

# **STUDENTS WITH AD/HD-RELATED BEHAVIOURS: SAUDI MAINSTREAM TEACHERS' KNOWLEDGE AND ATTITUDE TOWARDS INCLUSION**

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## **Keywords**

Saudi Arabia, ADHD, ADD, Attention-Deficit/Hyperactivity Disorder, behavioural problems, attentional problems, inclusion, inclusive education, Self-efficacy, Theory of Planned Behaviour, critique of ADHD, Mixed methods.

# Abstract

Although Saudi Arabia has committed to inclusive education for students with AD/HD-related behaviours through national and international agreements, limited research has focused on teachers' attitudes and practices towards these students in inclusive settings. This study aimed to investigate Saudi mainstream primary teachers' knowledge of AD/HD and their attitudes towards the inclusion of students with AD/HD-related behaviours that may or may not be associated with a diagnosis of AD/HD. The study also sought to explore the relationships among teachers' attitudes towards inclusion, knowledge of AD/HD, efficacy beliefs for teaching students with behavioural problems, and a number of background factors including teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD.

The study utilised an explanatory sequential mixed method design, with a quantitative phase followed by a qualitative phase. Two-hundred-and-two teachers from the Madinah administrative area completed a four-part, self-report questionnaire. This was followed by a series of semi-structured interviews with a sample of eight teachers who participated in the quantitative phase of the research for the purpose of exploring and elaborating on the results from the initial questionnaire analyses.

Findings from both questionnaire and interview data suggested that the teachers generally held positive attitudes towards the inclusion of students with AD/HD-related behaviours in regular classrooms. Teachers' knowledge of AD/HD

was found to be limited and was positively related to teachers' efficacy beliefs. Multiple regression analysis indicated that efficacy beliefs, training, and class size had significant influence on teachers' attitude towards inclusion. These factors were explored in the interviews, which revealed that the teachers perceived a need for more training about teaching and supporting students with AD/HD-related behaviours as well as reduced class size when including students with AD/HD-related behaviours. Interview data also revealed that mastery experiences as well as vicarious experiences were an important influence on the teachers' beliefs about their efficacy for teaching students with AD/HD-related behaviours.

The findings from the present study may provide important insights into mainstream primary teachers' understanding of AD/HD and perceptions related to the inclusion of students with AD/HD-related behaviours at a time when increasing attention is being paid to AD/HD in Saudi Arabia. In this study, some teachers considered students with AD/HD-related behaviours to have special abilities, putting forward the view that the difficulties these students tend to have in the classroom are not their fault; rather, the problem may have to do with teachers' ways of teaching. Such findings may well provide useful information for the Ministry of Education and teacher education providers in Saudi Arabia to support the development of inclusive education policies and practices at both regional and national levels.

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## List of Abbreviations

AD/HD	Attention-Deficit/Hyperactivity Disorder
AMOS	Analysis of Moment Structures
APA	American Psychiatric Association
AVE	Average Variance Extracted
CDCP	Centers for Disease Control and Prevention
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
DDT	Dynamic Developmental Theory
DGSE	Directorate General of Special Education
DQ	Demographic Questionnaire
DSM	Diagnostic and Statistical Manual
EAHCA	Education for All Handicapped Children Act
EFA	Exploratory Factor Analysis
EM	Expectation Maximization
IDEIA	Individuals with Disabilities Education Improvement Act
IEP	Individualized Education Program
IFI	Incremental Fit Index
K-S	Kolmogorov-Smirnov
KADDS	Knowledge of Attention Deficit Disorders Scale
KMO	Kaiser-Meyer-Olkin
LD	Legislation of Disability

MAR	Missing At Random
MCAR	Missing Completely At Random
MNAR	Missing Not At Random
NFI	Normed Fit Index
NPDCAD/HD	National Project for Dealing with Children with Attention Deficit and Hyperactivity Disorder
PCA	Principal Components Analysis
QUT	Queensland University of Technology
RFI	Relative Fit Index
RMSEA	Root Mean Square Error of Approximation
SPSS	Statistical Product and Service Solutions
TAIS	Teacher Attitude towards Inclusion Scale
TEBS	Teacher Efficacy Beliefs Scale
TLI	Tucker-Lewis Index
VIF	Variance Inflation Factor
$\chi^2$	Chi-square

## Terms Definitions

To ensure that the terms frequently used in this thesis are understood as intended, these key terms are defined as follows:

*Attention-Deficit/Hyperactivity Disorder.* AD/HD is defined by the American Psychiatric Association (APA) in the Diagnostic and Statistical Manual of Mental Disorders (5th ed) (DSM-5) as “a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development” (American Psychiatric Association, 2013, p. 59).

*Students with AD/HD-related Behaviours.* Students who display behaviours associated with AD/HD such as inattention, hyperactivity, and impulsivity, regardless of whether they are formally diagnosed with AD/HD.

*Saudi Mainstream Teachers.* It refers to Saudi general education teachers who are working in public schools implementing inclusive education practices for students with special needs.

*Inclusion.* According to Rogers (1993), inclusion is defined as “the commitment to educate each child, to the maximum extent appropriate, in the school and classroom he/she would otherwise attend” (p. 1). In the Saudi Arabia context, inclusion is defined as that students with special needs are afforded opportunities for education and instruction in the regular school with a provision of special education services (Al-Mousa, 2007).

## Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature:

A handwritten signature in black ink, consisting of a series of loops and a long horizontal stroke extending to the right.

Date: February 12, 2014

# **Dedication**

To my mother, Alsamraa, and my father, Sarhan.

To my wife, Hanaa, and my children, Nawaf and Abdulamalik.

To my brothers and sisters.

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All Praise be to Allah (God), the most gracious most merciful. I praise Him and seek His aid and forgiveness. Without the help of Allah the completion of this thesis would have been impossible.

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# **Chapter 1: Setting and Introduction**

---

The current research set out to examine teachers' knowledge of AD/HD and their attitudes towards the inclusion of students with AD/HD related behaviours. In this chapter, the present research is introduced in two main sections. The first section presents the setting of the study, including an overview of the background of Saudi Arabia and its education system. The second section introduces the thesis and outlines the background and context of the study.

## **1.1 SETTING**

The present study was conducted in the kingdom of Saudi Arabia. The following sections provide information about Saudi Arabia and its education system, in order that readers unfamiliar with the Saudi context and culture can develop an understanding of how education, including special education, may differ from the systems with which they are presently familiar.

### **1.1.1 Overview Background of Saudi Arabia**

The strategic location of Saudi Arabia is a key characteristic of the country. Located on three continents, Europe, Africa, and Asia, Saudi Arabia occupies approximately 80% (2,225,000 square kilometres) of the Arabian Peninsula. Saudi Arabia is bounded to the north by Jordan, Iraq, and Kuwait; to the west by the Red Sea; to the south by Yemen and Oman; and to the east by United Arab Emirates, Qatar, and the Arabian Gulf (Ministry of Higher Education, 2010). The Kingdom's capital, Riyadh, is located in the central area of the country. A large percentage of Saudi Arabia's population are Saudis (70%), from a total of roughly 27 million inhabitants (Saudi e-Government National Portal, 2011).



*Figure 1.1.* Saudi Arabia between the three continents: Europe, Africa, and Asia (maps.google.com.au).

Most of the land in Saudi Arabia is arid, although there is rainfall in the north as well as along the mountain range to the west (Ministry of Higher Education, 2010). As a consequence, the climate in Saudi Arabia is highly varied. In the coastal regions, the weather is hot and humid in the summer and mild in the winter with light rains between November and February. In the central region, average summer temperatures are around 45° C but the winters are dry and cool (Saudi e-Government National Portal, 2011).

The Kingdom of Saudi Arabia was united by King Abdul Aziz Al Saud in 1932, and after his death in 1953, his sons continued to rule the country. King Saud ruled from 1953 to 1964, King Faisal from 1964 to 1975, King Khalid from 1975 to 1982, and King Fahd from 1982 to 2005. The current ruler of the country is the Custodian of the Two Holy Mosques, King Abdullah bin Abdul Aziz (Royal Embassy of Saudi Arabia, 2011).

Only a few years after the Kingdom was founded, Saudi Arabia discovered its large reserve of oil and became a world leader in oil production. The discovery of oil in Saudi Arabia represented a turning point in the Saudi's modern history. The kingdom holds at least a quarter of the total oil reserves in the world, which has helped the country to develop its economy. The large oil reserves have also enabled

the country to counterbalance the disadvantage of the desert areas and modernise the country in the past eighty years (Ministry of Higher Education, 2010).

Besides developing economically, Saudi Arabia has improved its position in Islamic communities and has become an important centre for Islam. Makkah and Madinah are the main holy cities in Saudi Arabia because of their history and strong connection to Islam. Located in the west, Makkah is the cradle of Islam because this is where Prophet Muhammad and the religion he founded were born. The holy locations in Makkah are the Holy Mosque and the Holy Kaaba, to which all Muslims of the world turn to pray five times a day (Ministry of Hajj, 2011). Also known as the focal point of Hajj, Makkah is a place for pilgrimage for more than two million Muslims from around the world (Ministry of Higher Education, 2010).

Besides Makkah, Madinah is another holy city of Saudi Arabia. Madinah is critically important in Islamic History because it was the final religious base for the Islamic Prophet Muhammad. Muhammad is buried in the Mosque of the Prophet, which can host one million worshippers and is the main spiritual destination in the city, being the second most important religious location after Makkah (Ministry of Hajj, 2011).

Because Saudi Arabia houses the two most holy places for Muslims, Makkah and Madinah, the religion of Islam plays a crucial role in all layers of Saudi society from health and education, to economy and defence, as well as security and politics. The constitution of the country, which reflects this deep connection with religion, is based on the Islamic Holy Book, the Quran (Ministry of Higher Education, 2010).

### **1.1.2 Education in Saudi Arabia**

This section describes education in Saudi Arabia. Firstly, it gives a description of the educational system in Saudi Arabia in terms of educational development and policy. Then it provides some information about Special Education development in the country.

#### ***Educational System in Saudi Arabia***

Education was a field that was considered very important from the early beginnings of the Kingdom. In 1925, King Abdul Aziz created the first educational institution and named it the Directorate of Education. The capacity of the centre was 2,319 students in the entire Kingdom, which was rather a small number compared to the entire population of the country. However, the number increased almost ten times in almost 25 years, so by 1949, there were 21,409 students enrolled in the system (Ministry of Education, 2006). By 2008, the number of students enrolled in school reached almost six million, while the number of schools in the Kingdom reached nearly 30,000 (Ministry of Education, 2010).

The educational system is currently controlled by three main agencies that regulate governmental educational policies. These agencies are the Ministry of Education, the Ministry of Higher Education, and the General Organisation for Technical Education and Vocational Training (Saudi Arabian Cultural Mission, 2010). The general standards of education were implemented by the Ministry of Education in 1953, for both public and private systems, and these aim to regulate students' education in all institutions, whether they are primary, secondary, or high school. According to the Ministry of Education (2006), an extension of the Ministry's responsibility is the regulation of libraries, museums, and archaeological research.

Established in 1975, the Ministry of Higher Education is responsible for colleges and universities, and it “supervises scholarships of Saudi students studying abroad, coordinates international inter- university relations and oversees the 27 or so educational and cultural mission offices in different countries” (Al Saloom, 1995, p. 25). In 1980, the vocational and technical education sectors in the Kingdom had been combined and resulted in a new educational institution, called the General Organisation for Technical Education and Vocational Training. The General Administration for Technical Education and the General Administration of Vocational Training were combined into a single institution that conducts various centres for prevocational training, vocational and commercial secondary and higher institutes. Moreover, the institution manages programs for training the staff working in the educational system (Ministry of Education, 2007).

The educational system in Saudi Arabia is comprised of twelve years of educational programs, each containing two semesters of eighteen weeks. The class number varies from a minimum of 28 classes to a maximum of 33 classes weekly, each of 45 minutes. Each school year finishes with an exam that allows students to move on to the next level. Failing to pass this year-end exam leads to repeating the test for the subject or subjects that were not passed. The year repetition occurs if the student fails to pass the exams before the beginning of the new school year (Ministry of Education, 2006).

