gifted students and gifted education ($r = .185$, $p = .016$). This result is surprising considering the previous studies which confirmed that faculty member attitudes towards giftedness is strongly related to their knowledge of giftedness (Alsamani, 2015; Almohamedi, 2012).

4- What demographic factors affect Saudi faculty members' attitudes regarding gifted students and their education in Saudi universities?

The factor scores extracted from the Confirmatory Factor Analysis were then used in the follow-up analysis (Please note that the scores used here are the factor scores and not the raw scores).

Gender

An independent sample t-test was performed on the faculty members’ attitudes towards gifted education and gifted students by their gender. Table (5) presents the independent sample t-test results at either .01 or .05 significance levels.

**Table (5)
Independent sample t-test of the faculty members’ attitudes towards gifted education and gifted students by their gender**

	female n = 77 m (sd)	male n = 93 m (sd)	t- value	p- value
attitudes towards gifted education and gifted students	-.109 (.645)	.090 (.651)	1.99	.048

As shown in Table (5), the *t*-tests result revealed that male faculty members (M=.090, SD= .651) reported higher attitudes towards gifted education and gifted students than female faculty members (M = -.109, SD =.645; $t[168] = 1.99, p = .048$).

Teaching Experience

ANOVA was performed on the faculty members’ attitudes towards gifted education and gifted students by their teaching experience. Table (6) presents the ANOVA test results. The ANOVA tests revealed a non-significant difference in the faculty members’ attitudes towards gifted education and gifted students by their teaching experience ($F[4, 165] = 1.012, p = .403$). In other words, faculty members with short and long teaching experience show similar attitudes towards gifted education and gifted students.

Table (6)
Faculty members' attitudes by their teaching experience

		sum of squares	df	mean square	f	sig.	post hoc
attitudes towards gifted education and gifted students	between groups	1.730	4	.432	1.012	.403	none
	within groups	70.481	165	.427			
	total	72.211	169				

University Affiliation

ANOVA was performed on the faculty members' attitudes towards gifted education and gifted students by their university affiliation. Table (7) presents the ANOVA test results. The ANOVA tests revealed a non-significant difference on the faculty members' attitudes towards gifted education and gifted students by their university affiliation ($F[2, 167] = .033, p = .968$). In other words, faculty members from the three universities show similar attitudes towards gifted education and gifted students.

Table (7)
Faculty members' attitudes by their university affiliation

		sum of squares	df	mean square	f	sig.	post hoc
attitudes towards gifted education and gifted students	between groups	.028	2	.014	.033	.968	none
	within groups	72.182	167	.432			
	total	72.211	169				

Position Rank

ANOVA was performed on the faculty members' attitudes towards gifted education and gifted students by their position rank. Table (8) presents the ANOVA test results. The ANOVA tests revealed a non-

significant difference on the faculty members’ attitudes towards gifted education and gifted students by their position rank ($F[4, 165] = .602, p = .662$). In other words, faculty members with different position ranks show similar attitudes towards gifted education and gifted students.

Table (8)
Faculty members’ attitudes by their position rank

		sum of squares	df	mean square	f	sig.	post hoc
attitudes towards gifted education and gifted students	between groups	1.038	4	.260	.602	.662	none
	within groups	71.172	165	.431			
	total	72.211	169				

College Classification

ANOVA was performed on the faculty members’ attitudes towards gifted education and gifted students by their college classification. Table (9) presents the ANOVA test results. The ANOVA tests revealed significant differences on the faculty members’ attitudes towards gifted education and gifted students by their college classification ($F[2, 167] = .7.908, p = .001$). The Tukey post hoc analysis showed that faculty members from theoretical colleges reported higher attitudes ($M= .0.091, SD= .559$) than those from applied colleges ($M= -.606, SD= .844$). Similarly, those from scientific colleges reported higher attitudes ($M= -.058, SD= .736$) than those from applied colleges ($M= -.606, SD= .844$). No other significant differences were found on the faculty members' attitudes by their college classification.

Table (9)
Faculty members' attitudes by their college classification

		sum of squares	df	mean square	f	sig.	post hoc
attitudes towards gifted education and gifted students	between groups	6.247	2	3.124	7.908	.001	theoretical > scientific > applied
	within groups	65.963	167	.395			
	total	72.211	169				

Family Members of a Gifted Individual

An independent sample t-test was performed on the faculty members' attitudes towards gifted education and gifted students by their perception of family members of a gifted individual. Table (10) presents the independent sample t-test results.

