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The Readiness of Teachers of Gifted Female Students toward the Application of Differentiated Education

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Abstract. The current study aims to identify the readiness of teachers of gifted female students toward the application of differentiation education and its methods by unveiling the perceptions of teachers' needs for the gifted in the study area of Saudi Arabia. As such, the study adopted qualitative approach using semi-structured individual interviews as a tool. Open-ended questions were initially designed for this purpose. Twelve teachers from schools in the eastern region of the Kingdom of Saudi Arabia (KSA) were interviewed. Qualitative data were analyzed via coding and classification processes. The results revealed two major categories and subcategories of teachers' perceptions of the issue. The primary perceptions included attitudes and awareness of educational practices that support differentiation. The subcategories also had similar perceptions of those domains. The results also revealed that the needs were divided into three major categories: training, educational environment, and organizational. In light of the analysis of the results, the researchers presented several recommendations that might be used to upgrade teachers' readiness to apply differentiation. The foremost of these recommendations is the need for continuous and intensive professional development directed to all workers in the field of gifted caring and to support scientific research conducted in the domain of education.

Keywords: differentiation; gifted caring needs; perceptions; readiness; teachers of the gifted

1. Introduction

Education practices and applications related to the education of the talented are given greater interest these days because they improve the quality of teaching. The important role gifted students play in supporting the economy and triggering development has prompted the search for the best education methods propitious for the nature and needs of such students.

Gifted students are individuals who exhibit exceptional abilities or talents in specific domains compared to their same-age peers (Colangelo & Davis, 2003). These abilities can encompass a wide range of areas, including intellectual, creative, academic, artistic, athletic, or leadership capacities. Gifted students often display advanced cognitive skills, such as abstract thinking and problem-solving (Neihart et al., 2002). Their exceptional creativity and originality in artistic or scientific pursuits are characteristic (Feldhusen et al., 2011). In educational settings, gifted students frequently achieve significantly higher academic results than their peers (Robinson & Noble, 1991), and they may exhibit a deep passion for specific subjects or areas of interest (Gardner, 1983). Their ability to learn rapidly and their advanced language skills, including extensive vocabularies, further distinguish them (Gross, 2003). Giftedness extends beyond traditional academic aptitude, encompassing a diversity of talents and abilities that require specialized educational support and opportunities (National Association for Gifted Children, 2018).

The interest in the educational practices of this group conforms to the aspirations of the Ministry of Education (2020), which endeavors to develop curricula and teaching methods that secure a good education for all groups to ensure quality and enlighten them as to the essential role they play in upgrading education levels, and entail items of the Arab Strategy for Giftedness and Creativity in Public Education (2009), items of the (2030) Vision of KSA, and the National Transformation Program.

The Kingdom of Saudi Arabia has a National Program for Gifted Identification that aims to identify gifted students in the fields of science and technology. The program is implemented by expert national authorities with qualified personnel in this field, including Mawhiba, the Ministry of Education, and the National Center for Measurement. The program uses standardized tools and standards to identify gifted innovators with an advanced scientific methodology based on the most important scientific foundations and educational best practices (Alfaiz et al., 2022).

The program's objectives include developing an integrated system and comprehensive methodology to identify gifted students, equity in selecting gifted students and directing them to a suitable care program, building a comprehensive and detailed database for gifted students in the Kingdom, contributing to inform the community as to the characteristics of the gifted and the importance of their identification, and contributing to the enrichment of scientific research and the Arabic library in the area of gifted identification (Al Qarni, 2010).

Scientific studies and educational literature have pointed out that traditional curricula and teaching practices failed to satisfy the various needs of the gifted. Therefore, they should be developed to secure diversified sources that meet such groups' different capabilities and needs as a first step toward creating propitious educational practices for the gifted (Bushie, 2015; Kaplan, 2009; Noubi, 2010).

Noubi (2010) indicated that some educational practices, and methods of developing teaching techniques, besides sponsoring the gifted, were weak.

Several studies have classified educational practices and applications that enhance the educational process and improve outcomes into categories, including differentiated education. This type helps create a comprehensive educational environment through which differentiated education for a variety of students be realized. Various studies (Burns et al., 2010; Lencastre et al., 2020; Morgan, 2014; Nikola, 2014; Santamaria, 2009; Tatum, 2011; Tomlinson, 2017) have also confirmed that differentiated education has been given great interest in many international platforms that emphasized taking into consideration differences among gifted students and the need to diversify curricula and teaching methods, providing the gifted with the education that better suits their identities, different capabilities, and interests.

Yuen et al. (2018) proved that differentiated education is one of the most essential techniques that satisfy gifted students' classroom needs. This supports Jugheiman (2018) who said that differentiation is a vital tool that reinforces students' capabilities with diversified talents. Studies have also confirmed that such type of education positively affects motivation and increases the academic achievement of the gifted, self-confidence, and self-respect (Nikolaeva & Synekop, 2020). It also provides a platform for inventiveness and constant thinking that consolidates teaching and learning, which traditional methods cannot provide (Leonidas & Mary, 2011).

It is noted that schools have been going through changes and continuous updating in teaching the gifted, as seen in dealing with individual differences through differentiated teaching, which has become more acceptable and implementable. Thus, teachers are expected to deal with students' differences, needs, and types (Norwali & Gharib, 2022).

In regard to this issue, the Arab Center for Educational Research of the Gulf States (2020) referred to the significant role of the teacher, which the ministry aims to develop skillfully and cognitively through modern techniques of teaching that will be reflected in students' level, being an essential element in the process of teaching. Therefore, the Commission for Training and Education Assessment (2020) laid down standards for teachers of the gifted to build training programs on. Those programs were developed according to the most updated standards and practices approved by the specialized academic societies and by world universities that provide programs in teaching the gifted, and differentiated teaching strategies were among such standards (Commission of Training and Teaching Assessment, 2020).

Dixon et al. (2014) and Van Geel et al. (2018) proved that qualifying teachers for differentiated teaching is an urgent need for the success of the educational process. Teachers' competence is important for implementing differentiated education because it requires higher skills, proposes integrated rich units preceded by a pre-evaluation process that includes a formative evaluation, and

ends with a similar one to find out what percentage of the needs of gifted students have been met. Therefore, several research works have focused on teachers' proficiency and professional level because those impact success and efficacy of differentiated teaching (Handa, 2020; Watts-Taffe et al., 2012).

Applying differentiated teaching by teachers dictates improving their teaching skills to be able to plan the curriculum and practice teaching in a way that suits the various needs of gifted students and retains aspects of the gifted curricula regarding acceleration, complication, depth, challenge, creativity, and abstraction, these being the significant features of differentiated activities of the gifted (Linn-Cohen & Hertzog, 2007). Differentiated education is important for teaching students in general and for teaching the gifted in particular (Deunk et al., 2018).

The constant changes and transformations in differentiated teaching dictate conducting more studies and research in the domain of gifted teaching, as the issue still requires research to study the actual status in different ways to identify the needs of the gifted so as to keep pace with the development of educational practices that meet these needs. This issue was confirmed by the Arab Seventh Conference on Qualitative Teaching and Creativity Development (2014) and by both Juheimi (2014) and Areeni (2017).

Switching to differentiated education requires many studies on qualifying teachers and developing their professional skills with regard to active practices based on research to meet the numerous needs of the gifted (Freij & Qahtani, 2021). Ghamdi (2019) and Lawati (2019) revealed that some teachers did not prefer differentiated teaching when providing cognitive knowledge to students. However, a few of them adjusted and developed their practices to meet the needs of the gifted through differentiated teaching.

in their study, Huleisi and Sharif (2012) pointed out that teachers in KSA need further development in the domain of applying various educational strategies that take into account individual differences, one of the challenges that teachers of the gifted encounter (Van Geel et al., 2018; Van Tassel-Baska & Stambaugh, 2005).