### ***Special Education in Saudi Arabia***

The year 1947, when the Braille method of reading and writing was first introduced into Saudi Arabia, is considered a milestone marking the beginning of special education in the country. Afterwards, some blind Saudi men learned the Braille method and started to spread and teach this method throughout the country,

while working to convince certain educational institutes to adopt the Braille method for blind people (Al-Mousa, 1999). Some institutes and schools responded to these demands by establishing evening classes that taught the Braille system. Following these developments, the first institute for blind people was founded in Riyadh in 1960 (Al-Mousa, 2007). It was named Al-Noor Institute (meaning the Light Institute in Arabic) and consisted of five primary level classrooms and three vocational classrooms serving 40 students (Al Saloom, 1995; Al-Mousa, 1999).

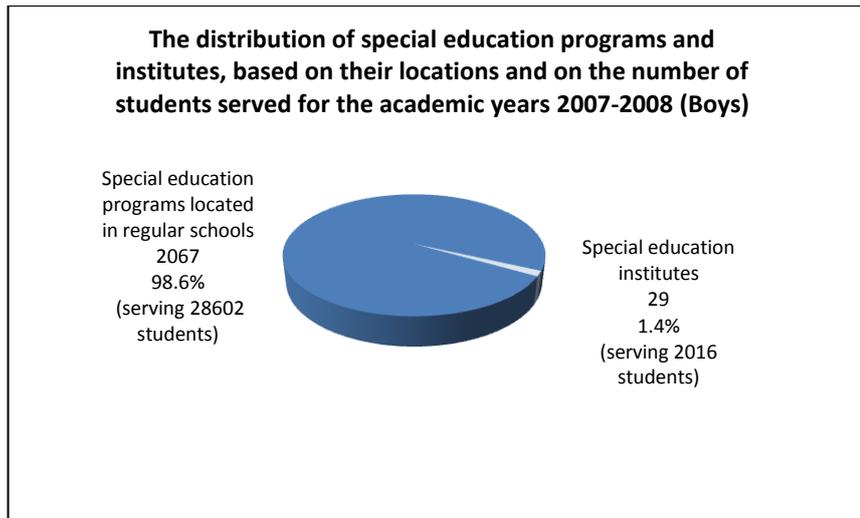
In 1962, the Ministry of Education established the Department of Special Instruction in order to provide educational, vocational, and social services for three different groups: People with visual impairments, people with hearing impairments, and people with intellectual disabilities. After this step, the number of programs and institutes continued to grow dramatically. From 1963 to 1968, the number of Al-Noor Institutes increased, and their distribution extended to several cities, including Madinah, Makkah, and Buraidah. Furthermore, Al-Amal Institutes for deaf people were founded in Riyadh in 1964, and others were created in Jeddah in 1971. The first institute for people with intellectual disabilities who were considered ‘educable’ was established in 1972 (Al-Mousa, 1999).

In the years 1972, 1984, 1997, and 2006, the name of the entity that was once called the Department of Special Instruction was changed in response to the international trends and changes in the concepts of special education. The term “special instruction” was not consistent with the nature of the standard practices and services for people with special needs. Thus, there were some demands for change in the name of the department (Al-Mousa, 1999). Currently, it is called the Directorate General of Special Education (DGSE), and its responsibilities cover the general planning and supervision of special education programs for students with special

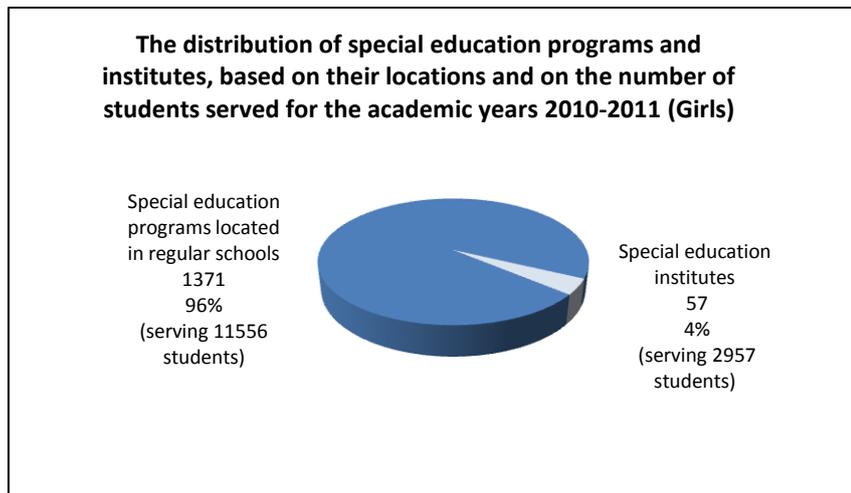
needs in Saudi Arabia (The Directorate General of Special Education (DGSE), 2011b).

After 2000, a major change occurred in both the type and the number of special education services and programs, as these were extended to many more children with a range of special needs including learning disability, intellectual disability, autism, giftedness, visual impairment, hearing impairment, physical disability, emotional and behavioural disorders, speech/language disorders, and multi-disability (Al-Mousa, Al-Sartawi, Al-Abduljbar, Al-Btal, & Al-Husain, 2006). The expansion is reflected, for example, in the increase in the number of special education institutes and programs, from 87 in 1997, to 3,130 in 2006 (Al-Mousa, 1999).

From recent statistical reports published by the DGSE, it is clear that special education practice has developed in Saudi Arabia. Because boys' and girls' schools are segregated, their statistical information is sometimes presented separately. According to 2007-2008 statistics, the number of special education programs and institutes for boys reached 2,096, serving 30,618 students. Figure 1.2 (The Directorate General of Special Education (DGSE), 2008) shows the distribution of special education programs and institutes, based on their locations and on the number of students served. Further, about 14,504 female students took advantage of 1,428 special education programs and institutes in the 2010-2011 academic years. This is shown in Figure 1.3 (The Directorate General of Special Education (DGSE), 2011a).



*Figure 1.2.* The distribution of special education programs and institutes (Boys) 2007-2008.



*Figure 1.3.* The distribution of special education programs and institutes (Girls) 2010-2011.

Now that information concerning Saudi Arabia and its education system including special education programs has been described, in the following subsections, a rationale for the present study will be established and the research objectives will be discussed.

## 1.2 INTRODUCTION

As noted earlier, the purpose of this study was to explore primary mainstream teachers' knowledge about AD/HD and their attitude towards the inclusion of

students with AD/HD-related behaviours in the context of Saudi Arabia. In this section, the research problem is introduced by providing an overview of the chosen topic. This section also presents the problem statement followed by the purpose of the study including the research questions. Next, the significance of the present study is outlined. Finally, a short overview of the research design is presented at the end of this chapter.

### **1.2.1 Overview of AD/HD**

Students' difficulties with attention and behaviour present one of the greatest challenges to educators across many countries (Almog & Shechtman, 2007). Children who exhibit these problems on a frequent basis across multiple settings are likely to be diagnosed with Attention-Deficit/Hyperactivity Disorder (AD/HD), especially in North America. In the US, AD/HD has become one of the most common diagnoses among school children (Mosholder, Gelperin, Hammad, Phelan, & Johann-Liang, 2009). A study conducted in 2003 by the US Centers for Disease Control and Prevention (CDCP) suggested that 7.8% of US children aged 4-17 years have been diagnosed with AD/HD, and that 4.3% are taking prescribed medication for their AD/HD (Centers for Disease Control and Prevention, 2005; Visser, Lesesne, & Perou, 2007). Although international estimates of the prevalence of AD/HD among school-aged children vary across studies, a recent meta-analysis indicated a worldwide prevalence rate of 5.29% (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007).

AD/HD has been defined by the American Psychiatric Association (APA) in the Diagnostic and Statistical Manual of Mental Disorders (5th ed) (DSM-5) as, "a persistent pattern of inattention and/or hyperactivity-impulsivity that interferes with functioning or development" (American Psychiatric Association, 2013, p. 59). In

order for an individual to be diagnosed with AD/HD, the characteristics must have been present for a period of not less than six months, must have occurred before the age of 12 and must have been demonstrated across at least two settings (e.g., home and school) (American Psychiatric Association, 2013). Although the aetiology of AD/HD is uncertain (Aase, Meyer, & Sagvolden, 2006; American Psychiatric Association, 2000), AD/HD is widely recognised as a childhood disorder, and many researchers and clinicians consider it to be a medical condition (Atkinson, Robinson, & Shute, 1997; Reid & Maag, 1997; Visser & Jehan, 2009), particularly in North America (Ideus, 1994; Neufeld & Foy, 2006; Prosser, 2008).

Since the time of its development, there have been controversies regarding AD/HD. A discussion of these controversies will follow in order to set the context for the present study.

### **1.2.2 Controversies surrounding AD/HD**

Despite the considerable body of research focusing on AD/HD, its diagnosis, and its management, the disorder continues to be a source of much controversy (Baldwin & Cooper, 2000; Coghill & Markovitch, 2004; Mayes, Bagwell, & Erkulwater, 2008; Tait, 2005; Wheeler, Pumfrey, Wakefield, & Quill, 2008; Wolraich, 1999). This argument arises for several reasons including the rate of increase in diagnosis (Gilmore, 2010; Lloyd, 2003; Stolzer, 2007; Visser & Jehan, 2009) and treatment of AD/HD (Lloyd, 2003; Stolzer, 2007; Timimi, 2004) as well as the subjectivity of its diagnosis (Jahnukainen, 2010; Stolzer, 2007; Whitely, 2010). The most common construction debate is that regarding the medical versus the social model of AD/HD.

The medical explanation of AD/HD conceptualises AD/HD as a ‘dysfunction’ in the brain leading to behavioural problems such as inattention and

hyperactivity and advocates the use of psycho-stimulant drugs to reduce children's behavioural problems (Prosser, 2008). This model views AD/HD as situated within the individual rather than in the environment/society (Graham, 2008b; Reid & Maag, 1997), and therefore interventions are focused at the individual level and medication is considered necessary to reduce the effects of this 'biologically' based problem (Prosser, 2008). Despite this, no biological marker has been identified, and no existing diagnostic test can definitively diagnose AD/HD in people (Aase et al., 2006; American Psychiatric Association, 2000). Instead, the diagnosis of AD/HD primarily relies on observations of a child's behavioural characteristics and descriptions of these behaviours by both parents and teachers, which can be subjective (Jahnukainen, 2010; Stolzer, 2007; Whitely, 2010).

Others propose that AD/HD is a socially and culturally constructed phenomenon (Amaral, 2007; Baldwin & Cooper, 2000; Timimi, 2004; Timimi & Taylor, 2004). This explanation of AD/HD argues that the interpretation of and response to AD/HD-related behaviours is impacted by cultural beliefs; hence, what is considered normal behaviour in one culture might be considered abnormal in another (Amaral, 2007; Pineda et al., 1999; Timimi, 2004). Consistent with this view, McDermott and Varenne (1996) indicated that the "problems that exist in one culture do not have to exist in another culture, or at least not with the same interpretations and consequences ... even for a sure physical condition, for example, severe mental retardation" (p.110). Accordingly, what makes behaviours appear to be disordered is partly owing to the culture in which the behaviour is displayed (Parens & Johnston, 2009). Proponents of this position argue against medication use for AD/HD and instead argue for alternative ways to organise and run schools and classrooms (Watling, 2004).

Given the increasing debate and research about AD/HD worldwide, Saudi Arabia started to pay some attention to AD/HD approximately in the last ten years, but with more focus on medical services. In the next section, the current situation regarding AD/HD in Saudi Arabia will be described, as this is useful in setting the context for the study.

### **1.2.3 AD/HD in Saudi Arabia**

In Saudi Arabia, the most typical route for a child to be diagnosed with AD/HD begins with a school teacher, a general practitioner or a speech and hearing specialist noticing a child's difficulties with attention and behaviour. The child is referred to a hospital where a child psychiatrist or specialist paediatrician assess the child's functioning in relation to the diagnostic criteria of the DSM-IV which is commonly used because many health professionals in Saudi Arabia have been trained in the US. After diagnosis of AD/HD, medication might be prescribed (such as Ritalin) for some children (M. Alawfi, personal communication, April 5, 2011).