Table (10)
Independent sample t-test of the faculty members' attitudes towards gifted education and gifted students by their perception of family members of a gifted individual

	yes <i>n</i> = 76 <i>m</i> (<i>sd</i>)	no <i>n</i> = 94 <i>m</i> (<i>sd</i>)	<i>t</i> -value	<i>p</i> -value
attitudes towards gifted education and gifted students	-.005 (.703)	.004 (.615)	.088	.930

As shown in Table (10), the *t*-tests result revealed NO significant differences in the faculty members' attitudes of giftedness and gifted education by their perception of family members with giftedness $t[168] = 1.99, p = .930$.

Perception of Self-Giftedness

An independent sample t-test was performed on the faculty members’ attitudes towards gifted education and gifted students by their self-perception of giftedness. Table (11) presents the independent sample t-test results.

Table (11) Independent sample t-test of the faculty members’ attitudes towards gifted education and gifted students by their perception of self-giftedness

	yes <i>n</i> = 116 <i>m</i> (<i>sd</i>)	no <i>n</i> = 54 <i>m</i> (<i>sd</i>)	<i>t</i> - value	<i>p</i> - value
attitudes towards gifted education and gifted students	-.004 (.651)	.009 (.666)	-.123	.902

As shown in Table (11), the *t*-tests result revealed NO significant differences in the faculty members’ attitudes of giftedness and gifted education by their perception of self-giftedness $t[168] = -.123, p = .902$.

Giftedness Course Experience

An independent sample t-test was performed on the faculty members’ attitudes towards gifted education and gifted students by their experience of attending courses on giftedness. Table (12) presents the independent sample t-test results.

Table (12) Independent sample t-test of the faculty members’ attitudes towards gifted education and gifted students by their experience of attending courses on giftedness

	yes <i>n</i> = 50 <i>m</i> (<i>sd</i>)	no <i>n</i> = 120 <i>m</i> (<i>sd</i>)	<i>t</i> - value	<i>p</i> - value
attitudes towards gifted education and gifted students	.074 (.688)	-.031(.639)	.952	.342

As shown in Table (12), the *t*-tests result revealed NO significant differences in the faculty members' attitudes of giftedness and gifted education by their experience of attending courses on giftedness $t[168] = -.952, p = .342$.

Age

ANOVA was performed on the faculty members' attitudes towards gifted education and gifted students by their age. Table (13) presents the ANOVA test results. The ANOVA tests revealed a non-significant difference on the faculty members' attitudes towards gifted education and gifted students by their age ($F[3, 166] = 561, p = .641$). In other words, faculty members of different ages show similar attitudes towards gifted education and gifted students.

Table (13)
Faculty members' attitudes by their age

		sum of squares	df	mean square	f	sig.	post hoc
attitudes towards gifted education and gifted students	between groups	.725	3	.242	.561	.641	none
	within groups	71.486	166	.431			
	total	72.211	169	.			

5- What demographic factors affect Saudi faculty members' knowledge regarding gifted students and their education in Saudi universities?

The factor scores extracted from the Confirmatory Factor Analysis were then used in the follow-up analysis (Please note that the scores used here are the factor scores and not the raw scores).

Gender

An independent sample t-test was performed on the faculty members’ knowledge of gifted education and gifted students by their gender. Table (14) presents the independent sample t-test results at either .01 or .05 significance levels.

Table (14)

Independent sample t-test of the faculty members’ knowledge of gifted education and gifted students by their gender

	female <i>n = 77</i> <i>m (sd)</i>	male <i>n = 93</i> <i>m (sd)</i>	t- value	p- value
knowledge of gifted education and gifted students	-.046 (.905)	-.037 (.797)	.623	.534

As shown in Table (14), the *t*-tests result revealed that there is NO significant difference in the faculty members’ knowledge of gifted education and gifted students by their gender; $t[168] = .623, p = .534$.

Teaching Experience

ANOVA was performed on the faculty members’ knowledge of gifted education and gifted students by their teaching experience. Table (15) presents the ANOVA test results. The ANOVA tests revealed a non-significant difference on the faculty members’ knowledge of gifted education and gifted students by their teaching experience ($F[4, 165] = .997, p = .411$). In other words, faculty members with short and long teaching experience reported similar knowledge of gifted education and gifted students.