Most educational studies recommend training teachers on successful educational practices before and during service, among which is differentiated teaching. This requires drastic changes in their teaching behavior to overcome the challenges in relation to classroom practices. In this way, teachers create educational situations for gifted students and provide appropriate education according to learning patterns, readiness, and preferences. Thus, they meet students' various needs through the teaching process and achieve the targeted learning outcomes (Ellis et al., 2007; Louzi, 2017).

In addition to what has been previously stated, through their experience, this study's two researchers noted that teachers of the gifted direly need to develop themselves in modern and active educational practices that meet the various

needs of the gifted in classrooms. As such, the current study attempts to unveil readiness toward applying differentiated education.

1.1 Study Questions

The study's central question is: "Are teachers of gifted female students ready to apply the differentiated education framework to different education levels? The following two sub-questions derive from it:

- 1- What perceptions do teachers of the gifted have toward applying differentiated education from their perspective?
- 2- From their perspective, what do these teachers need to apply differentiated education?

1.2 Study Objectives

The objectives echo questions of the study, as it tries to identify teachers' readiness to apply differentiated education to the primary stage by identifying their perceptions and needs to apply that type of education.

1.3 The Significance of the Study

The significance of the study stems from the position of the participants, who are teachers of the gifted for whom the trend in the KSA is to care for them and to upgrade their academic and educational levels by developing the teachers themselves. The significance also lies in the study's matching with educational theories that call for adapting educational situations, considering students' qualities and differences. Theoretically, the study matches the modern and educational orientation that aims to improve education quality. The study also might enrich the literature on gifted teaching as well as trigger ideas for further research that might benefit researchers and educators concerning differentiated teaching of gifted students' programs.

The study also identifies needs and finds solutions to achieve differentiated education in its correct form. In addition, it provides opportunities for professionals and researchers in the field of giftedness to conduct further studies as well as motivates people in charge of teaching the gifted to focus on training programs to develop curricula to cope with principles of differentiated learning.

2. Study Methodology and Procedures

2.1 Methodology

The study adopted a qualitative approach based on personal experience (phenomenology) to obtain a deeper understanding of issues relevant to the subject of the study, to provide a wider area for listening to participants of the study, and to learn about individuals' self-experiences relevant to the phenomenon being studied (Abdul Karim, 2019; Denzin & Lincoln, 2017). This approach enables participants to present their opinions and propositions more comprehensively, providing details that lead to a deeper understanding of the phenomenon discussed as the researcher becomes closer to the participant (Abdul Karim, 2019).

2.2 Informants

Twelve teachers were selected from public schools according to purposive sampling. The teachers experienced teaching the gifted and were ready to volunteer to achieve specific standards. The strategy adopted allows the selection of qualified participants to secure the required data, which will add to the study's quality and cognitive depth (Padgett, 2016; Robinson, 2014). The snowball sampling strategy was also used; the participants referred the researcher to other teachers with gifted caring experience. Thus, they acted as a link between them (Creswell & Poth, 2018). The participants were selected according to the following criteria; they should have experience in gifted caring, taught three-school levels: primary, intermediate, and secondary, have experience of four years or more, have a specialization, and finally, teaching levels.

The criteria used could provide the researchers with more comprehensive and diversified data propitious for the nature of the study. Table 1 provides preliminary data about participants through coding instead of stating the name openly for the sake of confidentiality, in compliance with the ethics of the research, so the letter (P) is used to stand for "participant."

Table (1): Information about participants

Participants	Specialization	Years of experience	Educational level
P1	Mathematics	6	Secondary
P2	Social Education	15	Primary
P3	Science	5	Secondary
P4	Arabic language	17	Intermediate
P5	English language	14	Intermediate
P6	Mathematics	7	Secondary
P7	Mathematics	12	Intermediate
P8	Science	22	Primary
P9	Islamic Studies	18	Primary
P10	Science	5	Secondary
P11	Education	18	Secondary
P12	English Language	9	Intermediate

2.3 Study Tool

Interviews

This method is mainly used in qualitative research to collect data because it can help absorb concepts, meaning, and the circumstances in which individuals live. It also helps individuals to express their feelings and opinions in an extensive way which provides a variety of contributory interpretations. The researchers used semi-structured interviews whereby they specified the exact questions to be addressed to participants to get numerous responses.

The interviews were conducted with those who were willing to participate, either face-to-face or via phone. Questions were sent to an exploratory sample (two teachers) to take their opinion on the suitability of the questions to field realities, and the duration of the interviews ranged between 20-40 minutes. The application took about one month. The questions included several open-ended

questions on the participants' readiness to apply differentiation methods and strategies. Sub-questions were also included, pending their answers.

Interviews were conducted individually. Initially, preliminary questions were asked to create a familiarity between the researchers and the study participants, and to learn about their experiences, such as introducing themselves and their field of expertise in education in general and in teaching differentiation, which is the field of study; After that, a number of open-ended questions were asked, and sub-questions were branched out based on the participants' answers. They were asked about their opinion of differentiated education from their point of view and to what extent is it applied realistically in the classroom. They were also asked about the teaching practices that support differentiation, which they see as important according to their field experience. A final question was asked regarding their needs for implementing differentiated education, whether training needs, classroom environment, or organizational needs. These open-ended questions were divided into sub-questions based on their answers to delve deeper and understand the phenomenon more accurately.

2.4 Study Validity

The researchers used several methods for collecting and analyzing data to verify the study's validity, as elaborated on by Abdul Karim (2019). These are outlined in the following:

First: Credibility: It is synonymous with internal consistency in quantitative research and indicates that its results correctly reflect the reality of the case discussed. It is one of the most important factors that guarantee validity (Connelly, 2016). To verify the credibility of the study, the two researchers observed the following:

- 1- Targeting more than one participant to obtain data from various sources of different specializations and schools (Creswell, 2019). This is one type of triangulation for employing participants from various organizations or educational backgrounds.
- 2- Reconsidering the data after three weeks of the initial analysis, then reconsidering them after two months to achieve a more accurate analysis.
- 3- Using handwriting and voice recording in collecting data. The recordings were reviewed many times to ensure the correct writing of words articulated by participants and to avoid misinterpreting participants' conclusions (Abdul Karim, 2019).
- 4- Presenting answers to participants to take their opinion and comments to ensure member check; one of the steps taken to reinforce the credibility of the qualitative research (Creswell & Poth, 2018).

Second: Dependability: The term is synonymous with reliability in quantitative research.

In qualitative research, the term indicates that the method researchers adopt matches what other researchers do in other studies. To verify the reliability of the study, the researchers explained, in detail, the study procedures clearly and transparently, which made it easy for them to review all details of the study, thus, enabling any other researcher to repeat the study to come to similar

results and review the data collected from participants without any confusion at the coding stage (Shenton, 2004).

Third, **Confirmability**: This is synonymous with objectivity in quantitative research. Confirmability is considered the suitable criterion for qualitative studies because it confirms the general results derived from the research (Abdul Karim, 2019). To achieve that, the two researchers followed the recommendations of Creswell (2014, 2019) and Abdul Karim (2019) with the help of an expert not specialized in qualitative research and another specialized in gifted caring of the External Auditors Strategy. This was done to detect the validity and accuracy of the analysis as well as the results to ensure that the subjects were in a position to give judgment or that whatever was reached was able to verify the researchers' conclusions and to find whether or not they matched with other reviewers' opinions. Samples of evidence and citations from participants' responses were used to build the main and subtopics to interpret the study results.

