

Twice-Exceptional Students in Saudi Arabia: A review of the Research Literature from 1990 to 2018

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Abstract: The current study is a literature review which was conducted to analyze studies on twice-exceptionality published in English in the Kingdom of Saudi Arabia (KSA) between 1990 and 2018. Aim: To analyze the findings in the research conducted on twice-exceptionality in KSA. Methods and procedures: The following electronic databases were used to search the relevant literature: SAGE, ERIC, EBSCOhost Databases, SpringerLink, ScienceDirect, and the Dissertations, master's theses Database. These databases were selected because these are where most of the literature on education is published. Moreover, the author used two studies that are in press because there are few studies on the topic and these studies will increase the amount of available data. The publications used in this study were retrieved and each was reviewed and analyzed. A table was created for each study with categories of author and year, sample, purpose, method, and key findings. The results showed that a total of eight studies related to twice-exceptional students in Saudi Arabia have been published in those years, and all of them were published in the last eight years. The main focus of the research in most of these studies relates to barriers to identifying twice-exceptional students. Conclusions and implications: The results of this study reveal that relatively little research has been conducted in Saudi Arabia on twice-exceptionality. More research is warranted to identify twice-exceptional students in Saudi schools. Further research is also needed to provide professional development and training in twice-exceptionality to Saudi teachers, in order to enable them to identify such students, which the studies indicate that they are currently unable to do.

Keywords: Twice-exceptional. Dual exceptional. Attention Deficit Hyperactivity Disorder (ADHD) and Gifted. Gifted Students with Learning Disabilities. Gifted Students with Disabilities. Saudi Arabia.

1 Introduction

In the literature, twice-exceptional students are generally characterized as having gifts and talents in one or more areas of exceptionality and as having a disability, as defined by both federal and state law. For instance, a student with giftedness may show strengths in mathematics but face challenges with reading or writing (Alsamiri, 2016; Barber & Mueller, 2011; Hays, 2016). Another may demonstrate strength in reading but suffer from dysgraphia, while yet another may demonstrate strengths in an academic area such as mathematics or writing and reading but have a disability such as ADHD. Twice-exceptionality is defined at the most basic level as having giftedness that co-occurs with one or more disabilities (Al-Hroub, 2011; Brody & Mills, 1997) and includes the co-occurrence of challenges in one area and strengths in another (Reis, Baum, & Burke, 2014).

As much of the research indicates (Alsamiri, 2006; Bianco & Leech, 2010; Buică-Belciu & Popovici, 2014), the definition of twice-exceptionality is more complex than simply identifying giftedness or a disability. The disability can mask the giftedness and vice versa. This is problematized further due to the characteristics of twice-exceptional students because they often have a wide variety of interests, many of which may not be related to topics in the school curriculum (Clinkenbeard, 2012; Schunk, Pintrich, & Meece, 2008). They also often possess exceptional memory, their vocabulary can be quite advanced, their imaginations can be unusual, they can possess excellent reasoning and problem-solving skills, they can be insatiably curious, and their sense of humour can be unusual and even bizarre; they are able to manipulate circumstances to their advantage in order to compensate for their disability (Coleman & Hughes, 2009; Baska & VanTassel-Baska, 2016). They can also mask or compensate for their disability by having a highly creative approach to tasks, possess acute insight

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into complex issues, be resourceful, ask many questions, and be uninhibited in expressing themselves (Alsamiri, 2018; Nielsen and Higgins, 2005).

Accompanying these characteristics are particular challenges that impact these students' academic achievements. For example, their skill development is often uneven, there are sometimes discrepancies in their performance and verbal abilities, and they can often have visual and audio processing issues, lack study and organizational skills, suffer from low self-esteem, be highly impulsive and easily distracted, have poor social skills, suffer from long or short-term memory deficits, and have poor attention spans in areas of no interest to them (Alsamiri, 2016; Nielsen and Higgins, 2005). Such students can perform at or below their level, with their disability dominating, or vice-versa, one condition masking the other so that neither the giftedness nor the disability is recognized or addressed (Alsamiri, 2018).