With respect to education, there are currently no policies or services designed specifically for children with AD/HD in Saudi Arabia. Moreover, AD/HD is not officially included under the category of Special Education in Saudi Arabia (Al-Mousa et al., 2006), which is also similar to the situation in some other countries, eg in Australia, United Kingdom, and Oman (Al-Sharbati, Zaidan, Dorvlo, & Al-Adawi, 2011; Atkinson et al., 1997; Cooper, 2005; Prosser, 2008).

In 2004, the Saudi AD/HD Society and Support Group was established in Riyadh, and since then, discussion about AD/HD has become more common in the country. This AD/HD Group is a non-profit organisation that has mounted national campaigns that aim to increase awareness of AD/HD among parents, teachers, and healthcare professionals and improve the lives of individuals with AD/HD and their

families. In addition, the Saudi AD/HD Society and Support Group seeks to work with the Ministry of Health and the Ministry of Education to establish professional development workshops for practitioners on diagnosis and treatment of children with AD/HD (Saudi AD/HD Society and Support Group (Afta), 2011).

The year 2004 also saw the First Middle Eastern Symposium on AD/HD which was convened by the Saudi AD/HD Society and Support Group. From this conference, a number of recommendations emerged for the benefit of children with AD/HD in Saudi Arabia. These recommendations were considered numerous and could not be followed by one agency alone. Therefore, an official committee chaired by Dr Nassir Al-Mousa, who at that time was the administrator and supervisor of The Directorate General of Special Education (DGSE), was allocated to co-ordinate these recommendations. The most important action of this committee was the formulation of the National Project for Dealing with Children with Attention Deficit and Hyperactivity Disorder (NPDCAD/HD) in Saudi Arabia (Alothman, 2011b).

Early in 2009, the Saudi cabinet approved the NPDCAD/HD project. The mechanism proposed to implement it was based on the participation of five ministries: Health; Education; Higher Education; Culture and Information; and Social Affairs. Each ministry was responsible for the aspects of the project that fell within its scope. Among the tasks assigned to the Ministry of Health were the development of treatments for children with AD/HD; the provision of qualified practitioners; the attraction of international specialists in this area; and the establishment of specialist AD/HD clinics in local hospitals. The role of the Ministry of Education was to ensure the inclusion of children with AD/HD in regular schools by providing appropriate support and resources to enable these students to reach their potential. Encouraging colleges and universities to include courses about AD/HD in

their degree programs, alongside research into AD/HD, was the main duty of the Ministry of Higher Education. Finally, the Ministries of Culture and Information and of Social Affairs had roles in raising awareness about AD/HD in society and supporting creativity in children with AD/HD (Allothman, 2011b; Ministry of Foreign Affairs, 2009; Saudi Press Agency, 2009).

Despite the government initiative to support children with AD/HD-related behaviours, however, educational services are currently in limited supply in Saudi Arabia. A recent newspaper report entitled “Children with AD/HD: Solutions are not implemented!” has described the current situation regarding AD/HD in the country (Allothman, 2011a). According to this report, two officials from the DGSE, Dr Fauziah Akhdar and Anwar AlSaqabi and an assistant professor of Special Education at King Saud University, Dr Ibrahim Allothman, all have agreed that even though students with AD/HD are attending regular schools, the majority of these schools lack appropriate educational strategies to serve these students effectively, and this will impact negatively on students with AD/HD, their families, and society in general. AlSaqabi added that services provided to students with AD/HD are deficient and generally only involve individual efforts by teachers and school administrators (Allothman, 2011a).

In relation to medical services, Dr Saleh Al salehi (a consultant behavioural paediatrician) indicated that there is great variation in services and care for children with AD/HD among medical organisations around the country because of the lack of awareness and the low number of qualified practitioners (Allothman, 2011a). Lastly, despite the current limitation on services regarding AD/HD, it seems that the governmental approval of the NPDCAD/HD project indicates that Saudi Arabia has

accepted AD/HD as a medical disorder and is working towards assisting children with behavioural difficulties such as those related to AD/HD.

Given the growing awareness of AD/HD by parents, educators, health professionals, and government agencies, it could be expected that the media in Saudi Arabia has also been paying increasing attention to the diagnosis and treatment of AD/HD. Debates about AD/HD in the Saudi media will be considered in the following section.

#### **1.2.4 AD/HD in the Saudi Media**

There has been some recent media discussion in Saudi Arabia regarding AD/HD, but the medical perspective on AD/HD has dominated the debate. In analysing nearly 40 recent press reports on AD/HD from six of the largest Saudi newspapers (Aleqtissadiya, Okaz, Alwatan, Asharq Alawsat, Aleqtissadiya, Alriyadh, Al-jazirah), it was found that almost all of these reports indicated that AD/HD is a ‘neurological disorder’ that affects around 15% of children of Saudi Arabia. Also in this analysis, no mention was found of the critical or opposing views of the medical perspective of AD/HD. This general assertion of a ‘neurobiological’ basis for AD/HD appears to be unconditional and uncritical acceptance of AD/HD, as the biological hypothesis of AD/HD has never been strongly supported by any scientific evidence (Alban-Metcalf, Cheng-Lai, & Ma, 2002; Furman, 2005; Havey, Olson, McCormick, & Cates, 2005; Stolzer, 2007; Timimi, 2004). Given the socio-cultural context of Saudi Arabia, other perspectives on AD/HD should be considered when assessing a child who is experiencing difficulties with attention and behaviour, instead of uncritically accepting that these behaviours are caused by a medical condition such as AD/HD.

With respect to the frequent use of the phrase “15% of Saudi children have AD/HD” as a headline in many Saudi press reports seems to be exaggerated for some reasons. Firstly, this rate of prevalence was based on two Saudi studies (Abdur-Rahim, Al-Hamed, Chaleby, & Al-Subaie, 1996; Al-Hamed, 2002), which were separately undertaken in only two cities in Saudi Arabia, Dammam and Riyadh, with prevalence rates of 16.7% and 12.6% respectively; thus their findings cannot be applied to Saudi society as a whole. Further, there is another Saudi study (Alqahtani, 2010) which reported that the prevalence rate of AD/HD in Saudi Arabia is 2.7%, but this result was largely marginalized in the media discussions compared to the previous two studies.

The Saudi media, furthermore, often focus on the negative consequences that might occur with AD/HD and call for early diagnosis and treatment of AD/HD. For example, many times, in the local press and TV, it was indicated that children with AD/HD are at high risk for developing future problems such as alcohol and drug addiction, car accidents, vandalism, and theft (Al Ghamdi, 2010; Al shirian, 2010; Al-Dahlawi, 2009; Al-faifi, 2009; Al-halili, 2007; Al-Omran, 2007; Al-Shethri, 2010; Al-Yamani, 2007, 2008; Shriah, 2008), and the best ways to avoid these potential difficulties are early diagnosis and medical treatment of AD/HD ("AD/HD negatively affects the child," 2011; Al-Shethri, 2010; Al-Yamani, 2007). Consequently, as people's knowledge of and attitudes towards AD/HD are likely to be affected by media debates (Gilmore, 2010), such media reports possibly lead to a social need for the label of AD/HD in the Saudi community. Saudi Arabia is a culturally conservative country, where most families make high demands of their children, including appropriate social behaviour. Therefore, when parents are frequently exposed to these media messages, they may be influenced and feel that the

best they can do to protect their children, who simply seem overactive or disruptive, is to have them diagnosed with AD/HD and prescribed medication.

In a recent television interview, Dr Suad Al-Yamani, the founder of the Saudi AD/HD Society and Support Group, described the number of Saudi families seeking a diagnosis of AD/HD for their children to be considerable; the AD/HD group daily receives many calls from parents who state that “we do not need awareness of AD/HD, we need someone to diagnose our child and put him or her on treatment” (Al shirian, 2010). This seems to justify the assumption that AD/HD may turn out to be only a reflection of an attempt to conserve social norms and values in the country. Saudi society has its own attributes that differ from other countries. Thus, when examining the behaviour of children, we need to take into account what is considered acceptable and unacceptable behaviour within the given social context.

The provision of educational services for students with AD/HD-related behaviours can be influenced by the different perspectives from which teachers view these students. This area is the next topic of discussion.

### **1.2.5 Social and Medical Models of AD/HD and Education**

Educating students with significant attention and behavioural difficulties such as those characteristic of AD/HD is challenging (Carpenter & Rogers, 2002; Saad & Lindsay, 2010). A teacher’s success in teaching students with such difficulties is greatly dependant on his or her attitudes towards these students (Palla & Mauerberg-deCastro, 2004; Simons & Kalogeropoulos, 2005). These attitudes might be based on either the medical perspective or social perspective of AD/HD-related behaviours, which represent the most common opposing perspectives of AD/HD. Unlike a strictly medical explanation, which risks the omission of key social obstacles to educational success (Prosser, Reid, Shute, & Atkinson, 2002), the social model of

children with special needs currently being presented calls for inclusive education (Chenoweth & Stehlik, 2004; Goyal, 2005; Nind & Cochrane, 2002; Surtees, 2009), which is “a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education” (UNESCO, 2005, p. 13).

Viewing the student with AD/HD-related behaviours through the lens of a medical model is likely to be of limited utility in the classroom, especially given the current trend towards inclusive education. A teacher’s key role in an inclusive classroom is to instruct all students, including those with special needs, and use a wider range of teaching strategies to provide for a variety of individual characteristics (Roux, Graham, & Carrington, 1998). This goes along with the view that the diagnosis or label of AD/HD does not necessarily aid educators very much in meeting the needs of pupils (Armstrong, 1999; Graham, 2010; Weaver & Landers, 1998).

What is even worse is that the medical conceptualisation of AD/HD might lead to exclusion of students with AD/HD-related behaviours from regular classrooms. Anecdotal evidence suggests that some schools in Australia and the US ask parents to put children with AD/HD-related behaviours on medication, otherwise their child will be excluded (Graham, 2008a; Whitely, 2010). Clearly, this medicalization trend has potentially harmful implications for education, and it seems to omit the perspective of some authors that the cause of a student’s attention or behavioural problems in most cases is primarily related to “difficulties with learning” (McGee & Share, 1988 as cited in Armstrong, 1999, p.36).

The social model, in contrast, is a way of looking at an individual’s difficulty as an individual characteristic rather than as a deficiency or disorder. According to

this model, “barriers to learning and participation can exist in the nature of the setting or arise through an interaction between students and their contexts: the people, policies, institutions, cultures, and social and economical circumstances that affect their lives” (Booth & Ainscow, 2002, p. 6). In this perspective, the main priorities for action are to remove obstacles, ensure citizenship rights and introduce anti-discrimination laws (Shakespeare, 2004), which are closely linked to the concept of inclusion (Muthukrishna, 2000). With the social perspective of AD/HD-related behaviours, teachers are aware that behaviours associated with AD/HD in students are also influenced by the way teachers structure their classrooms and learning activities, and it is partly their responsibility as a teacher to alter the environment to best accommodate students’ learning needs. Accordingly, it is expected that if a teacher considers a child’s behavioural problems not to be a deficit that lies within the child, the teacher is more likely to have positive attitudes towards this child and to accept his or her inclusion in the mainstream classroom.

In order to enhance inclusive education for students with AD/HD-related behaviours, Cooper (2005) introduces a significant concept: he recommends to “reframe” AD/HD as a particular cognitive style, rather than a “deficit”. When educators view students with AD/HD-related behaviours from this perspective, it is expected that teachers will start thinking about “pedagogical strategies...designed to exploit, rather than inhibit, some of the characteristics associated with AD/HD” (2005, p.130). For instance, talking at inappropriate times, which is one of the classroom problems related to AD/HD, could be exploited by giving students more opportunities to participate in verbal tasks during class time, such as allowing a student to read aloud to his/her classmates. There are also a number of positive characteristics associated with AD/HD that could be exploited; specifically, many

children with AD/HD-related behaviours are described as creative, imaginative, humorous (Robbins, 2009); insightful, intuitive (Honos-Webb, 2010); energetic, innovative (Richards, 2003); curious, and enthusiastic (Wheeler, 2010). If educators strove to improve these traits and abilities by altering the educational environment or teaching strategies, a successful inclusive experience for students with AD/HD-related behaviours might be achieved more effectively, compared with focusing only on the individual and trying to modify (medicate) the student to fit the environment.

Inclusive education for students with AD/HD-related behaviours has been advocated in recent years. In the next section, the inclusive education for these students will be discussed in order to lay the foundation of the present study.