2.5 Procedures

The study procedures are as follows: (1) Reviewing the literature on education associated with differentiated learning of the gifted. (2) Determining the sample appropriate for the study variable. (3) Building interview questions after inquiring relevant literature. (4) Contacting people in charge who are linked to the subject and targeted sample to facilitate application procedures. (5) Applying that to the targeted sample and analyzing qualitative interview data. (6) Eliciting results and explaining them in light of previous studies. (7) Concluding with a set of recommendations.

2.6 Timeline

1. **Literature Review:**
 - Start Date: January 1, 2023
 - End Date: February 28, 2023
2. **Participant Selection:**
 - Start Date: March 1, 2023
 - End Date: March 15, 2023
3. **Interview Question Development:**
 - Start Date: March 16, 2023
 - End Date: March 23, 2023
4. **Conducting Interviews:**
 - Start Date: March 24, 2023
 - End Date: April 24, 2023
5. **Data Analysis:**
 - Start Date: April 24, 2023
 - End Date: May 30, 2023
6. **Drawing Conclusions and Recommendations:**
 - Start Date: May 30, 2023
 - End Date: July 15, 2023

2.7 Data Analysis of the Study

Analyzing the qualitative data was done using the methodology explained in Table 2.

Table (2): Steps of qualitative data analysis

NO	Stage	Procedures	Those responsible
1-	Data collecting	Collecting data by interviewing teachers of the gifted and coding their names for confidentiality was done.	The first author
2-	Coding and classifying	Applying the thematic analysis by coding and searching for key ideas based on it. To achieve that, the data were examined several times for accurate coding, after which axial themes were classified.	The second author
3-	Examining Data	Coding and classification were reexamined after the initial process. In case of an error in the previous process, data were reanalyzed and reclassified by the best coding and classification.	The first author
4-	Data outlining	Data were outlined. Themes and codes were presented through a table that explains all data reached by three axes.	The first author
5-	Correlating results to evidence	At this stage, conclusions, codes, and themes reached were recorded. Results were supported by citations from teachers' interviews and were included between quotation marks in italics.	The first author And The second author

2.8 Data Triangulation

Triangulation is a methodological approach that involves corroborating findings through multiple data sources or methods. In our study, triangulation involved not only using semi-structured interviews with teachers but also implementing member checks, revisiting data at different intervals, and involving external auditors. Member checks allowed us to validate our interpretations by sharing our findings with the participants, ensuring that their perspectives were accurately represented. Additionally, revisiting data after initial analysis and involving external auditors, including experts in gifted education, contributed to the robustness of our results. These strategies helped safeguard against bias and provided a multi-faceted view of the research topic, enhancing the overall credibility and validity of our study.

3. Study Results and Discussion

The application procedures taken by the researchers concerning the obtained results regarding the readiness of gifted teachers to apply differentiated education were incorporated in one theme and included in the first research question: perceptions of teachers of the gifted toward applying differentiated teaching.

These teachers' perceptions are reflected in their attitudes toward and awareness of the significance of using differentiated teaching. Lewis (2001) defined perception as a mental stance built on what the senses reach. He also pointed out that perception consists of three basic elements that must be available from the

perception. The first is the person who perceives, in this study, the teachers, the second is the perceived object of differentiated learning, and the third is the gifted classrooms. These three elements profoundly affect perception. Based on the data collected, the perceptions are classified into two correlated topics: attitudes and awareness of teaching practices supporting differentiation.

A- Attitudes:

These are the main instigator of human behavior and action, which significantly affects the value attitude of the individual and society. Boyle et al. (2020) defined it as “fixed beliefs about what is correct.” Midhesh (2022) pointed out that situations and attitudes are internal and stem from values reflected by how individuals behave and their reactions to events and phenomena.

Many study participants (P1, 4, 6, 7, 8, 12) confirmed that differentiated teaching is essential, from their viewpoint, after attending courses on a relevant educational practice. P4 declared, “I enjoyed applying differentiated teaching which I applied on outcomes; every student chose whatever suited her whether that was artistic, technical, or written; thus, we got a mini exhibit.” P8 commented, “I see that this practice is flexible, positive, and helpful to students.” The responses revealed a desire to accept positive attitudes toward applying differentiated teaching.

Several students confirmed the importance of attitudes in the success or failure of any applied practice in the field of education. Teachers’ values and attitudes play a significant role in demonstrating practices of differentiated education and other practices in the classroom or school in general (Salovlita, 2020). Tantawi and Ghamdi (2020) mentioned that positive attitudes and satisfaction with modern educational practices might help to accept and apply them in a better and more active manner. Further, Midhish (2022) mentioned that attitudes usually correlate to concepts rooted in some of the concerns; they are concepts of expectations toward the group that has already been dealt with. In other words, if the expectations are high, then attitudes will also be high. In general, the attitudes in this study toward differentiated education of the gifted were high. This might be traced back to the caring that the Ministry of Education shows in applying the Vision 2030 of the Kingdom, which focuses on education quality and the application of modern techniques in teaching and caring for giftedness, innovation, and improving systems and education outcomes, in addition to compliance with applying the criteria by teachers of the gifted prescribed by the Commission of Evaluation and Training. Such an outcome agrees with Jarrallah (2006), Malki and Khawldi (2019) and Merawi (2020) who concluded that teachers bore great expectations and positive attitudes toward gifted students. Woodcock and Hitches (2017) referred to the significance of implications of the expectations and attitudes of teachers, which should be increased through awareness and training. The results of teachers’ expectations and attitudes influence their treatment and practices, eventually affecting student performance.

There is another aspect linked to the attitudes and preferences of teachers of the gifted, which makes them prefer some methods of differentiation to others; these are what the teacher opts for. Benjamin (2003) defines them as a set of diversified methods of differentiation that consider students' educational needs with reference to learning patterns and participants' attitudes toward differentiation. For example, P7 stated that they "prefer that the students choose the product as they want; I assign several tasks and ask them to choose, then divide them into groups according to their preferences." Such an attitude agrees with that of P10, who stated that "after every course together with the students, I make a mini gallery and every group displays what it has the way they like, I observe their enthusiasm toward that." The differentiation among them might be caused by content, but this is prescribed in the approved curricula by the state. Therefore, it cannot be changed by teachers. In this case, differentiation may be in the presentation method (Bender, 2008). The attitude of the previous teachers toward product differentiation agrees with what Bender and Waller (2011) noted about applying differentiation that allows students to choose the task that suits them to check their knowledge. Some students might opt for role-playing, plays, drawing, models, or PowerPoint presentations. P3 mentioned, "I found difficulty in applying strategies like the diversified intelligence strategies, different tasks, students' division into groups, and that takes time. However, when I saw their enthusiasm, I divided them at the beginning of the semester. I switched groups at the middle of the semester to allow them to benefit more from each other." The aforementioned agrees with what Tomlinson (2017) reported regarding the importance of giving the student options and tasks that concern them or according to the teaching method they prefer, because that helps them understand any idea through the pattern of learning they prefer so as to apply differentiation well. P10 said, "I care about giving a pre-test to my students as that helps me identify their levels. At the beginning of each semester, I get to know my students, their goals, and the projects or tasks they prefer, which helps me identify their types and abilities." This agrees with Freeman's (2015) comment on the importance of the pre-test, a principle of applying differentiation properly.