Table (15)
Faculty members' knowledge by their teaching experience

		sum of squares	df	mean square	f	sig.	post hoc
knowledge of gifted education and gifted students	between groups	2.853	4	.713	.997	.411	none
	within groups	118.063	165	.716			
	total	120.916	169				

University Affiliation

ANOVA was performed on the faculty members' knowledge of gifted education and gifted students by their university affiliation. Table (16) presents the ANOVA test results. The ANOVA tests revealed a non-significant difference on the faculty members' knowledge of gifted education and gifted students by their university affiliation ($F[2, 167] = .647, p = .525$). In other words, faculty members from the three universities show similar knowledge of gifted education and gifted students.

Table (16)
Faculty members' knowledge by their university affiliation

		sum of squares	df	mean square	f	sig.	post hoc
knowledge of gifted education and gifted students	between groups	.930	2	.465	.647	.525	none
	within groups	119.986	167	.718			
	total	120.916	169				

Position Rank

ANOVA was performed on the faculty members’ knowledge of gifted education and gifted students by their position rank. Table (17) presents the ANOVA test results. The ANOVA tests revealed there was a significant difference on the faculty members’ knowledge of gifted education and gifted students by their position rank ($F[4, 165] = 2.723, p = .031$). Faculty members with associate professor rank reported better knowledge of gifted education and gifted students ($M=.203, SD=.834$) than those with teaching assistant rank ($M= -.6736, SD= .813$). There is no other significant difference in the faculty members' knowledge of gifted education and gifted students by their position rank.

Table (17)
Faculty members’ knowledge by their position rank

		sum of squares	df	mean square	f	sig.	post hoc
knowledge of gifted education and gifted students	between groups	7.487	4	1.872	2.723	.031	
	within groups	113.429	165	.687			
	total	120.916	169				

College Classification

ANOVA was performed on the faculty members’ knowledge of gifted education and gifted students by their college classification. Table (18) presents the ANOVA test results. The ANOVA tests revealed NO significant differences on the faculty members’ knowledge of gifted education and gifted students by their college classification ($F[2, 167] = .422, p = .656$).

Table (18)
Faculty members' knowledge by their teaching experience
college classification

		sum of squares	df	mean square	f	sig.	post hoc
knowledge of gifted education and gifted students	between groups	.608	2	.304	.422	.656	none
	within groups	120.308	167	.720			
	total	120.916	169				

Family Members of a Gifted Individual

An independent sample t-test was performed on the faculty members' knowledge of gifted education and gifted students by their perception of family members of a gifted individual. Table (19) presents the independent sample t-test results.

Table (19)
Independent sample t-test of the faculty members' knowledge of
gifted education and gifted students by their perception of family
members of a gifted individual

	yes <i>n</i> = 76 <i>m</i> (<i>sd</i>)	no <i>n</i> = 94 <i>m</i> (<i>sd</i>)	<i>t</i> -value	<i>p</i> -value
knowledge of gifted education and gifted students	.029 (.808)	-.023 (.879)	.395	.693

As shown in Table (19), the *t*-tests result revealed NO significant differences in the faculty members' knowledge of giftedness and gifted education by their perception of family members with giftedness $t[168] = .395$ $p = .693$.

Perception of Self-Giftedness

An independent sample t-test was performed on the faculty members’ knowledge of gifted education and gifted students by their perception of self-giftedness. Table (20) presents the independent sample t-test results.

Table (20)

Independent sample t-test of the faculty members’ knowledge of gifted education and gifted students by their perception of self-giftedness

	yes <i>n</i> = 116 <i>m</i> (<i>sd</i>)	no <i>n</i> = 54 <i>m</i> (<i>sd</i>)	<i>t</i> - value	<i>p</i> - value
attitudes towards gifted education and gifted students	.013 (.848)	-.028 (.848)	.291	.771

As shown in Table (20), the *t*-tests result revealed NO significant differences in the faculty members’ knowledge of giftedness and gifted education by their perception of self-giftedness $t[168] = .291, p = .771$.

Giftedness Course Experience

An independent sample t-test was performed on the faculty members’ knowledge of gifted education and gifted students by their experience of attending courses on giftedness. Table (21) presents the independent sample t-test results.

Table (21)

Independent sample t-test of the faculty members’ knowledge of gifted education and gifted students by their experience of attending courses on giftedness

	yes <i>n</i> = 50 <i>m</i> (<i>sd</i>)	no <i>n</i> = 120 <i>m</i> (<i>sd</i>)	<i>t</i> - value	<i>p</i> - value
attitudes towards gifted education and gifted students	.208 (.798)	-.086(.854)	2.086	.038

As shown in Table (21), the *t*-tests result revealed a significant difference in the faculty members' knowledge of giftedness and gifted education by their experience of attending courses on giftedness $t[168] = 2.086, p = .038$. Faculty members with experience of attending giftedness courses reported better knowledge of giftedness ($M = .208, SD = .798$) than those with no experience in attending giftedness courses ($M = -.086, SD = .854$).