### **1.2.6 AD/HD and Inclusive Education**

Saudi Arabia has committed to inclusive education for students with special needs via national and international agreements (Al-Mousa, 2007; United Nations, 2006). Moreover, the NPDCAD/HD project has specified that students with AD/HD should be included and supported in regular classrooms (Alothman, 2011b; Ministry of Foreign Affairs, 2009; Saudi Press Agency, 2009). The provision of more effective inclusive education for students with AD/HD-related behaviours has been recommended in other countries within the past few years, including the United States and the United Kingdom (DuPaul, 1992; Fovet, 2007; Sava, 2000; Wheeler et al., 2008). Still, inclusive education does not mean simply placing all students with special needs in regular classrooms. Such an approach fails to solve the problem of exclusion, as students might be included in a classroom but still might not be adequately supported according to their needs if the teacher does not accept that his or her responsibility is to teach all students in the classroom including the child with difficulties (Carrington et al., 2012).

A classroom teacher is considered to be the cornerstone of any successful inclusive program (UNESCO, 2005). It is not easy to implement a successful inclusion program for students with AD/HD-related behaviours. Although supporters of the inclusion of students with behavioural problems contend that students' behavioural, educational, social, and emotional functioning will be enhanced (Heath et al., 2004), educating students with behavioural problems such as those related to AD/HD in the inclusive setting is fraught with many challenges (Lago-Delello, 1998; Lewis, Chard, & Scott, 1994; Muscott, Morgan, & Meadows, 1996 as cited in Skiba & Peterson, 2000, p.340) due to the disruptive nature of their behavioural difficulties. Thus, teachers need to be prepared to face these challenges and to address the needs of all students.

Teachers should be prepared to work effectively in inclusive classrooms. Programs that prepare teachers for inclusive education should take into account the key factors affecting the implementation of inclusive educational practices. Previous research suggests that effective inclusive practice is linked to several teacher-related factors, including adequate preparation and support (Hobbs & Westing, 1998; King-Sears & Cummings, 1996); positive attitudes towards inclusion (Avramidis & Norwich, 2002; Elhoweris & Alsheikh, 2006; Soodak, Podell, & Lehman, 1998); relevant knowledge and skills (Forlin, Loreman, Sharma, & Earle, 2009; Peterson & Beloin, 1998); and high self-efficacy beliefs (Sharma, Loreman, & Forlin, 2012). It has also been argued that teachers are able to make decisions about including or excluding students through their knowledge, skills, values, beliefs, attitudes, and behaviours (Kearney, 2011).

Teachers' attitudes towards inclusion and their knowledge about students with AD/HD-related behaviours are particularly important owing to their possible

influence on how inclusive education strategies are employed for these students.

Previous research has shown that beliefs about inclusion are significant in determining teachers' everyday practices: Teachers with positive attitudes towards inclusion are more likely to use inclusive educational strategies than those with less positive attitudes (Bender, Vail, & Scott, 1995; Sharma, Forlin, Loreman, & Earle, 2006). Teachers' knowledge of AD/HD also has a significant influence on their reported behaviours; specifically, teachers with average and higher knowledge of AD/HD tend to provide more supportive and adaptive experiences for students compared to those with weaker knowledge (Ohan, Cormier, Hepp, Visser, & Strain, 2008).

It appears that positive teachers' attitudes towards inclusion, combined with appropriate knowledge about students with AD/HD-related behaviours, have great importance in terms of better educating these students in inclusive settings. Therefore, to develop an effective inclusive education program, we need to understand the attitudes and understandings of teachers in Saudi Arabia concerning students with AD/HD-related behaviours.

### **1.2.7 Statement of the Problem**

At present, the medical model of AD/HD dominates the understanding and discussion of supporting children in managing their behaviours in education settings in Saudi Arabia. This is not surprising due to the abundance of international research and literature that assumes a medical perspective in regard to diagnosis and treatment. More recently there has been a number of researchers (Amaral, 2007; Armstrong, 1999; Pineda et al., 1999; Timimi, 2004; Timimi & Taylor, 2004) that have challenged the way children have been diagnosed, labelled, and treated for difficulties with behaviour.

Because of its blindness to cultural differences, the medical perspective of AD/HD, and whether it can be properly translated into other cultures outside the US, has been a subject of discussion in recent years. For instance, a study exploring cultural perspectives on AD/HD argued that the diagnosis and treatment of AD/HD are culturally dependent (Singh, 2002). Additionally, Ideus (1994) indicated that the role of culture in AD/HD must be taken into account as a first step for the educational and medical practitioners of any country. The culture of Saudi society, in particular, was described by Bjerke and Al-Meer (1993) who stated that “the cultural milieu shaping the mentality and behaviour of the Saudis is a unique blend of Islam mixed with Arab traditions” (p.30), and others regarded it as one of the most conservative cultures in the world (Burkhart & Goodman, 1998). These unique attributes and characteristics of Saudi culture might in some way have an impact on teachers’ attitude towards and understanding of students with AD/HD-related behaviours.

Teachers’ rating of (Langsdorf, Anderson, Waechter, Madrigal, & Juarez, 1979; Steyens, 1981; Waechter, Anderson, Juarez, Langsdorf, & Madrigal, 1979), interpretation of (Bird, 1996) and attitude towards (Kakouros, Maniadaki, & Papaeliou, 2004) AD/HD-related behaviours are influenced by the norms and values of the culture in which they live. For example, hyperactivity, which is a primary characteristic of AD/HD, is seen as more undesirable in cultures that value compliance and respect in children such as, Thailand in comparison to other cultures, such as the United States of America (Weisz & Wanchai, 1995) and Greece (Kakouros et al., 2004). The effect of Saudi culture on teachers’ attitude towards and understanding of students with AD/HD-related behaviours has not been examined.

Teachers in Saudi Arabia play a vital role in the identification of AD/HD-related behaviours in students, and they are also involved in the implementation of inclusive education. Teachers are asked to make referrals for their students who regularly display behavioural problems related to AD/HD such as, inattention, hyperactivity, and impulsivity. The teachers, moreover, should support all students in inclusive classrooms by providing a rich variety of pedagogical strategies that address the diverse needs of students. Nevertheless, though the teachers are engaged in the process of the identification and the inclusive education implementation, to my knowledge, no published study has addressed teachers' attitude towards or knowledge of students with AD/HD-related behaviours in the Saudi context. Therefore, in light of this knowledge base, it is important to understand Saudi teachers' attitude towards the inclusion of students with AD/HD-related behaviours through deep exploration of their beliefs about the behaviours associated with AD/HD. Furthermore, examining Saudi teachers' knowledge of AD/HD and the relationship between teachers' attitudes and some other factors will be beneficial in this regard.

### **1.2.8 Purpose of the Study**

Using mixed-methods techniques, the proposed study aimed to explore primary teachers' knowledge about AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours in Saudi mainstream schools. The study also sought to examine the relationships between teachers' efficacy beliefs for teaching students with behavioural problems and their knowledge about AD/HD. The final purpose of this research was to investigate whether the variance in teachers' attitude towards the inclusion of students with AD/HD-related behaviours can be explained by the independent variables, which included efficacy beliefs, teacher age,

class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD (primarily inattentive type or primarily hyperactive/impulsive type).

### **1.2.9 Research Questions**

The proposed study seeks to answer the following questions:

#### **Research question #1:**

What perceptions and attitudes do Saudi teachers have about the inclusion of students with AD/HD-related behaviours?

**Sub-question 1.1:** What is the attitude of Saudi mainstream teachers towards the inclusion of students with AD/HD-related behaviours as measured by the Teacher Attitude towards Inclusion Scale (TAIS)?

**Sub-question 1.2:** How do Saudi mainstream teachers perceive the inclusion of students with AD/HD-related behaviours and the factors influencing their attitude towards inclusion?

#### **Research question #2:**

What is the knowledge of Saudi mainstream teachers with regard to AD/HD as measured by the Knowledge of Attention Deficit Disorders Scale (KADDS)?

#### **Research question # 3:**

How well does teachers' knowledge of AD/HD correlate with their efficacy beliefs for teaching students with behavioural problems?

#### **Research question # 4:**

How well do the independent variables – efficacy beliefs, teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience

with a child with behavioural problems, and the subtype of AD/HD – predict teachers’ attitude towards the inclusion of students with AD/HD-related behaviours? Which of these independent variables is the most important predictor of teachers’ attitude towards the inclusion of students with AD/HD-related behaviours?

### **1.2.10 Significance of the Study**

In order to educate students with attention and behavioural difficulties effectively in an inclusive setting, teachers need to be knowledgeable about AD/HD as well as educational practices that will support these students to function and learn in a classroom. It has been found that teachers with average or higher knowledge about AD/HD tend to provide more supportive and adaptive experiences for students compared to those with weaker knowledge (Ohan et al., 2008). Although the knowledge of teachers about AD/HD has been explored in some countries, such as Australia (Kos, 2004), the USA (Sciutto, Terjesen, & Frank, 2000), and Vietnam (Graeper, Barker, & Terjesen, 2008), to date, studies examining the knowledge of teachers in Arabic countries of AD/HD have not been identified by this researcher. Accordingly, it seems worthwhile to investigate the understanding of teachers in Saudi Arabia about children with AD/HD-related behaviours.

Attitudes towards inclusion also seem to be of high importance for teachers to better educate students with AD/HD-related behaviours in inclusive settings. Previous research has found that teachers’ attitudes towards inclusion were an important factor that correlates with the successful implementation of including students with additional needs into regular education classrooms (Avramidis & Norwich, 2002; Elhoweris & Alsheikh, 2006; Soodak et al., 1998). Substantial research, mostly from the U.S, has been conducted about teachers’ attitudes towards inclusion of students with special needs, such as those with hearing impairments

(Sari, 2007), intellectual disabilities (Alquraini, 2012), and autism (Engstrand & Roll-Pettersson, 2012), however there is a lack of knowledge about the attitudes of teachers towards the inclusion of students with AD/HD-related behaviours, and what may affect these attitudes. Because of this, it is important to explore how teachers in the context of an Arab-Muslim culture such as Saudi Arabia view children with AD/HD-related behaviours and their inclusion in regular classrooms.

Information about teachers' knowledge about AD/HD and their attitudes towards the inclusion of students with AD/HD-related behaviours can be used by the Ministry of Education to improve inclusive education programs and offer comprehensive professional development for teachers. Furthermore, this study may contribute to a fuller understanding of AD/HD, as it will provide a cultural perspective on children with AD/HD-related behaviours in the context of an Arab-Muslim culture such as Saudi Arabia.

Finally, the research on AD/HD in education settings is particularly scarce in Saudi Arabia, and there have been only a few studies concerning the issue of AD/HD and education. Given this and the limited body of empirical studies that have examined the knowledge and attitude of teachers in Arab-Muslim countries towards students exhibiting significant attention and behavioural difficulties characteristic of AD/HD, this study makes an important contribution to the domain.

### **1.2.11 Research Design**

The present study utilised an explanatory sequential mixed methods design with a quantitative phase followed by a qualitative phase. Two-hundred-and-two primary teachers from the Madinah administrative area of Saudi Arabia completed a questionnaire booklet. The questionnaire allowed the researcher to explore teachers' knowledge of AD/HD, their attitude towards inclusion of students with AD/HD-

related behaviours, and the relationships among knowledge, self efficacy, attitude towards the inclusion, and a number of background factors, including teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD.

In the second, qualitative phase, a series of semi-structured interviews were performed with eight teachers who were selected based on their responses to the questionnaire for the purpose of explaining or expanding on the earlier quantitative results. Specifically, the main purposes of the interview approach were to investigate teachers' attitudes towards the inclusion of students with AD/HD-related behaviours and to explore and elaborate on the significant predictors of teachers' attitudes identified in the initial quantitative analyses.

The questionnaire booklet comprised four measures relevant to the purposes of the study. These measures were entitled, *Part A: Teacher Attitude towards Inclusion Scale (TAIS)* (adapted from Soodak, Podell, & Lehman (1998), *Part B: Teacher Efficacy Beliefs Scale (TEBS)* (Brownell & Pajares, 1999), *Part C: Knowledge of Attention Deficit Disorders Scale (KADDS)* (Sciutto et al., 2000), *Part D: Demographic Questionnaire (DQ)*. The follow-up interview protocol consisted of open-ended questions that were based on a literature review of the topic and the aims of the present study.