The preceding results agree with Launder (2011) who recommended providing diversified tasks propitious to students' inclinations and abilities, and the study by Mullin (2015) which also tackled the issue of pre-test to differentiate teaching. Generally speaking, the previous data revealed that the awareness of gifted teachers of differentiation and its numerous methods could be considered a reflection of good preparedness and training in the domain of differentiated teaching, starting with a pre-test and strategy application and ending with flexible groups and diversified tasks and products. That might also be attributed to the mechanism of selecting teachers of the gifted who were well-prepared and qualified and received good training in the domain of differentiated teaching. These results agree with those by Gatling (2015), which pointed out that teachers' attitudes toward teaching strategies which met students' various needs were positive, while Mengestie (2020) indicated that teachers had propitious knowledge of differentiated teaching where processes of differentiation ranked first, followed by differentiation methods. Despite the

positive attitudes toward differentiation and teachers' application of differentiation methods, some challenges and negative attitudes hindered application. P4 said, "I found it difficult to cooperate with school administration about diversifying educational environment like using schoolyard." This attitude was reinforced by P1, who said, "Using technology often consumed time, and the syllabus was long." This result agrees with studies by Corley (2005) and Louzi (2017), who pointed out that some challenges still stood in the way of applying differentiated teaching. These were classes with short time and intensive curricula; some participants were also unwilling to move to content differentiation. School regulations should be flexible to change class environment and educational corners to apply differentiation in a good and active manner and to overcome difficulties and challenges. P8 said they benefited from outside class gatherings. Curricula planners and teachers should be conversant with available options to develop an integrated class environment matching the intellectual, social, and emotional products their students need (Jugheiman, 2018).

B - Awareness of teaching practices supportive of differentiation:

Teaching practices that support differentiated education vary, with Glass (2011) mentioning care centers, learning contracts, learning corners, mutual teaching, learning platforms, and tiered activities. The results of individual interviews of the current study revealed some teaching practices that help to apply differentiated education from the perspective of students' teachers., namely: thinking skills, graded activities, individualizing learning and tasks, and orbital studies.

Results of the interviews also showed that thinking practices were used. P12 said, "I always tried to integrate thinking skills with problem-solving and present them to my students. I got that experience from the courses offered by a number of training centers." In interviewing P1, she said, "My thesis was on self-organized learning. Therefore, I encouraged the students to learn more about any topic and present that to their colleagues." Kaplan (1993) pointed out that limiting thinking skills as to the experience of curricular learning or the learning objective contributed to curriculum differentiation of gifted students in terms of teaching experience differences presented to all students (Jugheiman, 2018).

This kind of practice is appropriate for all male and female teachers, as integrative thinking skills occur through differentiated processes and strategies. The Ministry of Education offers a number of courses associated with teaching strategies that are easy to apply because the presented curricular content does not need adjustment. P8 mentioned that she applied all skills associated with Bloom's Pyramid, which are based on recollection, understanding, application, analysis, assessment, and creativity. Kaplan (2009) emphasized Bloom's Pyramid's efficacy in guiding gifted teachers to choose propitious skills. In this respect, Salameh (2018) noted the importance of integrating thinking methods and problems into courses set for the gifted to achieve differentiated education.

One of the items of teachers' criteria for the gifted set by the Saudi Commission for Training and Education Assessment (2020) includes designing a differentiated approach to education strategies that supports research, thinking skills, self-learning, discussion, and debate. This emphasizes applying differentiated teaching practices and thinking skills to the gifted. This meets their numerous needs and offers various exciting methods in which the gifted use their mental, intellectual, and advanced personal skills.

Interview results also unveiled practices of tiered activities that cared for the diversity of the tasks assigned to students of the same academic content with various degrees of complexity and difficulty propitious for the abilities of each. The tiered tasks, sometimes called (layer activities), challenge the gifted and trigger their thinking (Dodge, 2005). P6 said, "Through Kahoot program, I several times applied a tiered competition with different levels of difficulty; the social interaction among students was quite visible." When asked about how long that lasted, she answered; "I mostly applied it through the platform of my school. It helped me much, but I didn't do that incessantly to not alienate the students from the course." Nafeesah and Natheer (2018) confirmed that tiered activities helped students achieve success, increase their self-confidence, and improve relations among themselves.

Tomlinsom (2017) also confirmed that using tiered activities was very important as students of different cognitive and skill levels were combined. Therefore, no single educational activity could be given to them. It was assumed that, in such a case, a multi-level activity should be designed for them to ensure that every student achieved the aspired goal. Hussein (2021) pointed out that practices that could achieve active learning for gifted students were the tiered ones. Thus, they became active participants in education.

The activities give them chances to develop independence and thinking by playing an active role in the learning process and empowering them to obtain knowledge by themselves.

Interview results revealed some practicing aspects of individualization learning, which are a set of procedures to control the teaching process where the student gets involved with learning tasks propitious to his or her exceptional abilities of mental and cognitive levels. The aim of individualization is to harness and adapt learning and to present information in different ways that give the learner the freedom to choose the activity propitious for them regarding past background knowledge and type of learning. This is done to realize the desired objectives under the limited supervision of the teacher (Caldwell, 2012; McGee, 2018). P2 commented, "Every student needs tasks that suit her needs, but I prefer to apply that to groups, not individually, because working with every student in isolation is time-consuming." Such an attitude agrees with that of Boyle et al. (2013) who confirmed that teachers fear adapting and modifying teaching techniques for each student. In addition, participating teachers differ in experience; some do not have more than five years of experience. This might be one of the reasons for not applying some practices.

Interview results regarding practices of the orbital studies, which involve students' complete dependence on themselves, revealed that they wanted to increase their knowledge of the themes of the course (Stevenson, 2001). One of the participants (P5) mentioned that she asked her students to choose a part of the course and expand it by conducting research. At the end of the semester, she assigned two meetings to discuss the students' work; she found that such work increased their knowledge and provided them with self-confidence. This attitude was confirmed by P1, who also assured that scientific research augmented students' knowledge by which they exchanged information among themselves. All these results agree with what Stevenson (2001) revealed about the positive aspects of the method of orbital studies, among which is satisfying the curiosity of students with high potential. They have found curriculum contents too superficial to satisfy their cognitive curiosity.

Thus, the orbital studies broaden the content for them longitudinally and transversely. They also enhance learners' motivation and prevent boredom. Such things may be attributed to the easy application of this practice as it does not affect school classes. Embedded teaching helped students meet their peers online to complete the orbital studies. Potts and Potts (2017) found that, through learning classrooms which were run online, the gifted could meet with their friends to complete research, share, and exchange ideas.

Generally speaking, and according to the previous data, it was noted that teachers were aware of the teaching practices that supported differentiated teaching. Although there were differences in orientation toward that, teachers agreed on the benefits expected to be gained from applying those practices which contribute to learning improvement (Salem, 2016). The interviews also revealed that the participant was scared of applying teaching individualization through differentiated teaching methods. This result copes with what the current study concluded: a number of gifted teachers did not individualize teaching because, from their viewpoint, time was short. The study by Rabee (2020) also unveiled that individualizing teaching needs to meet every student's needs but is sometimes difficult because the capabilities and preferences of gifted students are very different.