The most up-to-date definition is that of the US National Twice-Exceptional Community of Practice (cited in Alamer, 2017), which also provides recommendations for identifying and supporting such students (Alsamiri, 2018). While the literature on twice-exceptionality is growing, very few studies have been conducted on twice-exceptionality in the Kingdom of Saudi Arabia (KSA) (Alsamiri 2016). For example, in the review of the literature of twice-exceptionality in KSA, only eight studies (Alamer, 2017; Alotaibi, 2017; Alameri & Faulkner, 2010; Alkhunaini, 2013; Alsamiri, 2016; Alsamiri, Smith, & Strnadová in press; Alsamiri, Smith, & Strnadová in press; Alsamiri, 2018), were found to have been conducted on this category of student between 1990 and 2018. The main focus of these studies was on teachers' understanding of these students' characteristics and needs and their attitudes towards the students.

The studies in KSA indicate that primary mainstream classroom teachers, teachers of giftedness, and teachers of learning disabilities tend to focus on learning disabilities and behavioral problems, including problems associated with ADHD, often overlooking the giftedness (Alkhunaini, 2013; Alameri & Faulkner, 2010). These findings reflect the literature in the field of twice-exceptionality on teachers' attitudes towards these students. Generally, mainstream classroom teachers and learning disability teachers tend to focus on learning disabilities (Foley Nicpon, Allmon, Sieck, & Stinson, 2011; Baska & VanTassel-Baska, 2016), referring such students for learning disability support and programs. Teachers of giftedness, however, were more likely to focus on the giftedness and sometimes recognized twice-exceptionality as a subset of giftedness (Alsamiri, 2018; Gari, Mylonas, & Portešová, 2015).

Although the literature (Baldwin, Baum, et al., 2015) recognizes the importance of an agreed-upon definition of twice-exceptionality, it is also important for that definition to be accepted by researchers and teachers. Once twice-exceptionality is defined, problems remain with identification due mainly to understanding and noticing the variety of characteristics (Lovett & Sparks, 2011; Foley Nicpon, Allmon, Sieck, & Stinson, 2011). However, this is far from clear-cut because the literature on twice-exceptionality demonstrates that teachers lack understanding about these students, their characteristics, their needs, or how to support them when and if identified (Alsamiri, 2018).

What this lack of understanding among teachers about twice-exceptionality, not only in KSA but internationally, suggests is that professional development in this area is necessary if these students' needs are to be met (Alsamiri, 2018). In Australia, teachers were found to focus on learning disabilities and overlooked giftedness in students who demonstrated characteristics of twice-exceptionality (Wormald, 2011). Findings were similar in the USA, where the researcher indicated that professional development in twice-exceptionality is important to enable teachers to identify and support such students (Willard-Holt, Weber, Morrison, & Horgan, 2013; Bianco & Leech, 2010). In the case of KSA, twice-exceptionality is not yet acknowledged as a specific category of student; therefore, it is doubly difficult for teachers to identify such students and provide them with the appropriate support (Alsamiri, 2016).

In order for such students to be assisted in KSA, policies need to be formulated to acknowledge these students, and opportunities for professional development for teachers needs to be introduced (Alsamiri, 2018). The importance of specific policies targeting twice-exceptionality is cited in the literature (Alkhunaini, 2013; Alsamiri, 2016). These studies suggest that without policies, it is difficult to provide the necessary resources and training required to assist these students. For example, a study conducted in Zimbabwe (Chimhenga, 2016) cited the absence of teachers' professional development in this area as an obstacle to identifying and supporting twice-exceptional students (Chimhenga, 2016; Alsamiri, 2016).

The lack of information and research-based data on twice-exceptionality in KSA demonstrates the need for further research in this area (Alsamiri, 2016). The current study sought to review and analyze the research conducted in KSA. The methodology used is described below, followed by the key findings. This is followed by a discussion and the implications of the findings (Alsamiri, 2018).

2 Methods

For this study, the author reviewed the literature of the past 29 years, 1990–2018, of studies undertaken of twice-exceptional

students in the Kingdom of Saudi Arabia (KSA). These electronic databases were used to search the relevant literature on twice-exceptional students in Saudi Arabia published in English: ERIC, EBSCOhost Databases, Google Scholar, SpringerLink, SAGE, and Science Direct.