## Chapter 2: Literature Review

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This study was designed to explore Saudi primary mainstream teachers' knowledge about AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. It also aimed to examine the relationships among teachers' attitude towards inclusion, knowledge of AD/HD, efficacy beliefs for teaching students with behavioural problems, and a number of background factors including teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD.

In this chapter, relevant research is reviewed across four sections. The first section provides an overview of Attention-Deficit/Hyperactivity Disorder (AD/HD) including its history, characteristics, prevalence, theories, educational problems, and educational adjustments. The second section presents a critical review of AD/HD including a discussion of its cultural foundations and the subjectivity of the diagnostic process. The third section reviews the development of the inclusive education movement and considers teachers' knowledge about AD/HD and their attitude towards inclusion. The final section introduces the theoretical background of the Theory of Planned Behaviour (Ajzen, 1985) and the Theory of Self-efficacy (Bandura, 1977) including a consideration of the conceptual framework for the present study.

## **2.1 OVERVIEW OF AD/HD**

### **2.1.1 Historical Background of AD/HD**

Although Attention-Deficit/Hyperactivity Disorder has only been identified recently as a diagnosable disorder, behavioural features consistent with current definitions of AD/HD were identified at the beginning of the twentieth century. As early as 1902, George Still presented a number of lectures to the Royal College of Physicians describing 20 children who exhibited restlessness and inattention (Fitzgerald, Bellgrove, & Gill, 2007). These children were described as having behaviour problems such as aggression, destructiveness, and opposition to punishment (Fitzgerald et al., 2007). Still noted that these difficulties were most commonly observed during childhood years in boys (Green & Chee, 1994).

Several decades later, the characteristics of these children became the focus of considerable research (Parker, 1992). As a result of this research, a number of different terms have been used to identify this pattern of difficulties. Parker (1992) offers a list including: minimal brain damage syndrome (1940), hyperkinetic impulse disorder (1957), minimal brain dysfunction (1960), and hyperkinetic reaction of childhood (1968). Many children with such patterns of difficulties would likely now be identified as having Attention-Deficit/Hyperactivity Disorder (Mash & Barkley, 2003).

Hyperactivity continued to be considered a primary feature of this disorder for some time, but in the 1970s, Virginia Douglas began to promote the concept that inattention rather than hyperactivity is the core characteristic of the disorder. Thus in 1980, the term hyperkinetic reaction of childhood was renamed Attention Deficit Disorder (ADD) in the Diagnostic and Statistical Manual (DSM- III) of the American Psychiatric Association (Green & Chee, 1994). Additionally, the disorder was re-categorised into two subtypes, ADD with and ADD without hyperactivity.

The DSM-III specified ADD as a multidimensional disorder characterised by hyperactivity, impulsivity, and a deficit in sustaining attention. The DSM-III also specified that the behavioural characteristics needed to be exhibited for at least six months with onset before the age of seven (Fitzgerald et al., 2007).

More changes were apparent in the revised third edition (DSM-III-R) which was published in 1987. The term Attention Deficit Disorder (ADD) was changed to the term Attention-Deficit/Hyperactivity Disorder (AD/HD) due to the lack of experimental evidence to prove separate subtypes for ADD with and without hyperactivity. As a result, inattention, impulsivity, and hyperactivity were combined, and all were listed as criteria for diagnosing AD/HD (Cherkes-Julkowski, Sharp, & Stolzenberg, 1997).

With the next iteration of the manual, the DSM-IV (1994), the disorder was parsed into three separate conditions (Wasserstein, 2005, p. 537), which have continued into the revised edition, the DSM-IV-TR (2000); AD/HD, Predominantly Hyperactive-Impulsive Type; AD/HD Predominantly Inattentive Type; and AD/HD Combined Type. The AD/HD Predominantly Hyperactive-Impulsive Type is defined as having at least six of nine characteristics of hyperactivity/impulsivity. The AD/HD Predominantly Inattentive Type describes children who display at least six of nine characteristics of inattention. The combined type is diagnosed in those children displaying at least six characteristics of hyperactivity/impulsivity and at least six characteristics of inattention (American Psychiatric Association, 2000).

The fifth and most current edition of the DSM (DSM-V) was published in May 2013. The DSM-V contains some changes from the previous DSM-IV-TR regarding the diagnosis of AD/HD. According to these changes in the DSM-V, the diagnosis of AD/HD requires 1) the presence of AD/HD characteristics before the

age of 12 years (previously 7 years), persisting for a period of not less than six months, 2) that several AD/HD characteristics be present across at least two settings (e.g., home and school), 3) a clear evidence of functional impairment in social, academic, or occupational domains, and 4) absence of other psychotic or mental explanation for the AD/HD characteristics (American Psychiatric Association, 2013).

### **2.1.2 Primary Characteristics of AD/HD**

It has been reported that children with Attention-Deficit/Hyperactivity Disorder typically present with a range of difficulties, which in general are considered to be the primary characteristics of AD/HD. These difficulties include inattentiveness, hyperactivity, and impulsivity.

#### ***Inattentiveness***

Attention difficulty is one of the most common characteristics of children with AD/HD. Inattentive children have difficulty in focusing and sustaining their attention and are easily distracted by external or internal stimuli (Sesalem, 2001). Parker (1992) noted that the attention span of children diagnosed with AD/HD was much shorter than that of their peers. Students with AD/HD often do not pay attention to the teacher when spoken to in the classroom. As a result, they typically have problems remembering or following directions. They are also easily distracted by any sign or movement in their environment and have difficulty starting tasks. If they start a task, they often have difficulty completing it (Rief, 2005).

Children with AD/HD can, however, be attentive to their favourite activity for a long period of time but they lose concentration whenever they are required to focus on an activity which is unattractive for them. Kutscher, Attwood, and Wolff (2005) indicate that children with AD/HD are able to pay attention to any subject for a considerable period of time if they are interested in it; for example, children with

AD/HD have been observed to play computer games or watch cartoon movies for hours. Green and Chee (1994, p. 31) describe a parent of child with AD/HD as stating, “It’s not that he can’t attend – he concentrates for hours, at Nintendo and watching the television”.

### ***Hyperactivity***

Hyperactivity, another common characteristic of AD/HD, is probably the most visible. Before entering formal schooling, a child with AD/HD may seem overactive compared to his peers but when he enters school, his hyperactive behaviour becomes more obvious, and he will often be regarded as having a significant problem. In school, students are asked to sit quietly, engage in the lesson, and follow their teacher’s instructions, but many students who are diagnosed with AD/HD find it difficult to sit still to read or to listen to the teacher for sustained periods of time (Sesalem, 2001). In the classroom, they are often out of their seats, or if they are seated, it will not be for long (Munden & Arcelus, 1999).

Hyperactive behaviour includes fidgeting, talking with classmates during lessons, making noises, jiggling legs, drumming fingers, and running around (Green & Chee, 1994; Lougy, DeRuvo, & Rosenthal, 2007; Parker, 1992). At home, these children are often reported to touch everything, play with an excessive amount of noise, and open and close the fridge or doors for no apparent reason (Green & Chee, 1994). In short, children with AD/HD often need frequent reminders because they seem to find it difficult to regulate the level of their activity (Lougy et al., 2007). Parker (1992), however, indicated that not every child with AD/HD behaves this way. Girls who are hyperactive tend to act in a less physical manner than boys but are often described as extremely talkative.

### ***Impulsivity***

Children with AD/HD are reported to experience serious difficulties with impulse control; that is, they seem to act before they think about the consequences. A good example is that of a person with AD/HD who described his actions as follows: “By the time I think about doing something, I’ve already done it” (Parker, 1992, p. 2). At school, children might talk excessively in many situations and blurt out answers before questions have been completed. Other characteristics of impulsivity include starting to do an assignment without waiting for the teacher’s instructions, shifting from one task to another without completing what they have started, and making many careless mistakes on an assignment in order to complete it quickly (Sesalem, 2001; Lougy, et al., 2007). When playing, some children will engage in dangerous behaviours such as jumping from dangerous heights and running excessively. As a consequence, other students often taunt them because they know that these children will react quickly and without thinking (Green & Chee, 1994).

#### **2.1.3 Prevalence of AD/HD**

Attention-Deficit/Hyperactivity Disorder is one of the most prevalent diagnosed disorders among children. Sesalem (2001) noted that approximately 50% of children referred to psychiatric clinics in the USA are diagnosed with Attention-Deficit/Hyperactivity Disorder (Sesalem, 2001). In a study conducted in the US, DuPaul and Stone (2003) found that approximately 3–7% of children within the general population are likely to be identified as having AD/HD. Similarly, findings from the US *National Survey of Children’s Health* (2003) indicated that approximately 4.4 million children in the age range of 4–7 years have been diagnosed with AD/HD (Bukstein as cited in Lougy, et al., 2007). Estimates of the prevalence of AD/HD among children in Australia are similar to those reported in the

USA. For example, in a study examining the prevalence of DSM-IVAD/HD in 4-17 year old children and adolescents, Graetz, Sawyer, Hazell, Arney, and Baghurst (2001) found an overall prevalence rate of 7.5%. At the international level, a recent meta-analysis indicated a worldwide prevalence rate of 5.29% (Polanczyk et al., 2007).

Research in the area of AD/HD is limited in Saudi Arabia and the extant studies have indicated widely varying prevalence rates. To illustrate, Abdur-Rahim, Al-Hamed, Chaleby, and Al-Subaie (1996) conducted a hospital-based study at King Saud University, Riyadh and found an AD/HD prevalence of 12.6%. A higher prevalence (16.7%) was reported by Al-Hamed (2002), who focused on school students (aged 6–13 years) in Dammam, a different city of Saudi Arabia. In a more recent Saudi study conducted with primary school children (aged 6–12 years) in Jeddah, Saudi Arabia, the prevalence of AD/HD was estimated to be 11.6% (Homidi, Obaidat, & Hamaidi, 2013). In contrast to these findings, however, a study of primary school students attending grades 1–3 (aged 7–9 years) in the Assir region of Saudi Arabia, Alqahtani (2010) reported a prevalence as low as 2.7% among Saudi school-aged children. This variability in AD/HD prevalence rates among the Saudi studies is consistent with the variability to be found among studies worldwide (Polanczyk et al., 2007)

Reasons for varying rates of prevalence across countries may be the result of differences across a number of important variables including research design, size and type of sample (school or clinic), the age (or age range) and gender of participants, measures of AD/HD symptoms, informants, and the year of the study (LeFever, Dawson, & Morrow, 1999). In addition, culture differences may be implicated in the variability of prevalence rates of AD/HD (Amaral, 2007).

Gender is an important variable to consider in reporting prevalence rates because boys are three times more likely than girls to be diagnosed with AD/HD (Woodard, 2006). Across a number of studies, it has been estimated that 3–8 % of boys and 1–3% of girls will be diagnosed with AD/HD (Barkley, 2000). In Combined and Hyperactive/Impulsive types of AD/HD, the male-to-female ratio is 4:1 while in the Inattentive type, the ratio is 1:1 (O'Regan, 2005). Since boys seem to exhibit aggression, impulsivity, and disruption more than girls, girls with AD/HD tend to be misdiagnosed and as a consequence, inappropriately treated. This may impact negatively on their education as well as their social and emotional lives in the present as well as the future (Parker, 1992).

#### **2.1.4 Theoretical Underpinnings of AD/HD**

A number of theoretical models have been proposed to explain the construct and/or diagnostic entity of AD/HD. These theories include cognitive models (e.g., the Planning, Attention, Simultaneous, Successive (PASS) theory) (Goldstein & Naglieri, 2008), developmental theories (e.g., Dynamic Developmental Theory (DDT)) (Rosemary, 2005) as well as neuropsychological theories (e.g., Executive Function theory) (Willcutt, Doyle, Nigg, Faraone, & Pennington, 2005). The construct of the PASS theory is grounded in the work of Luria (1966, 1973, 1980). Luria noted that the four basic cognitive processes – planning, attention, simultaneous, and successive – are responsible for brain activity and are related to three separate but connected specific functional units of the brain. “The first unit provides regulation of cortical arousal and attention; the second codes information using simultaneous and successive processes; and the third provides for strategy development, strategy use, self-monitoring, and control of cognitive activities” (Naglieri, 2005, p. 121). It is argued that children with AD/HD are expected to have

a deficit in the first functional unit, especially those with inattentive type of AD/HD. The third functional unit in Luria's theory is related to AD/HD-Combined Type and AD/HD Hyperactive/Impulsive Type (Naglieri, 2005).