Major theme of the second question: Needs for teachers of the gifted to apply differentiated teaching from their perspective

The set of changes that teachers of the gifted need correlate to knowledge, skills, and experience, besides training and organizational needs related to the school environment, which helps them complete teaching tasks and achieve sufficient productivity. Shawq and Mahmoud (2001) defined that, for its completion, information, skills, trends, and knowledge needed to be changed or modified to meet organizational, technological, or humane changes to solve extant or anticipated problems. Osama and Jamal (2016) showed an interest in the theme of teacher's needs because that helps determine the objectives of training programs, eventually laying a scientific basis for a training program. It also determines the type of training needed, identifies reasons behind low performance, and determines the starting point for training, techniques, tools,

and materials. That effectively leads to increased trainees' interest in the training program. In addition, it helps identify the viewpoint of teachers about the most important sources and tools they need for their work. According to the data, the needs might be classified into three correlated topics: training, educational environment, and organizational needs.

A- Training Needs:

Training teachers is one of the fundamental factors of development in various fields. Therefore, developing institutions to achieve their goals dictates training their employees. Among such institutions is the educational one, which needs human power with specific intellectual, psychological, and physical qualities through which the institution can implement its programs and strategies. Thus, training is one of the essential functions of the educational process (Ali, 2016). Akhu Ersheida (2013) confirmed the need for rectifying training programs during service to satisfy the actual need of teachers. Participants P3, 4, 8, 9, 11, and 12 all assured that training courses of all types that correlate to differentiation contribute to implementing that program. P1, for example, said, "I really need special courses on dividing class time to activate differentiation." P9 said, "During the last few years, the Ministry of Education held courses on differentiation, I benefitted much from them. We need them to refresh courses by which we learn from each other." P11 also reiterated that, saying, "We need intensive courses." The previous comments of participants reveal teachers' awareness of the significance of training courses and the dire need for courses on differentiated teaching strategies and supportive ways. A preliminary evaluation of the needs of gifted teachers will also help choose the propitious content that satisfies training needs. This can be done by a questionnaire that measures training needs prior to holding workshops. Such ideas were recommended by Heald (2016), Shammari et al. (2019) and Sheiha (2022). In this respect, a group of studies recommended criteria for teachers of the gifted, which might benefit planners and implementers of training courses in designing workshops. One of these studies is that of Johnson and Van Tassel-Baska (2006), which laid down the most important national criteria which teachers should be conversant with.

These include considering individual differences of students in teaching, using propitious teaching strategies that lead to active teaching, good planning, and using propitious means of evaluation. The study concluded that teachers of the gifted should have in-service training to upgrade their efficiency in all fields. Answers from the participants revealed a need for training on planning skills as a first step for applying differentiation. P10 said, "Planning is what bothers me most when I want to implement differentiation." P11 reiterated this by saying, "Many skills are important. However, lesson planning, how to implement differentiation, grouping, and dividing duties are what I want to learn." Van Tassel-Baska (2021) pointed out that the first step of applying differentiated teaching is planning and specifying the strategies propitious for differentiated teaching. In other words, the teacher has to establish lesson objectives and the time allotted for them and choose the strategies that best suit the targeted gifted students. All this relies on the teacher's experience, sufficient knowledge about how gifted students think, the suitable options through which they use

differentiation in teaching and the motivation toward applying differentiated teaching.

In this respect, the results of the interviews showed that teachers of the gifted needed support and guidance, experienced specialists in the field of differentiated teaching, and experience exchange by attending online meetings. P1, stated, "We need programs that help exchange experience with specialists." Those were among the recommendations of the studies by Hajeri (2020) and Sheiha (2022). Interview results also revealed that providing programs and training platforms for teachers year-round was important. These agree with what Boyle and Joyce (2019) recommended to establish training platforms and offer courses to all school staff to keep pace with international developments and updates. Based on the previous data, there is a need for extended training programs relevant to differentiated teaching, desire, and motivation in teachers to join such programs. Qarni (2021) found that teachers of the gifted need professional training, according to the Saudi National Center for Measurement and Evaluation Standards.

B- Educational Environmental Needs:

This is the need to provide school environment equipment and laboratories throughout semesters. This makes strategy application easier, including differentiated teaching requiring specific class equipment, whether technical, educational, or organizational, to divide students into differentiated groups. Park (2008) pointed out that resources that support curricula of the gifted should be provided to develop and enrich them to match the abilities, needs, and types of gifted students. He added that financial support and equipment that activate thinking gifted students should also be provided.

These needs were referred to in responses of the participants such as P6, who said, "Despite applying differentiation that is significant for me, I find it difficult to apply because of students' numbers." P7 said, "Because I teach primary stage students, I wish we had several libraries in school to provide corners for the students by which I eventually achieve differentiation by various means and distribute students according to their interests."

The participants' answers indicated a shortage in environmental preparation and some resources. P10 commented, "I was the scheduler of teachers' use of the reference room which we had, but sometimes the projector crashes. The administration was quite cooperative and careful about fixing any crash." She added, "I propose putting monitors in classes because the reference room becomes crowded sometimes." This shows that the school administration was keen on providing teaching aids that help apply differentiated teaching and other strategies. The participant pointed out that classes should have means and monitors to benefit teachers and students throughout the day. Such a suggestion implies that some classes are not prepared for applications; it also unveils that there are still some difficulties and challenges faced in providing environmental needs, which should facilitate applying the philosophy of differentiation, activity diversification, and resource variance.

The interview results also showed a need for activating technology which Jerri (2016) defined as the tools and equipment used in any education system to increase its activity. Harrower and Rodriguez (2015) recommended using modern technology to support teaching, and all that is associated with classes in general. Since we live in the age of technology and knowledge, we need to keep pace with prosperity and technology in education. The participants also confirmed that. For example, P12 said, "Technology and its role in applying differentiation help too much. We need constant courses in this domain." Technology needs to be inside classrooms, not only in the reference room. The aforementioned highlights the need for technology and everything associated with it because that helps prepare classes and schools for applying differentiation in all its types. Notably, differentiated teaching mainly depends on diversity and flexibility of means, which facilitate differentiation application.

Based on the primary data, it was noted that environmental education courses and electronic devices should be provided to activate technology, which ultimately facilitates differentiated teaching and helps solve some teaching problems. Technology is one of the best practices because it is portable, accessible, and exciting. In addition, it provides gifted students with flexible educational options and teachers with a wide range of options (Altun & Kahveci, 2019).

C- Organizational Needs:

These needs relate to management organizing, communication, and research. They are elements that augment the teacher's interaction and help them apply high-quality teaching through activating differentiation methods. Qahwan (2012) listed the dimensions of professional development in light of school future inputs, among which are the following: culture of organizational management that supports accepting ideas from school teachers, administrators, and leaders and welcomes initiatives. It also accepts constructive criticism, shows interest in scientific research, encourages creativity, appreciates accomplishments, and believes in teamwork and knowledge sharing.

It emphasizes the importance of flexible administrative organizing that grants teachers a sufficient space of independence, and freedom to make decisions relevant to teaching, as that raises their morale, catalyzes their professional belonging, and raises job satisfaction, which plays a direct role in encouraging teacher's activities and motivates them to apply modern teaching, including the differentiating type.

Regarding the organizational needs that participants referred to pertaining to management organizing and cooperation between teachers and administration and among teachers themselves, P1 commented, saying: "Differentiation techniques are various among which is product differentiation which we often do through the final exhibit of syllabi... Had a multi-specialization team existed, we could have exchanged ideas and duties and formed the team at the beginning of every semester. We applied that before, but some teachers were overloaded." (P5) also commented, "Applying the cloud application in some

schools of the non-gifted is difficult because it needs a special management schedule, due to class conflict and limited time that hinder applying differentiation outside the classroom." Johnson (2020) suggested forming teamwork to be in charge of the practical application of differentiated techniques, not through the teacher only, but also through sharing with teachers of the gifted, administrators specialized in management, and through the flexible gathering of students with abilities and homogenous interests to provide enrichment instigators, or an academic unit, etc., to meet individual needs through gatherings and to apply differentiation and individualization.