Reference lists of identified articles were searched in order to find additional articles. Search words used included “Twice-exceptional,” “Dual exceptional,” “attention deficit hyperactivity disorder (ADHD) and gifted,” “gifted students with learning disabilities,” “gifted students with disabilities,” linked with “Saudi Arabia.” Studies were included if they were doctoral dissertations/master theses or papers published in peer-reviewed journals, they addressed one or more aspects of twice-exceptional students in Saudi Arabia, and a comprehensive abstract or full text of the article was available. Empirical studies were also included. Once the list of publications to be included in the current study was organized, the author screened all the references. When in doubt about whether an article might meet the inclusion criteria, the researcher arrived at a consensus. Next, each study which met the inclusion criteria was reviewed and analyzed. Each study was examined for details such as authors, title of research, year of publication, purpose, methods, and key findings.

3 Results

The results show that eight studies were conducted on twice-exceptional students in KSA; those were the studies investigated in this current research. The studies were able to be grouped into two categories: (1) Studies on barriers to the identification of twice-exceptional students and (2) studies on giftedness and ADHD. Authors of each study, date of publication, sample, purpose, data collection methods, and main findings are shown in Table 1.

3.1 Studies on Barriers to the Identification of Gifted Students with Learning Disabilities

Seven of the eight studies (Alsamiri, Smith, & Strnadová in press; Alsamiri, 2018; Alamer, 2017; Alamiri & Faulkner, 2010; Alkhunaini, 2013; Alotaibi, 2017; Alsamiri, 2016) addressed barriers to the identification of twice-exceptional students in Saudi Arabia. Barriers reported in these studies included the difficulty of performing the critically important task of identifying and supporting students who have unique learning needs; the lack of information or knowledge related to teaching twice-exceptional students within general education settings (Alamer, 2017; Alsamiri, 2018); the lack of support services (Alsamiri, 2018); the need for the Ministry of Education to develop policies and guidelines (Alkhunaini, 2013); the need for schools and assessment systems to provide identification processes and supportive learning environments to enhance primary teachers’ ability to meet the needs of twice-exceptional students (Alamer, 2017; Alamiri and Faulkner, 2010); and the lack of teacher training and development in twice-exceptionality (Alsamiri, 2018). The results indicate that the primary barriers to identification of students with giftedness and learning disabilities (SGLD) in Saudi Arabia are linked to a lack of knowledge and/or training in this specific category of student (Alsamiri, 2018).

3.2 Studies on Giftedness and ADHD

The single study on giftedness and ADHD (Alamiri and Faulkner, 2010) demonstrates that mainstream teachers lack the requisite knowledge and experience to address the behavioral issues associated with these students. Teachers generally were found to have had no training or professional development in concepts associated with either giftedness or ADHD such as temperament, creativity, and over-excitability in such students. The results indicate that students exhibiting such characteristics tended to be identified by teachers not as gifted, but as having a learning disability such as ADHD (Alamiri and Faulkner, 2010).

Table 1. Studies on Twice-Exceptional Students in Saudi Arabia.

Author(s)	Sample	Purpose	Method	Main findings
Alamer (2017)	A convenience sample of only one student with learning disabilities.	The study explores the experiences of one university student identified as gifted and learning disabled to understand how personal experiences influenced his identity development, his perspectives on teaching and education, and, ultimately, his career choice.	A qualitative case study was used to obtain data through interview.	Findings of this study suggested that while there were procedures in place for referring students for evaluation and providing supports, many teachers were not aware of them. Many teachers held the

				inaccurate belief that students who received special education services neither needed nor benefited from services provided in a gifted program.
Alotaibi (2017)	Literature review including books and articles in specialized journals, regardless of the quality and without disregarding any study.	The purpose of this research is to provide an overview for general education teachers, gifted education teachers, and special education teachers to understand twice-exceptional students better.	Qualitative data analysis	This research provides teachers with overall insight and needed information, both of which are related to teaching twice-exceptional students within general education settings.
Alamiri and Faulkner (2010)	purposive sampling of three mainstream classroom teachers, one specialist teacher of gifted children, and the parents of three gifted children.	The purpose is to explore the phenomenon of children already identified as gifted at one Saudi Arabian primary school.	Data were collected through one-to-one semi-structured interviews through open-ended questions.	<p>The findings indicated that regular classroom teachers lack the knowledge and experience in dealing with behaviors of gifted children.</p> <p>The findings also illustrated that classroom teachers seemed to be unable to understand or distinguish between giftedness, creativity, over-excitability, temperament, and ADHD, because they report having had no training in understanding these concepts.</p> <p>The findings of this study suggested that the diagnostic confusions between giftedness and ADHD were manifest, showing evidence of how gifted children with challenging behaviors may be educationally misidentified as having an ADHD condition.</p>
Alkhunaini (2013)	A random sample of 59 primary school teachers who taught gifted students.	This study investigated Saudi gifted education teachers' attitudes towards twice-exceptional students.	Data were collected through self-report questionnaires containing	The findings indicated that the participants were not influenced by the students' disability when referring them to giftedness programs.