In contrast, the Dynamic Developmental Theory (DDT) argues that AD/HD is a neurobehavioural disorder and its behavioural characteristics arise from altered reinforcement processes and inefficient extinction possibly related to dysfunctioning dopamine systems (Johansen & Sagvolden, 2004). This theory is concerned with hypodopaminergic functioning, which is believed to result in anomalous delay-of-reinforcement gradients in the brain of individuals with AD/HD. This model is utilised to explain many of the behavioural and cognitive characteristics that have been noticed in children diagnosed with AD/HD (Rosemary, 2005).

One of the more prominent neuropsychological theories of AD/HD suggests that characteristics of AD/HD emerge from a core deficit in executive functions, that are, "neurocognitive processes that maintain an appropriate problem-solving set to attain a later goal" (Willcutt et al., 2005, p. 1336). Executive function comprises specific cognitive abilities such as planning, organisation, inhibition, working memory, and flexibility (Ozonoff & Strayer, 1997), which are of major importance to a person for school success and everyday functioning (Ozonoff, 1998). The basis of this theory is the observation that prefrontal lesions sometimes generate deficits on executive function tasks, as well as AD/HD-related behaviours. However, weaknesses of executive function are not necessarily or sufficiently responsible for every single case of AD/HD (Willcutt et al., 2005).

### **2.1.5 Educational Problems Associated with AD/HD**

Students with AD/HD-related behaviours are likely to have a wide range of difficulties at school as a result of their difficulties with inattention, impulsivity and

hyperactivity. Students' difficulties in one or all of these areas will typically result in both academic and social-emotional problems.

Students with AD/HD-related behaviours may have difficulty adjusting at school. According to Lougy et al. (2007), these students tend to be unable to listen to a long series of instructions from teachers, have problems concentrating on their academic work for a sufficient length of time, are frequently not able to finish their school assignments, easily forget daily rules or work, have difficulty joining group conversations, and often 'daydream'. Moreover, DuPaul and Stoner (2003) indicated that children with AD/HD-related behaviours have limited opportunities to respond during the lesson and to complete assignments because they have significant problems in staying on-task when compared with their peers without AD/HD-related behaviours.

Impulsive/hyperactive behaviours can also have a significant impact on the academic lives of students with AD/HD-related behaviours. Such behaviours can include being fidgety, running around or climbing excessively, leaving one's seat at inappropriate times, interrupting others in the classroom, talking excessively, and difficulty playing quietly (American Psychiatric Association, 2000). Teachers tend to find this pattern of behaviour difficult to cope with and annoying. Their classmates may at first find it funny, but once the child with AD/HD-related behaviours has aggressively imposed on them, or inhibited their learning, they begin to find them annoying as well (Munden & Arcelus, 1999).

Because of their problems of inattention and hyperactive/impulsive behaviours, children with AD/HD-related behaviours are not only at high risk for social problems, but for academic failure as well. They are typically thought to underachieve academically (Munden & Arcelus, 1999) and are often retained for at

least one grade (Litner, 2003). It has been argued that chronic underachievement and dropping out of school are the most serious problems facing students with AD/HD-related behaviours (DuPaul & Stoner, 2003). Litner (2003) has noted that 30% of school age students with AD/HD-related behaviours drop out of school before graduating from high school and as few as 5% graduate from a university degree program.

### **2.1.6 Educational Accommodations for AD/HD**

Although nearly 80% of students with AD/HD-related behaviours have been reported to experience achievement difficulties at school (DuPaul & Stoner, 2003), they can learn successfully within a regular classroom when they are being taught by teachers who are willing to adapt their instructional practices to meet these students' learning needs (Parker, 1992). Consistent with this view, Pierangelo and Giuliani (2008) argue that the low academic achievement that is often associated with children with AD/HD-related behaviours is not due to their inability to gain knowledge or to study, but rather it is the result of cumulative impact of missing significant pieces of knowledge or developing specific skills that are built across lessons and school years.

In contrast, others have argued that students with AD/HD-related behaviours need a learning environment that emphasises their abilities (rather than their deficits) and focuses on their interests, skills and learning styles. Many students with AD/HD-related behaviours are regarded as creative, imaginative, humorous (Robbins, 2009); insightful, intuitive (Honos-Webb, 2010); energetic, innovative (Richards, 2003); curious and enthusiastic (Wheeler, 2010). Such positive characteristics need to be exploited in education. This more positive understanding of the functioning of students with AD/HD-related behaviours is consistent with the view of Cooper

(2005) who suggests that teachers should conceptualise AD/HD as a particular cognitive style, rather than as a deficit. Cooper suggests that such a view will help teachers of students with AD/HD-related behaviours start thinking about teaching strategies designed not to inhibit but to exploit AD/HD-related behaviours. As a consequence, teachers will see themselves as responsible for meeting the needs of students with AD/HD-related behaviours rather than blaming the students for their failures to learn.

Critical elements of successful instructional techniques and strategies should be considered by teachers who work with children with AD/HD-related behaviours in order to teach these students more effectively. Rief (2005) suggested a number of strategies that can be utilised by teachers to meet the needs of students with AD/HD-related behaviours in regular classrooms. These strategies include adapting written work, providing extra space for these students, reducing the amount of homework, providing assistance with organization skills, being willing and flexible to make accommodations, providing clear directions and structure, working collaboratively with other staff, communicating regularly with students' families, focusing on students' strengths, and believing that all students can be successful in school (Rief, 2005).

According to Lougy et al. (2007), adapting the number of assignments and providing more time to complete a task are the most common and easiest curricular accommodations used by teachers. Taylor and Larson (1998) recommend breaking texts into smaller parts and providing extra time for a student with AD/HD-related behaviours to repeat reading a passage. Another accommodation utilised by teachers in regular classrooms is adaptation in the delivery of instruction, such as presenting materials in diverse ways (e.g., verbal as well as visual) and defining and structuring

the classroom rules and routines (Mulligan, 2001). Lougy et al. (2007) also recommend that teachers provide a student with AD/HD-related behaviours with the opportunity to respond to classroom teachings in varied ways; for instance, instead of asking the student to respond in writing, the student is given the opportunity to respond verbally to instructions (Lougy et al., 2007).

The discussion so far has focused on AD/HD including history, characteristics, prevalence, theories, educational problems, and educational adjustments. In the next section, this discussion will be expanded to include a critical review of AD/HD including a discussion of its cultural foundations and the subjectivity of the diagnostic process.

## **2.2 CRITIQUE OF AD/HD**

Attention-Deficit/Hyperactivity Disorder (AD/HD) emerged from the US and has been dominated by biomedical discourse that conceptualizes AD/HD as a dysfunction in the brain leading to behavioral problems such as inattention and hyperactivity that should be treated by stimulant medications (Prosser, 2008). Nonetheless, the aetiology, diagnostic criteria, and treatment of the disorder continue to engender public and intellectual controversies (Mayes et al., 2008; McLeod, Fettes, Jensen, Pescosolido, & Martin, 2007; Reid & Maag, 1997).

In the following two sub-sections, a critique of AD/HD is discussed. The first one is related to criticism of the subjectivity of the AD/HD diagnosis, while the other sub-section presents some international views regarding the inherent cultural foundations of AD/HD.

### **2.2.1 Subjectivity of the AD/HD Diagnosis**

The diagnosis of AD/HD has been the subject of much debate by sociologists and educators. According to the DSM-IV-TR (American Psychiatric Association),

“there are no laboratory tests, neurological assessments, or attentional assessments that have been established as diagnostic in the clinical assessment of Attention Deficit Hyperactivity Disorder” (2000, pp. 88-89); instead, a diagnosis is based on observations of a child’s behavioural characteristics made by parents and teachers who then respond to a *checklist of behaviours* (Stolzer, 2007). As will be discussed, this approach has been criticised for being too subjective, thus leaving parents and teachers vulnerable to societal pressure to find a reason and a cure for a student’s AD/HD-related behaviours.

To begin, the diagnosis of children and adolescents with AD/HD has been challenged on the basis of its subjectivity. Teachers in particular are viewed by supporters of the medical model, especially paediatricians, as a valuable source of information that is necessary in order to make a diagnosis of AD/HD. In contrast, critical sociologists and some educators recognise the problematic nature of this approach due to its reliance on subjective judgements of a child or adolescent’s behavioural functioning (Jahnukainen, 2010). Specifically, parents and teachers are asked to fill in a behaviour questionnaire in order to determine if a child “always, often, sometimes or never” (Whitely, 2010, p.11) exhibits behaviour such as fidgeting, talking excessively, losing things or being easily forgetful or distracted. This approach has been criticised because parents and teachers are often not given an explanation of the crucial distinction between *sometimes* and *often* (Whitely, 2010) or an operational definition of these words; the same holds true for words such as *fidgeting* and *talking excessively* (Stolzer, 2007). In addition, Carey (as cited in Stolzer, 2009) has noted that characteristics of the rater (i.e., the teacher or parent) – levels of tolerance, age, gender, education, personality characteristics, recognition of developmental processes and cultural origin – can all have a significant impact on an

adult's perceptions, yet these significant variables are not taken into account during the diagnostic process.

Other sources of impact on the subjectivity inherent in a diagnosis of AD/HD may be current attitudes within many schools and families . In relation to schooling, the present focus on accountability has put enormous pressure on school systems and teachers to improve the academic performance of students. When students fail to make satisfactory progress in school, teachers are held responsible for this failure by parents and administrators. Under this pressure, teachers may be more willing than usual to accept a diagnosis of AD/HD. Critical sociologists and educators have indicated that diagnosing and labelling a student who is difficult to teach can be a response to the increased pressure that teachers are being put under (Graham, 2008a).

With regards to families, Cohen (2006) argues that for a great number of families, labelling a child is a legitimate reason to abrogate some of the responsibilities of raising children. The manners, regulations, and objectives, of the task of raising a child have changed significantly over the last 50 years, as has the conventional composition of families (Cohen, 2006). Consequently, and because of the dominant medical conception of AD/HD as a “no-fault label” (Reid & Maag, 1997), a diagnosis of AD/HD absolves teachers and parents of responsibility for a student's difficulties. As a result, the problem is centred on the child or adolescent and not on possible contributing factors such as education (Graham, 2008a), parenting style, government policies, economic rewards, particular environments, and/or cultural factors (Stolzer, 2005).

To sum up, the diagnosis of AD/HD has been criticised by researchers for a number of important reasons. Some have argued that the diagnostic process is inherently subjective and affected by the raters' characteristics. Others have claimed

that the social pressures teachers and parents experience has helped to fuel the recent attitude towards and ‘popularity’ of AD/HD.

### **2.2.2 Cultural Foundations of AD/HD**

In an attempt to challenge the medical perspective that constructs AD/HD as a neurological disorder, a number of academics have argued that AD/HD is instead a socially constructed condition because its diagnosis involves interpretations and rates that differ depending on context (Amaral, 2007). Such theorists have assumed that both the interpretation of and response to AD/HD-related behaviours are influenced by the cultural environment; thus, what is considered normal behaviour in one culture may be considered abnormal in another (Amaral, 2007; Pineda et al., 1999; Timimi, 2004). It has also been argued that the greater incidence of AD/HD diagnosis in the Western world is due to a fundamental change in familial relationships (Timimi, 2004).

The medical conceptualisation of AD/HD is criticised as it focuses only on individual behaviours and neglects the reality that an individual’s behaviour is classified as disordered, at least partly, through a process of social negotiation grounded in social norms (Reid & Maag, 1997). This postulate is consistent with Wakefield’s argument on the disorder, as he points out that “a disorder exists when the failure of a person’s internal mechanisms to perform their functions as designed by nature impinges harmfully on the person’s well-being as defined by social values and meanings” (Wakefield, 1992, p. 373). The order that is disturbed when an individual becomes disordered is therefore not biological in isolation but rather together with social factors, and neither alone is enough to interpret or label a disorder (Wakefield, 1992).