The researchers reviewed participants' responses about communication needs with people outside school. P11 commented saying, "We should communicate with the community outside school to benefit from their services and connect every talented student with a supporting body according to her needs." P2 also commented saying, "We need to create electronic forums, solely for participants, in order exchange experiences. The interview results which will help us comprehend and apply differentiation and benefit from experiences of others." The interview results also revealed the importance of internal or external regulations to conduct procedural research and attend internal and external conferences to increase teachers' knowledge and experience. P11 commented saying, "Procedural and cooperation research relevant to differentiation and supporting strategies should be conducted because they benefit both students and teachers." P8 also noted, "Research is very important because it helps pinpoint deficiency and what should be done to correct or solve the problem." She added, "I wish schools, research centers, and journals cooperate." Teachers of the gifted also emphasized the need to develop cooperation with researchers and conduct procedural research, which copes with the strategies of Saudi education. In addition, creating research teams in education directorates was also emphasized to exchange experiences associated with teaching and educational practices. Such results agree with those of Nimer (2018) and Khleif (2019) indicating that conducting research was essential. Based on the previous data, organizational needs relevant to management, communication, and research organization, internal or external, were determined.

4. Conclusion

The study's objective was to unveil the readiness of teachers of the gifted to apply differentiated learning. The data collected were analyzed using the inductive qualitative approach, which produced two significant themes: the first was their readiness, and the second was their needs. The theme's results revealed the teachers' trends and preferences regarding differentiated teaching and its methods. It also revealed the range of awareness of these teachers about teaching practices that support differentiated teaching. Participants' responses were discussed in light of three practices: tiered activities, learning individualization, and orbital studies.

The results pertaining to the second theme, the training and workshops teachers of the gifted need as viewed from their perspective, proved that securing appropriate equipment, supportive sources, and technical devices could provide

an appropriate teaching environment. The results also revealed that there should be cooperation between teachers of the gifted and schools and to establish a platform to communicate with others outside the school.

5. Limitations of the Study

These might be outlined in the following:

Human limitation: The study was limited to 12 female teachers of the gifted to examine their readiness to apply differentiated education.

Space limitation: The study was limited to the eastern area of KSA.

Object limitation: The study was limited to one theme, the application of differentiated education with limited questions on the readiness of teachers of the gifted toward the issue.

Time limitation: The study was conducted in the second semester of the academic year 2023.

6. Recommendations

In light of the study findings, the researchers would like to recommend the following:

- To find the scientific basis for implementing differentiated teaching and to explain the correct practices that cope with local education on circumstance to be part of the gifted caring regulations.
- To conduct pilot intensive training courses on differentiated teaching for educational workers under the supervision of the Ministry of Education.
- To prepare empirical and procedural research on differentiated teaching practices and the implementation mechanism in KSA's educational field.
- To provide classrooms with technological devices to be used for differentiated teaching.
- To establish societal partnerships between training centers and universities on one side and education directorates on the other to exchange experience between specialists from both sides.
- To conduct comparative studies on teachers of the gifted at all academic levels regarding differentiated teaching.
- To conduct experimental studies on qualities of the profession of development for all workers in the educational sector regarding differentiated teaching.

Ethical Statement

The researchers declare that they abided by the ethics of scientific research and the confidentiality of participants' identities.

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Conflict of Interest

The researchers declare that there is no conflict of interest.

7. References

- Abdul Karim, R. (2019). *Qualitative research in education*, (2nd ed.). Al-Rushd Library.
- Akhu Ersheida, A. (2013). *Training needs necessary for teachers of Arabic at the secondary level in light of cognition economy*. [Master's Thesis], Sultan Qabus University.
- Al Qarni, M. A. (2010). *Evaluation of Provisions for Gifted Students in Saudi Arabia*. Wollongong: University of Wollongong.
- Alfaiz, F. S., Alfaid, A. A., & Aljughaiman, A. M. (2022). Current status of gifted education in Saudi Arabia. *Cogent Education*, 9(1).
<https://doi.org/10.1080/2331186X.2022.2064585>
- Ali, Y. (2016). Training needs for teachers of the gifted in KSA. *Journal of Educational Studies*, 3 (43).
- Al-Lawati, F. A., & Hunsaker, S. (2007). Differentiation for the gifted in American Islamic schools. *Journal for the Education of the Gifted*, 41 (5), 611-609.
- Altun, H., & Kahveci, G. (2019). The effectiveness of virtual reality-based teaching material on geometry-related problem-solving in students with learning disabilities. *Necatibey Faculty of Education Electronic Journal of Science and Mathematics Education*, 13(1), 460-482.
<https://doi.org/10.17522/balikesirnef.562047>
- Areani, H. (2017). Efficacy of using differentiated teaching in developing some sports thinking skills of intermediate-level students in Riyadh city. *Journal of Psychological and Educational Sciences*, 10(4), 1169-1172.
- Bender, W. (2008). *Differentiating instruction for students with learning disabilities: Best teaching practices for general and special educators* (2nd ed.). Corwin Press; Council for Exceptional Children.
- Bender, W., & Waller, L. (2011). *RTI and differentiated reading in the K-8 classroom*. Solution Tree Press.
- Benjamin, A. (2003). *Differentiated Instruction: A Guide for Elementary School Teachers*, Routledge. <https://doi.org/10.4324/9781315854120>
- Boyle, C., Anderson, J., & Allen, K. (2020). The importance of teacher attitudes to inclusive education. In C. Boyle, J. Anderson, A. Page, & S. Mavropoulou (Eds.), *Inclusive Education: Global Issues and Contriversies* (pp. 127-146). (Studies in Exclusive Education; Vol. 45). Brill. https://doi.org/10.1163/9789004431171_008
- Boyle, C., Topping, K., & Jindal-Snape, D. (2013). Teachers' attitudes towards inclusion in high schools. *Teachers and Teaching*, 19(5), 527-542.
- Boyle, J., & Joyce, R. (2019). Using smartpens to support note-taking skills of students with learning disabilities. *Intervention in School and Clinic*, 55(2), 86-93.
- Burns, M. K., Coddling, R. S., Boice, C. H., & Lukito, G. (2010). Meta-Analysis of acquisition and fluency math interventions with instructional and frustration level skills: Evidence for a skill-by-treatment interaction. *School Psychology Review*, 39, 69- 83.
- Caldwell, D. (2012). *Educating gifted students in the regular classroom: efficacy, attitudes, and differentiation of instruction*. [Master's Thesis]. Georgia Southern University. <https://digitalcommons.georgiasouthern.edu/etd/822>
- Colangelo, N., & Davis, G. A. (2003). *Handbook of gifted education*. Allyn & Bacon.
- Commission of Training and Teaching Assessment. (2020). *Teacher Preparation Standards in Gifted Education*. <https://etec.gov.sa/service/ProfessionalLicensing>.
- Connelly L. M. (2016). Trustworthiness in Qualitative Research. *Medsurg Nursing: official journal of the Academy of Medical-Surgical Nurses*, 25(6), 435-436.