			open-ended questions.	
Alsamiri (2016)	A random sample of 410 primary school teachers.	The study investigated Saudi primary teachers' perspectives of identifying students with giftedness and learning disabilities (SGLD).	A mixed method was used to gather data: a questionnaire which includes open-ended questions and one-on-one semi-structured interviews.	Results from analysis of both datasets demonstrated that, although attitudes towards these students were positive, teachers lacked sufficient knowledge of SGLD to identify such students. There was insufficient funding for relevant support programs for SGLD and an absence of SGLD-specific professional development for teachers. There was a negative correlation between standard teaching qualifications (i.e., no training in either giftedness or special education) and teachers' ability to identify and support SGLD.
Alsamiri, Smith, and Strnadová in press	A random sample of 29 teachers from six schools in Al-Madinah, Jeddah, and Hail.	The study examined primary teachers' Beliefs about Identifying and Supporting Students with Giftedness and Learning Disabilities (SGLD) in Saudi Arabia	A qualitative study was used to obtain data through interviews.	Key findings indicate that SGLD is not an acknowledged category of student and that no formal processes exist to identify and support SGLD in Saudi Arabia. Implications for practice, recommendations for policy, and avenues for further research will be illuminated.
Alsamiri, Smith, and Strnadová in press	A random sampling of 217 teachers who completed the open-ended question component of the questionnaire.	The study investigated the Attitudes towards Identification and Support of Students with Giftedness and Learning Disabilities (SGLD) among Primary School Teachers in Saudi Arabia	A qualitative study of the open-ended question component of the questionnaire.	The results demonstrate that SGLD is not acknowledged as a specific category of student in Saudi Arabia. They indicate the necessity of reforming teacher training programs to include a focus on SGLD. Additionally, it was found that teachers' attitudes reflected the belief that identification of SGLD should be undertaken by specialist teachers and that overcrowded classrooms prevent teachers from identifying SGLD. Collaboration funding and

				responsibility were found to be factors cited by teachers as important to address the issues relevant to SGLD.
Alsamiri (2018)	A random sample of nine learning disabilities teachers participated in this study.	This study set out to examine how learning disabilities teachers define Students with Giftedness and Learning Difficulties (SGLD). One rationale for interviewing learning disabilities teachers is that they work with students with learning disabilities and may be more aware than others of some of the characteristics of SGLD.	A qualitative study was used to obtain data through interviews.	Findings from the study suggested that the learning disabilities teachers' definitions of SGLD are limited, indicating a lack of understanding of the characteristics of SGLD. The results of this study may assist teachers and educational personnel in seeking the optimal methods to identify and assist SGLD.

4 Discussions

The current study reviewed research published in English about twice-exceptional students in KSA over the last two decades. The results revealed that there have been very few studies on twice-exceptional research in Saudi Arabia. However, research in this particular student category indicates that it is an issue of importance for Saudi Arabia and one which some of the studies suggest should be addressed by the Saudi Ministry of Education.

One of the main barriers to identification of twice-exceptional students, including those with giftedness and ADHD, in KSA has been shown to be teachers' lack of understanding or knowledge about these students. The reason for this is because this category of student is not yet recognized in KSA (Alsamiri and Faulkner, 2010). For instance, although the KSA education system has a policy of inclusion, this is skewed mostly in favor of learning disabilities (Alsamiri, 2018; Alotaibi, 2017). The Saudi system provides many resources and professional development opportunities for teachers for learning disabilities, fewer for giftedness, and nothing at all for twice-exceptionality (Alsamiri, 2018). Teachers, inevitably, tend to focus on and refer students exhibiting the characteristics of SGLD for learning disability services. Lack of knowledge or training on twice-exceptionality has been found to be the reason why teachers also focus on learning disabilities and neglect or ignore giftedness in the literature on twice-exceptionality in other countries (Alsamiri, 2018; Gari et al., 2015). For example, in Australia (Wormald, 2011), teachers ignored results indicating giftedness and focused instead on the learning disabilities. Similarly, in Europe, a study of teacher attitudes towards students with twice-exceptionality (Alotaibi, 2017; Alamer, 2017; Alamiri & Faulkner, 2010) showed that teachers without any understanding of, knowledge of, or training in twice-exceptionality were likely to identify such students as having a learning disability, whereas their colleagues with some training in giftedness were more likely to recognise twice-exceptionality as a subset of giftedness.