The interpretation of behaviour varies across different cultures and even within cultures, as the same behaviour can be viewed as normal or disordered according to cultural perceptions (Timimi, 2004); in this way, what determines children to be disordered in school or home is in part dependent on the culture in which the child participates. For instance, not sitting still in school is considered a dilemma, due to the cultural preference in the majority of schools for calm and sedentary behaviour (Prosser et al., 2002).

Cultural differences in the interpretations of the characteristics of AD/HD have been debated in recent research. In Brazil, for instance, Polanczyk et al. (2007) authored a widely cited study that comprehensively reviewed the literature on worldwide prevalence estimates of AD/HD in order to investigate the possible reasons behind the variability. They attributed the variability to methodological differences between studies rather than to differences in geographic location of the studies. Based on these results, Moffitt and Melchior state in an accompanying editorial that AD/HD is “a bona-fide mental disorder (as opposed to a social construction)” (2007.p. 856). Amaral (2007), however, proposed a different interpretation in a letter responding to statements from Moffitt and Melchior (2007). Amaral (2007) wrote that “the concept of a disorder and its diagnostic criteria are social constructions by definition, and the fact that a group of symptoms has a constant geographic prevalence has little to do with what leads these symptoms to be considered a diagnostic entity” (p. 1612). He noted that twin pregnancies, for instance, have nearly equal prevalence rates in all races and cultures, despite the fact that a twin child in some African and South American cultures can be left to die or be seen as having supernatural powers but are seen as a matter of pride in the contemporary Western world. This shows that global phenomena can be considered

acceptable in one community, but might be seen as abnormal in another (Amaral, 2007).

According to Timimi (2004), the ‘epidemic’ of AD/HD in the West today is not necessarily pathological, but rather can be interpreted as a manifestation of a fundamental change in people's cultural expectations of children. To explain, in recent decades, raising children in Western communities has become a source of growing anxiety because the nature of childhood is changing through media. Children now have almost unfettered access to adult information, which in turn leads to a declining authority of adults. Furthermore, contemporary children in the Western world have become accustomed to expressing their views and needs, while at the same time there has been a growing public concern about the rise in violence, depression, alcohol and drug abuse, and suicide among children who may desire to get the best of everything (Timimi, 2004). Therefore, parents and teachers are experiencing pressure from the undermining of their authority and feeling that they must try to adjust the unruly behaviours of children, but they are afraid to do so because of the possible negative consequences for their family and career. These cultural concerns have helped make AD/HD a widely-discussed common concern in the Western world, yet the diagnostic criteria of AD/HD has omitted all of these social problems and focused only on the child's behaviour (Timimi, 2004).

Despite the explosion in numbers of young people diagnosed with AD/HD and the concomitant high rates of use of prescribed stimulant medication in Western countries, it is important for non-Western countries like Saudi Arabia – which is taking initial steps in recognising and establishing the position of the AD/HD construct – to take sociocultural influences into account. Saudi Arabia is culturally distinct from Western countries; traditional Islamic cultural values and norms

influence all aspects of life in the country. It has been suggested that customs, attitudes, and religious values all have an impact not only on the perceived causal factors of characteristics, but also on the interpretation of individual behaviours, the meanings attributed to them, and the details that are truly provided (Bird, 1996). Thus, there are specific traditions in Saudi Arabia, which would be problematic for a child not to follow; for example, in the collections of Bukhari and Muslim narrated by Umar bin Abi Salama, he stated that:

I was a boy under the care of Allah's Prophet [Muhammad], and my hand used to go around the dish while I was eating. So Allah's Prophet said to me, "O boy! Mention the name of Allah and eat with your right hand, and eat of the dish that is nearer to you". Since then I have applied those instructions when eating (Suwayd, 2005, p. 23-24).

Based on this tradition, using the left hand or moving hands around a table while eating may be considered a behavioural problem in the Muslim culture. However, this may be considered acceptable in other cultures.

Strict social control tends to be placed on children in Saudi culture by their families. There are several references in the Quran and Sunnah (traditions of the Prophet) that urge people to strictly obey and respect their parents. For example, the Prophet Muhammad (peace be upon him) stated that "the pleasure of Allah lies in the pleasure of the parents and the anger of Allah lies in the anger of the parents". When explaining this tradition, Thanvi (1992) writes that "it is compulsory to shun an act which is troublesome to the parents" (p. 23). Because it is obligatory for every Muslim to be very compliant and respectful towards their parents, a strong parent-child relationship is expected to exist in Saudi families. This type of familial relationship – albeit theoretical – may be distinct from that in other cultures, especially those which generally allow children more freedom. Stricter cultural

expectations may result in problems when children do not exhibit the desired behaviours, making it more difficult to fit in. In a different culture, the inability to behave a certain way might go unnoticed because children are permitted more freedom to act as they wish. Thus, when examining the behaviour of children, we need to consider the characteristics of culture and take into account what is considered acceptable or unacceptable behaviour within this culture.

Finally, even though there is agreement suggesting that AD/HD cannot be exclusively seen as either a social construct or a neurobiological condition (Roessner, Becker, Rothenberger, Rohde, & Banaschewski, 2007; Timimi & Taylor, 2004), sociocultural factors seem to have an important role in modulating the phenotype and course of AD/HD (Taylor, 1998). Understandings of AD/HD and its diagnostic criteria are imported from Western countries into non-Western countries (Lloyd, 2006) often without attention to the significant role that cultural variables may play in diagnosis (Bauermeister, Berríos, Jiménez, Acevedo, & Gordon, 1990; López & Guarnaccia, 2000). Accordingly, Ideus (1994) has emphasised that the first requirement for any country interested in embracing AD/HD is to take cultural variables into consideration; something that has largely been omitted in North America.

In summary, the medical perspective that constructs AD/HD as a neurological disorder has been criticised because it omits sociocultural factors. It has been argued that the interpretation of and response to AD/HD-related behaviours is influenced by cultural context (Amaral, 2007; Pineda et al., 1999; Timimi, 2004), and that the recent prominence of AD/HD in Western cultures may well be due to fundamental changes in familial relationships in such societies (Timimi, 2004). Therefore, it is

important to recognise how various cultures construct children's behaviours in order to better understand the characteristics of AD/HD.

In Saudi Arabia, the context of the present study, AD/HD is beginning to be recognised as a medical disorder and to date, there has been little focus on AD/HD as a social construction. Nevertheless, children with AD/HD-related behaviours in Saudi Arabia are generally enrolled in regular classrooms. An approach to meeting the needs of children and adolescents with additional or special needs is the inclusive education model, which reflects the principles of social equity and the social model of disability (Chenoweth & Stehlik, 2004; Goyal, 2005; Nind & Cochrane, 2002; Peters, 2007; Surtees, 2009). A discussion of the international movement towards inclusive schooling practices follows.

## **2.3 INCLUSION**

### **2.3.1 Overview of the Inclusion Movement**

Historically, there is evidence that many children with special needs have been excluded and isolated from ordinary schools in many countries across the world (Weintraub & Abeson, 1976). However, with the Civil Rights Movement and the introduction of the Normalisation Principle, legislation has been enacted in many countries to promote the inclusion of students with special needs into regular schools. These Acts include the Education for All Handicapped Children Act (EAHCA, 1975) in US, the 1978 Warnock Report and the 1981 Education Act in England, and the 1975 Loi d'Orientation in France (Armstrong, 2003). Saudi Arabia also passed similar legislation in 1987, Legislation of Disability (LD), but the actual integration of students with special needs did not begin until 1994 (Al-Mousa, 2007).

During the early twentieth century, many students with special needs worldwide, were either denied equal access to public schools or served inadequately

(Weintraub & Abeson, 1976). Of those who received some sort of education, many were placed in segregated institutions (Rebell & Hughes, 1996). This segregated placement not only reduced interaction with “regular” children but also negatively affected educational opportunities. Educational services provided in segregated institutions were often limited to such subjects as general and social life skills (Wolery & Wilbers, 1994) and approaches to teaching and learning were based largely on the medical model of disability, which focuses on changing the children with disabilities instead of their environments (O'Day & Killeen, 2002).

The Civil Rights Movement of the 1950s and 60s brought the first signs of the end of segregating students with special needs. The case of *Brown v. Board of Education Topeka* (1954) strongly influenced segregation in US schools. Linda Brown, a third grade student, was not allowed to attend a white elementary school that was very close to her home. Brown’s father, along with other African American families, took the matter of racial segregation to the US Supreme Court (Milner & Howard, 2004). The Supreme Court ruled that segregated educational facilities were inherently unfair. This ruling eventually led to the prohibition of segregation in US public schools (Frey & Wilson, 2009). Based on this landmark decision, advocates and parents of students with special needs began to call for legislation to stop the segregation of students with special needs (Blanchett, Mumford, & Beachum, 2005; Murdick, Shore, Chittooran, & Gartin, 2004).

The introduction of the Normalisation Principle during the 1960s and 1970s had a great impact in focusing attention on the educational rights of individuals with special needs. In Scandinavia, the Principle of Normalisation was articulated by Nirje (1969) and was widely introduced to other countries by Wolfensberger (1972). Nirje (1994) defined the Normalisation Principle as “making available to the mentally

retarded patterns and conditions of everyday life which are as close as possible to the norms and patterns of the mainstream of society” (p. 9). This principle suggested that children with disabilities should have equal educational opportunities. According to Carter, Parmenter, and Watters (1996), the integration of individuals with disabilities in schools and communities has increased significantly since the wide acceptance of the Principle of Normalisation. One of the great leaps forward in integration took place in 1975, when the US established the Education for All Handicapped Children Act (EAHCA), also known as P.L. 94-142. This act incorporated the Principle of Normalisation by stipulating that individuals with special needs should be provided with a free and appropriate education in the least restrictive environment, that is, an ordinary classroom (Hutzler, 2003; Kearly, 1988; Owens & Konkol, 2004; Pirrie, 2008; Rueda, Artiles, Salazar, & Higareda, 2002; Sacks, 2001; Sliva & Spitzer, 2004). The EAHCA was reauthorized in 1990, 1997, and 2004 and renamed in 2004 as the Individuals with Disabilities Education Improvement Act (IDEIA 2004). The IDEIA (2004) mandates implementation of an Individualized Education Program (IEP), “a written statement for each child with a disability that is developed, reviewed, and revised,” designed to address the unique needs of each student with special needs. The IDEIA (2004) also requires that students with special needs be more involved in the general education curriculum, and that special education teachers be highly qualified (Office of Special Education Programs, 2006).

After the introduction of the EAHCA in the US, similar legislation was enacted in Europe and Australia. Following the establishment of a series of legislations, including the 1978 Warnock Report and the 1981 Education Act in England (Armstrong, 2005; Buss, 1985; Sacker, Schoon, & Bartley, 2001), the 1975 Loi d’Orientation in France (Armstrong, 2003), and the Australian Disability

Services Act in 1986 (Australian Bureau of Statistics, 2000), there was an ongoing debate about the integration of students with special needs throughout the 1980s. In England, there was a decrease not only in the number of students placed in segregated schools but also in the number of special schools in response to these Acts. These Acts led to the development of reform policies, including the 1989 Loi Jospin in France, which declared “the right of all children to attend an ordinary school as far as possible” (Armstrong, 2003, p. 69) and the Disability Discrimination Act (1992) in Australia, which mandates that students with special needs have access to the educational services in their local school (Australian Bureau of Statistics, 2000).

The 1980s also saw government initiatives in Saudi Arabia advancing the rights of students with special needs to free and appropriate education. The Education Policy in Saudi Arabia reported that the education of students with special needs is an integral part of the Saudi educational system (Al-Mousa, 2007). Moreover, in 1987, Saudi Arabia established the Legislation of Disability (LD) – the first legislation for persons with disabilities. This legislation guaranteed people with disabilities the right to educational services commensurate with their abilities and needs in all educational stages: preschool, general education, vocational education, and higher education (Ministry of Social Care, 2011; The Directorate General of Special Education (DGSE), 2011c). Until segregated institutions started serving students with special needs in the 1960s and 1970s, Saudi students with special needs had been taught in mainstream schools; however, actual integration in the Kingdom of Saudi Arabia did not begin until 1994 (Al Saloom, 1995; Al-Mousa, 1999).