- Corley, M.A. (2005). Differentiated instruction adjusting to the needs of all learners. *Focus on Basics* 7(C), 13-16.
- Creswell, J., & Poth, C. (2018). *Qualitative Inquiry and Research Design Choosing among Five Approaches* (4th ed.). Thousand Oaks, CA: Sage.
- Denzin, N., & Lincoln, Y. (2017). *The SAGE Handbook of qualitative research* (5th ed.). SAGE Publications, Inc.
- Deunk, M. I., Jacobse, A. E., de Boer, H., Doolaard, S., & Bosker, R. J. (2018). Effective differentiation Practices: A systematic review and meta-analysis of studies on the cognitive effects of differentiation practices in primary education. *Educational Research Review*, 24, 31-54. <https://doi.org/10.1016/j.edurev.2018.02.002>
- Dixon, F. A., Yssel, N., McConnell, J. M., & Hardin, T. (2014). Differentiated Instruction, Professional Development, and Teacher Efficacy. *Journal for the Education of the Gifted*, 37(2), 111-127. <https://doi.org/10.1177/0162353214529042>
- Dodge, J. (2005). *Differentiation in action*. New York: Scholastic Inc. Education Library.
- Ellis, D., Ellis, K.A., Huemann, L.J., & Stolarik, E.A. (2007). *Improving Mathematics Skills Using Differentiated Instruction with Primary and High School Students*. [Master's Thesis]. Saint Xavier University.
- Feldhusen, J. F., Proctor, T. B., & Black, K. N. (2011). Critical issues in the identification of gifted students with coexisting disabilities: The twice-exceptional. In N. Colangelo & G. A. Davis (Eds.), *Handbook of Gifted Education* (pp.145-155). Pearson.
- Freeman, I., M. (2015). Differentiated Instruction and Its impact on diverse learners. *Journal of Education and Human Development*, 4 (4), 147-154.
- Freij, N., & Qahtani, S. (2021). The reality of gifted teachers uses differentiated teaching strategies and hindrances of application. Scientific. *Journal of the College of Education, Asyout University*, 12, 330-378.
- Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. Basic Books.
- Gatling, A. (2015). *A qualitative study of gifted teachers' perceptions of differentiated instruction*. [Doctoral Thesis], Walden University.
- Ghamdi, F. (2019). The degree of differentiated teaching for the gifted student in regular class from the perspective of art teachers in Mecca. *Journal of Educational Studies*, 46(2), 279-301.
- Glass, K. T. (2011). Differentiated instruction and strategies. In G. Gregory (Ed.), *Differentiated instruction* (pp.87-110). Thousand Oaks: Corwin.
- Gross, M. U. M. (2003). *Exceptionally gifted children*. Routledge.
- Gulf States Research Center. (2020). *Gifted caring: A survey study for the foremost International experiments in member states*.
- Handa, M. (2020). Examining students and teachers perceptions of differentiated practices, student engagement, and teacher qualities. *Journal of Advanced Academics*, 31(4), 530-568. <http://doi.org/10.1177/1932202X20931457>
- Harrower, J., & Rodríguez, C. D. (2015). Using mobile technology for student teaching observations of special education candidates. In J. Keengwe & M. Maxfield (Eds.) *Advancing higher education with mobile learning technologies: cases, trends, and inquiry-based methods* (pp.114-127) IGI Global. <https://doi.org/10.4018/978-1-5225-0034-6.ch031>
- Heald, S. (2016). *Curriculum differentiation for gifted learners using instructional technology: A multiple-case study*. [Doctoral thesis, Northcentral University]. <https://www.proquest.com/openview/065558619dbf317825909a41870e7842/1?pq-origsite=gscholar&cbl=18750>

- Hileisi, M., & Sharif, F. (2012). *The impact of using differentiated teaching strategies on academic achievement in the English language of six-grade students*. [Master's Thesis], Umm Al-Qura University. <https://doi.org/10.1080/09243453.2018.1539013>
- Hussein, H. (2021). The impact of tiered activities on the achievement of Arab Islamic Civilization and the cognitive motivation behind that. *Journal of Islamic Sciences Iraq University*, 2, (29).
- Jarrallah, H. (2006). *Mutual psychological trends among mentally outstanding students and teachers of the primary level in Qabas School in Khartoum District*. [Master's Thesis], Um Durman Islamic University.
- Jeri, K. (2016). *Educational applications: Development and classification*. Islamic Education Library.
- Johnsen, S. K. (2012). *NAGC Pre-K–Grade 12 Gifted education programming standards: A Guide to planning and implementing high-quality services*. Routledge. <https://doi.org/10.4324/9781003236870>
- Jugheiman, A. (2018). *A comprehensive directory for planning gifted students' programs*. Obeikan Publishing.
- Juhani, F. (2008). *Roles and difficulties for gifted students that correlate to planning, implementing and evaluating enrichment approaches in programs for the gifted in public schools*. [Master's Thesis], Umm Al-Qura University.
- Kaplan, S. (2009). Layering differentiated curricula for the gifted and talented. In F. Karnes & S. Bean (Eds.), *Methods and materials for teaching the gifted* (pp. 107-135). Prufrock Press Inc.
- Keithley Sizemore, E. A. (2015). *A phenomenological study of differentiated instruction for fifth grade gifted and high ability learners through math in focus*. [Doctoral dissertation]. Liberty University.
- Khleif, A. (2019). Reality and obstacles for teachers of the disabled use of smart devices in the reference room at Ihsa governorate. *Journal of Special Education and Rehabilitation*, 8 (29), 144-182.
- King Abdul Aziz Foundation for Giftedness and Creativity, Arab Organization for Education, Culture, and Science. (2009). *Arab Strategy for Giftedness and Creativity in Public Education*.
- Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*, 1, 120-124.
- Lauder, B. (2011). *Supporting gifted students in the regular education elementary classroom through differentiated instruction*. [Master's dissertation, Bowling Green State University]. https://etd.ohiolink.edu/apexprod/rws_etd/send_file/send?accession=bgsu1320976431&disposition=inline
- Lencastre, J., Morgado, J.C., Frieres, T., & Bento, M. (2020). A systematic review of the flipped classroom model as a promoter of curriculum innovation. *International Journal of Instruction*, 13(4), 575-592.
- Leonidas, K., & Mary, K. (2011, January). Investigating the impact of differentiated instruction in mixed ability classrooms: Its impact on the quality and equity dimensions of education effectiveness Valiande A. Stavroula Cyprus Pedagogical Institute. In *Proceedings of the International Congress for School Effectiveness and Improvement 2011*..
- Lewis, A. (2001). The issue of perception: some educational implications. *Educare*, 30(1), 272-288.
- Linn-Cohen, R., & Hertzog, N. (2007). Unlocking the GATE to differentiation: A qualitative study of two self-contained gifted classes. *Journal for the Education of the Gifted*, 31(2), 227-259. <https://doi.org/10.4219/jeg-2007-677>