The lack of knowledge about twice-exceptionality is linked to the absence of any recognition or acknowledgement of such a category of student in KSA (Alsamiri, 2016). This may be the reason why teachers in some studies claim that the Ministry to address their needs at every level of education and provide adequately funded resources, including training and professional development, for all teachers, including principals, targeting twice-exceptional students (Alsamiri, 2018; Alotaibi, 2017). The results show that teachers receive no training in twice-exceptionality whether in pre- or in-service. Moreover, they are not provided with any professional development opportunities in twice-exceptionality, ADHD, or giftedness.

The finding that most of these studies' results indicate is that professional development and training is instrumental for enabling teachers to identify twice-exceptional students (Alsamiri, Smith, & Strnadová in press; Alsamiri, 2018). This finding also corresponds with much of the literature on twice-exceptionality, which shows that teacher knowledge and training in twice-exceptionality and/or giftedness increases the possibility of identification (Alsamiri, 2018; Alsamiri, Smith, & Strnadová in press) and therefore also appropriate referral and accommodations, such as differentiated instruction (Alsamiri, 2016; Alsamiri, Smith & Strnadová in press).

Misconceptions by teachers about the needs of twice-exceptional students were evident in several studies (Alamer, 2017; Alamiri & Faulkner, 2010; Alsamiri, 2018; Alotaibi, 2017). For example, many teachers articulated the mistaken belief that students who were referred for learning disability services for issues such as ADHD did not require or benefit from referrals

to programs for giftedness. This finding corresponds with the literature on twice-exceptionality which highlights 1) that teachers tend to believe that a learning disability precludes giftedness (Alamer, 2017; Alamiri and Faulkner, 2010; Alsamiri, 2018) and 2) that teachers believe students with giftedness require no assistance (Alsamiri, 2016; Alotaibi, 2017).

The limitations of this study need to be acknowledged and taken into account when considering the findings. The databases that were used to search the literature on twice-exceptionality in Saudi Arabia may not have covered all the research undertaken about twice-exceptionality in the Arabic language. Therefore, the study may underestimate the amount of research undertaken on twice-exceptionality published in Arabic or in the Middle East more generally. Confining this literature review to research published in English, therefore, may have resulted in the omission of an unidentified quantity of relevant research.

5 Conclusions and Recommendation

The results of this review indicate that there is an urgent need for more research into twice-exceptionality in KSA. Research on this specific category of student may provide a greater understanding of the specific requirements of these students and may highlight the types of resources and services that are required. For instance, the results show that the main barrier to identification of twice-exceptional students is the lack of teacher training in this area. The lack of training, however, is inextricably linked to the fact that such a category of student is not yet identified in the Saudi education system. Teachers cannot identify what they do not know exists.

More research into students with giftedness and learning disorders and disabilities such as ADHD is also imperative as these students present with a unique set of characteristics that teacher do not recognize as gifted. The most important issue to emerge is that twice-exceptional students' giftedness continues to be overlooked, neglected, or ignored, and this is linked to a lack of teacher knowledge or understanding about these students.

These issues have certain implications, including that many twice-exceptional students will fail to achieve their potential in their area of giftedness. The myth that giftedness precludes learning disabilities and vice versa will also persist, which perpetuates the practice of twice-exceptional students being referred only for learning disability programs and support.

The recommendations arising out of this as yet limited research demonstrate that it is necessary for the Ministry of Education to acknowledge this category of student and to formulate policies and funding to provide the necessary resources to address their needs. Such resources include appropriately trained teachers. This means that knowledge of and training in twice-exceptionality should be included as part of teacher education programs. Moreover, teachers should be provided with professional development opportunities in this category of student. Failure to provide such opportunities for teachers inevitably affects twice-exceptional students, who will likely continue to be misdiagnosed in Saudi Arabia as learning disabled only.

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