Age

ANOVA was performed on the faculty members' knowledge of gifted education and gifted students by their age. Table (22) presents the ANOVA test results. The ANOVA tests revealed NO significant difference on the faculty members' knowledge of gifted education and gifted students by their age ($F[3, 166] = 2.25, p = .084$). In other words, faculty members of different age show similar attitudes towards gifted education and gifted students.

Table (22)
Faculty members' knowledge by their age

		sum of squares	df	mean square	f	sig.	post hoc
knowledge of gifted education and gifted students	between groups	4.731	3	1.577	2.253	.084	none
	within groups	116.185	166	.700			
	total	120.916	169	.			

Discussion

This study aimed to investigate faculty members' attitudes and knowledge of gifted students and their education in Saudi universities. The results indicated that faculty members at Saudi Universities held slightly positive attitudes ($M= 3.55$, $SD= .59$) towards gifted students and their education at the university level. This study found similar results to other studies conducted in K-12 settings in Saudi Arabia (Alsamani, 2015; Almohamedi, 2012). However, this study revealed results regarding university settings where faculty members' attitudes stood ambiguous. Gifted education at universities is still considered modest compared with general education in K-12 settings where there are more programs for the gifted. Thus, faculty members holding positive attitudes is a critical initial step that must be met to develop a supportive positive environment in Saudi universities.

However, when we compare faculty members' attitudes towards gifted students ($M= 3.55$, $SD= .59$) and their attitudes towards gifted education ($M= 3.55$, $SD= .59$), we found a significant difference in favor of gifted education. This indicated that they were more aware of the importance of gifted education that they hold higher positive attitudes toward it. Having lower scores in attitudes towards gifted students indicated that their understanding of the characteristics and needs of gifted students is inadequate. Faculty members need training regarding gifted students to develop a better understanding of their cognitive and psychological characteristics so that they could develop better attitudes toward them. Surprisingly, male faculty members held significantly higher attitudes than females. Previous studies within the Saudi context in K-12

settings (like) found no differences between male and female teachers' attitudes. In addition, faculty members from theoretical colleges (mainly from the college of education) showed statically better and more positive attitudes towards gifted students and their education. This can be linked to their background in humanities since where they are more involved in educational psychology and the special needs of students.

The data analysis showed that faculty members at Saudi universities reported they have an above-average level of knowledge of gifted students and their education ($M= 3.59$, $SD= .92$). However, when investigating the demographic variables, we found that those faculty members who have taken courses in gifted education are statically more knowledgeable than those who have not received courses in gifted education. This is an expected result that emphasized the importance of providing courses in gifted education for faculty members to better serve gifted students at Saudi universities.

Implications for Practice and Future Research

This study provides several implications for practices and future research. Faculty members demand courses and training regarding the characteristics of gifted students, their needs, and gifted education in general. Training is important as this study found that when the knowledge level increases, faculty members are more likely to develop better attitudes toward gifted students and their education. Developing positive attitudes is critical since gifted students spend most of their time in universities in classes with faculty members. Thus, those individuals are strongly in need to develop their knowledge and skills to better support gifted students. Faculty members also need to learn how to better build a positive

environment that supports creative and high-order thinking for gifted students. In Addition, Saudi universities should develop their curricula and courses to make them more flexible, hands-on, enjoyable, and challenging for gifted students and all students. Collaboration between faculty members and the gifted education services provider at the university is needed.

Recommendations for future research include the need for qualitative studies to collect in-depth information about faculty members' views and experiences of teaching gifted students in universities. Exploring the challenges they face and their needs to provide flexible and more challenging education for gifted students is needed. Conducting a study with larger samples with enough samples for each sub-group is recommended. Researchers should focus on gifted students' voices and views about developing better and supportive education in Saudi universities.

Limitations of the study

Finally, some limitations in this study need to be addressed. The main limitations are linked to the research sample. Although the total number of respondents was adequate, a larger number of respondents is advised particularly when several sub-groups are considered. The sample of this study was representative of the distributions of gender and colleges, a voluntary response bias is still expected as the questionnaire was voluntary and faculty members with an interest in gifted education are more likely to participate than faculty members without interest. Therefore, there should be caution when interpreting the research results. The sample included only four Saudi universities which is considered another limitation of this study.

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