- Louzi, A. (2017). The reality of home economics teachers' use of differentiated teaching. *Journal of Qualitative Education, 45*, 153-216.
- Malki, M., & Khawaldi, N. (2018). Teacher's attitudes toward gifted students in regular schools. *Arabic Journal for Disability and Giftedness Sciences*.
- McGee, C. (2018). Artful Teaching and science investigations: A Perfect match. *Gifted Child Today, 41*(1), 41-53.
- Mengistie, S. (2020). Primary school teachers' knowledge, attitude, and practice of differentiated instruction. *International Journal of Curriculum and Instruction, 12*(1), 98-114.
- Merawi, T. M. (2020). Differentiated instruction: Analysis of primary school teachers' experiences in Amhara Region, Ethiopia. *Dar Journal of Education, 20*(1), 91-113.
- Midhesh, A. (2020). Challenges facing comprehensive teaching from the perspective of specialists of the disabled in Saudi Universities. *Saudi Journal for Special Education, 25*(53), 53-73.
- Morgan, H. (2014). Maximizing student success with differentiated learning. *The Clearing House: A Journal of Educational Strategies, 87*(1), 34-38.
- Mullin, G. P. (2016). *Differentiated instruction for middle school gifted students within the regular classroom*. [Doctoral dissertation] Southern Connecticut State University.
- Nafeesah, S., & Natheer, M. (2018). *Profession teaching leadership: Practical Directory*. Obeikan Library.
- National Association for Gifted Children. (2018). *What is giftedness?* <https://www.nagc.org/resources-publications/resources/what-giftedness>
- National Transformation Program. *The (2030) vision*. <https://www.vision2030.gov.sa/ar/v2030/vrps/ntp/>
- Nicolae, M. (2014). Teachers' beliefs as the differentiated instruction starting point: Research basis. *Procedia-Social and Behavioral Sciences, 128*, 426-431.
- Nikolaeva, S., & Synekop, O. (2020). Motivational Aspect of Student's Language Learning Style in Differentiated Instruction of English for Specific Purposes. *Revista Romaneasca Pentru Educatie Multidimensionala, 12*(2), 169-182. <https://doi.org/10.18662/rrem/12.2/272>
- Nimer, H. (2018). *The degree of teachers' uses of technological learning and teaching obstacles in Jordan from their perspective of teachers*. [M.A.Thesis], Faculty of Education, Al-Beit University.
- Norwalli, S., & Gharib, R. (2022). The reality of public-school teachers' application of technology in differentiated teaching of students with learning difficulties in Jeddah city. *Saudi Journal for Special Education, 20*, 183-227.
- Noubi, M. (2010). *Scales for measuring attention disruption associated with hyperactivity of gifted children*. Dar Al-Safa.
- Osama, M., & Jamal, A. (2016). *Training and sustainability of professional development*. Dar Aleilm Walayman.
- Padgett, D. K. (2016). *Qualitative methods in social work research* (Vol. 36). SAGE Publications Ltd.
- Park, H. (2008). *Lived experiences of Korean gifted education teacher: A collective qualitative case study*. [Doctoral dissertation], Columbia University.
- Potts, J., & Potts, S. (2017). Is your gifted child ready for online learning. *Gifted Child Today, 40*(4), 226-231.
- Qahwan, M. (2012). *Professional development of secondary school teachers in light of comprehensive quality standards*. Dar Ghaida Publishing and Distribution.
- Qarni, A. (2021). Evaluating needs of professional development for teachers of the gifted in light of standards of the Saudi National Center for Measurement and

- Evaluation. *Journal of King Faisal University for Humanities and Management*, 22(1), 52-54.
- Rabie, K. (2022). The degree of using differentiated teaching strategy from the perspective of teachers of the gifted in Baha region. *Journal of Educational Sciences*, 8(2), 263-298.
- Reis, S., & Renzulli, J. (2018). The Five Dimensions of Differentiation. *International Journal for Talent Development and Creativity*, 6, 87-94.
- Robinson, O. (2014). Sampling in interview-based qualitative research: A theoretical and practical guide. *Qualitative Research in Psychology*, 11(1), 25-41. <https://doi.org/sdl.idm.oclc.org/10.1080/14780887.2013.801543>
- Salameh, A. (2018). A future science curricula program for gifted and outstanding students of the knowledge community in the United Arab Emirates. *Journal of Arab Childhood*, 19(75), 10-37.
- Salem, M. (2016). Increasing the teaching efficiency of teachers of deaf and poor-hearing students through comprehensive design for learning. *International Journal for Specialized Education*, 4(5), 114-134.
- Saloviita, T. (2020). Teacher attitudes towards the inclusion of students with support needs. *Journal of Research in Special Educational Needs*, 20(1), 64-73.
- Santamaria, L. J. (2009). Culturally responsive differentiated instruction: Narrowing gaps between best pedagogical practices benefiting all learners. *Teachers College Record*, 111(1), 214-247.
- Shammari, T, Taei, Q., & Mohammed, A. (2019). Training needs for teachers of science in light of modern education trends. *Journal of Arabic Studies in Education and Psychology Arab Educators Association*.
- Shawq, M., & Mahmoud, M. (2001). *Teacher of the 21st century: selecting, preparing and development*. Dar Al-Fikr Al-Arabi.
- Shehi, M. (2022). Technical needs for teachers of students with learning difficulties. *Saudi Journal for Special Education*.
- Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, 22(2), 63-75.
- Sprague, D., & Shaklee, B. (2016). Differentiating through technology for gifted students. In L. Lennex & K. Nettleton (Eds.), *Special and Gifted Education: Concepts, Methodologies, Tools, and Applications* (Volume 4) (pp. 711-724). IGI Global. <https://doi.org/10.4018/978-1-5225-0034-6.ch030>
- Stevenson, C. (2001). *Teaching ten- to fourteen-year-olds* (3rd ed.). New York: Allyn & Bacon.
- Tantawi, M., & Ghamdi, A. (2020). A study of the requirements for applying comprehensive learning design for students with disabilities in an inclusion program. *Journal of Scientific Research in Education*, 21, 141-180.
- Tatum, A. (2011). Diversity and literacy. In A. Farstrup & J. Samuels (Eds.), *What research has to say about reading instruction* (4th ed., pp. 424-447). Newark DE: International Reading Association.
- Taylor, S. (2017). Contested knowledge: A critical review of the concept of differentiation in teaching and learning. *Warwick Journal of Education-Transforming Teaching*, 1, 55-68.
- Thousand, J. Villa, R., & Nevin, A. (2015). *Differentiating instruction: Planning for universal design and teaching for college and career readiness* (2nd ed.). Thousand Oaks: Corwin.
- Tomlinson, C. (2017). *How to differentiate instruction in academically diverse classrooms* (3rd ed.). Alexandria, Association for Supervision and Curriculum Development.

- Van Geel, M., Keuning, T., Frèrejean, J., Dolmans, D., van Merriënboer, J., & Visscher, A.J. (2018) Capturing the complexity of differentiated instruction. *School Effectiveness and School Improvement*, 30(1), 51-67.
- Van Tassel-Baska, J. (2006) A Content analysis of evaluation findings across 20 gifted programs. *Gifted Child Quarterly*, 50(3), 199-215.
- Van Tassel-Baska, J. (2021). Curriculum in gifted education: The core of the enterprise. *Gifted Child Today*, 44(1), 44-47.
- Van Tassel-Baska, J., & Stambaugh, T. (2005). Challenges and possibilities for serving gifted learners in the regular classroom. *Theory into Practice*, 44(3), 211- 217.
- Watts-Taffe, S., Laster, Broach, L., Marinak, B., McDonald Conor, C., Walker-Dalhouse, D.(2012). Differentiated instruction: Making informed teacher. *The Reading Teacher*, 66(4), 303-314.
- Woodcock, S., & Hitches, E. (2017). Potential or problem? An investigation of secondary school teachers' attributions of the educational outcomes of students with specific learning difficulties. *Annals of Dyslexia*, 67(3), 299-317.
- Wu, E. H. (2013). The path leading to differentiation: An interview with Carol Tomlinson. *Journal of Advanced Academics*, 24(2), 125-133. <https://doi.org/10.1177/1932202X13483472>
- Yuen, M., Chan, S., Chan, C., Fung, D. C., Cheung, W. M., Kwan, T., & Leung, F. K. (2018). Differentiation in key learning areas for gifted students in regular classes: A project for primary school teachers in Hong Kong. *Gifted Education International*, 34(1), 36-46. <https://doi.org/10.1177/0261429416649047>