The year 1994 represents a significant international milestone for inclusive education. Ninety-two governments and twenty-five international organisations

signed the United Nations Educational, Scientific and Cultural Organization's (UNESCO) Salamanca Statement (1994), which urged all signatories to facilitate movement towards inclusion of children with special needs in general schools.

Article 2 of this statement indicates that:

Regular schools with this inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all; moreover, they provide an effective education to the majority of children and improve the efficiency and ultimately the cost-effectiveness of the entire education system (UNESCO, 1994, p. ix).

According to Peters (2007), the Salamanca Statement presents inclusive education as reflecting the principles of social equity and the social model of disability. The social model of disability, as concluded by Shakespeare (1998), "is, first and foremost, a focus on the environmental and social barriers which exclude people with perceived impairments from mainstream society" (p. 78). Since its publication, the Salamanca Statement has been used by many countries to develop strategies for more inclusive education systems (Ainscow, 1997).

Although Saudi Arabia was not a signatory to the Salamanca Statement, since 1994 the Ministry of Education has run successful trials including special needs students in general education settings. The Saudi government places importance on inclusive education and educational curriculum and strives to support people with disabilities (Al-Mousa, 1999). Therefore, the DGSE introduced further educational reform in 1996 that primarily sought to expand the practices of inclusive education in general education schools (Al-Mousa, 2007). In the 1995-1996 school year, there were 66 special education programs and institutes serving 7,725 students. By the

2005-2006 school year, this number increased to 2,577 programs and institutes serving 57,165 students. The percentage of students with special needs who were included in mainstream schools was 93.5% for boys and 65.5% for girls in the school year 2005-2006 (Al-Mousa, 2007).

Inclusive education has become an important principle in education, figuring in the education policies of great numbers of countries (Dyson, 1999, 2004).

However, “inclusion does not happen without planning, vision, resources, creative initiatives, constant energetic management and widespread goodwill from parents, teaching staff, educational authorities and the community” (Roux et al., 1998, p. 122). Particularly, teachers in the classroom are viewed as key elements in the implementation of inclusion; therefore, an understanding of teachers’ beliefs about inclusive education must be taken into consideration, because such beliefs might affect teachers’ behaviour towards students and their willingness to include students with special educational needs (Subban & Sharma, 2006). In the following section, teachers’ attitudes towards inclusion will be discussed.

### **2.3.2 Teachers’ Attitudes towards Inclusion**

Inclusive education can be viewed as an opportunity for school change and reform, through which schools may be changed in a significant way to better accommodate the needs of all learners (McLeskey & Waldron, 2000). According to Weir (1998), “when developing a proposal to implement any type of change, one must consider the belief system and attitudes related to the change concept of all members of the organization” (p. 44). Thus, the attitudes of school personnel can have a considerable influence on the implementation of any educational reform such as inclusive education. This means that such attitudes cannot be ignored.

Compared to other psychological constructs, the notion of *attitude* has been frequently used for predicting and explaining social behaviour. Attitude can be defined as “a latent disposition or tendency to respond with some degree of favorableness or unfavorableness to a psychological object” (Fishbein & Ajzen, 2010, p. 76). Generally, the more positive the attitude towards a certain type of behaviour, the greater an individual’s intention to carry out that behaviour (Ajzen, 1991). This effect of attitude on behaviour is no less true when it comes to including students with special needs into regular classrooms. According to Berry (2010), “a teacher who believes that inclusion is unfair to typically achieving students may act in subtle (or not so subtle) ways that negatively affect students with disabilities in that classroom. It may be that the presence or absence of positive attitudes and a sense of commitment to principles of inclusion can tip teachers toward making or avoiding efforts to effectively teach students with disabilities” (p. 76). A significant body of research has demonstrated that teachers’ attitudes towards inclusion comprise an important factor in the successful implementation of inclusive education for students with special needs (Avramidis & Norwich, 2002; Elhoweris & Alsheikh, 2006; Soodak et al., 1998).

Teachers’ attitudes towards inclusion are particularly important due to their possible influence on how they employ inclusive education strategies for students with special needs. A previous study (Bender et al., 1995) indicated that teachers with more positive attitudes towards inclusion reported more use of effective mainstream instructional strategies compared to those with less positive attitudes. A similar study suggested that teachers’ acceptance of students with disabilities in their classrooms obviously influences the effort they put into educating these students (Soodak et al., 1998). Accordingly, it has been argued that the negative attitudes of

teachers, parents, social leaders, and politicians represent major barriers which can prevent the implementation of inclusive education throughout the world (Mittler, 2005).

Given the importance of teachers' attitudes towards inclusion, a great deal of research has been conducted in this area. Most of this research has focussed on several types of disabilities (Avramidis & Kalyva, 2007; Batsiou, Bebetos, Panteli, & Antoniou, 2008; Kalyva, Gojkovic, & Tsakiris, 2007; Kim, Park, Snell, & Taylor, 2005; Parasuram, 2006); less research has examined a specific type of disability, such as students with hearing impairments (Sari, 2007), intellectual disabilities (Alquraini, 2012) or autism (Engstrand & Roll-Pettersson, 2012).

No two children with disabilities have exactly the same needs, particularly because different types of disabilities result in different characteristics and types of needs between groups of children. As a result, teachers who have instructed children with one type of disability may have had very different experiences than those teaching children with another type of disability. As a result of their differing experiences, such teachers may have formed distinct attitudes towards inclusion. Accordingly, exploring teachers' attitudes towards the inclusion of students with a certain type of disability may foster understanding of teachers' unique attitudes and perceptions towards the inclusion of this particular group of students.

With regard to students with AD/HD-related behaviours, a few studies have focused on investigating teachers' attitudes towards including these students in regular classrooms; however, there is still a need for further research in this important domain. A discussion of the previous studies and the need for additional research follows.

A study conducted by Brook, Watenberg, and Geva (2000) examined teachers' attitudes towards AD/HD and learning disabilities. Their study included a sample of 46 high school teachers who had regular contact with students with AD/HD and/or learning disabilities regularly. Twenty-five teachers of this sample taught at a mainstream school and 21 teachers taught at special education school. Responses indicated that 50% of the teachers believed that students with AD/HD should be enrolled in mainstream schools whereas 43.5% indicated that they thought such students should be enrolled in the special education system. When punishment of such students was interrogated, 84.8% of the participants showed leniency for pupils with AD/HD while 39.1% agreed that discipline rules for all students should be same. Twenty-four percent of the teachers indicated that if a class activity was interrupted by a student with AD/HD, they prefer the student stepping out of the class.

Similarly, teachers' attitudes towards integration were investigated by Yuen and Westwood (2001) with teachers from 39 regular secondary schools in Hong Kong. Three hundred and forty-five teachers volunteered in the study, and most of them agreed on the point that each student has the right to learn in regular classes. The majority, however, indicated that they had concerns about the practical implementation of such a placement. Specifically, teachers showed negative attitudes regarding the feasibility of including children with behavioural problems and those with severe visual or hearing problems or with cognitive disabilities. However, they favoured inclusion of students with physical disabilities and those with mild health or speech impairments.

In another study from Iran, 196 primary school teachers completed a self-report questionnaire concerning their attitudes towards children with AD/HD

(Ghanizadeh, Bahredar, & Moeini, 2006). The overall score for their attitudes towards children with AD/HD was found to be relatively low. One hundred and fifty two (77.5%) of the 196 respondents favoured placement of students with AD/HD in a special education setting, and they showed preference of such a setting over the mainstream schooling system. Of the participants, 64.8% agreed that the schooling system and discipline should be similar for all students, including those with AD/HD. A significant number of the teachers (89.3%) agreed that psychological support should be provided to children with AD/HD while 49% thought that these students should be taught by specially trained teachers. The majority of the participants (95.9%) agreed that teachers should be aware of any student with AD/HD in their classrooms (Ghanizadeh et al., 2006).

Yoo, Ra, Oh, and Kim (2009) reported the most negative attitudes towards including students with AD/HD in regular classrooms. One hundred and sixty four preschool teachers in South Korea took part in the study. Teachers' attitudes were measured by a survey modified from the work of Jerome, Gordon, and Hustler (1994) and Ghanizadeh et al. (2006). Results of the study indicated that only 50% of the teachers exhibited positive attitudes towards students with AD/HD, and over 90% thought that such students should be educated by specially trained teachers in a special environment. The proportion of teachers who preferred special education over a mainstream education system in this study was 97.6%. Similar negative attitudes were reported by Nur and Kavakci (2010), who explored the attitudes of 87 primary school teachers in Turkey towards students with AD/HD. Although the attitude score towards students with AD/HD was found to be moderate, most of the respondents (93.1%) preferred special rather than general education environments for students with AD/HD.

It is evident from the above discussion that most teachers do not hold positive attitudes towards the inclusion of students with AD/HD. These negative attitudes may be explained by the observation that general education teachers have little confidence in their ability to deal with children with AD/HD in regular classrooms (Bussing, Gary, Leon, Garvan, & Reid, 2002). Some teachers rate that teaching students with AD/HD is significantly more stressful than teaching students without AD/HD (Greene, Beszterczey, Katzenstein, Park, & Goring, 2002). The variation in findings among previous studies may be attributed to cultural differences.

Although the research described above is informative, there are still several gaps in the literature that need to be filled. First, cultural norms of a society were described as an influential factor on teachers' attitudes towards students with AD/HD-related behaviours (Kakouros et al., 2004); thus, what is considered normal behaviour in one culture may be considered abnormal in another (Amaral, 2007; Pineda et al., 1999; Timimi, 2004). For example, hyperactivity, which is a primary characteristic of AD/HD, is seen as more undesirable in cultures that value compliance and respect in children such as, Thailand in comparison to other cultures, such as the United States of America (Weisz & Wanchai, 1995) and Greece (Kakouros et al., 2004). Accordingly, it seems worthwhile to explore how teachers in the context of an Arab-Muslim culture such as Saudi Arabia view children with AD/HD-related behaviours and their inclusion in regular classrooms.

Furthermore, in all the studies mentioned above, teacher attitudes toward the inclusion of students with AD/HD in regular classrooms were assessed with only one item (or question). However, using a single-item measure of attitudes has been criticised in the literature (Ajzen, 2005) because such a unitary method may produce unreliable data (Ajzen, 2005; DeVellis, 2012). Given this methodological limitation,

there is a need to further examine teachers' attitude towards the inclusion of students with AD/HD-related behaviours. In particular, further research should use a multiple-item measure of attitudes as recommended by Ajzen (2005).

Another gap in the literature relates to the use of the label, AD/HD, as well as specificity in describing behavioural functioning. To explain, all the earlier studies reviewed above employed the label AD/HD without providing additional information about the 'child' referred to in the questionnaire. However, the use of the label AD/HD in a questionnaire without providing particular descriptions of a child's characteristics could lead to biased results. Respondents might have different interpretations of AD/HD based on their individual perspectives, which could be negative or positive. The possibility of such bias was investigated by Tripp and Rizzo (2006), who reported that teachers were more reluctant to instruct students who are labelled with disability in comparison to those who exhibit identical characteristics but are left unlabelled. Avramidis and Norwich (2002) recommended the use of the vignettes for research in the area of attitudes towards inclusion due to the disadvantages in relation to the use of labels, such as 'autistic' or 'mentally disabled', without an actual description of the child's behavioural characteristics. Given this, it is recommended that further investigations on teachers' attitudes towards the inclusion of students with AD/HD-related behaviours should be performed utilising vignettes so that the possible bias in findings from previous studies can be addressed.

In summary, in recognising the important influence of teachers' attitudes towards inclusion as well as the effect of attitude on teachers' behaviours in inclusive settings, a number of studies have been undertaken across a range of countries to investigate teachers' attitudes towards the inclusion of students with AD/HD-related

behaviours. Findings from these studies indicated that many teachers hold negative attitudes towards the inclusion of students with AD/HD-related behaviours.

Nonetheless, there are still a number of factors that are still not well understood.

In order to better understand teachers' attitudes towards inclusion, it is necessary to identify factors that typically have important effects on such attitudes. In the next section, literature will be reviewed in relation to factors influencing teachers' attitudes towards the inclusion of students with special needs into general education classrooms.

### **2.3.3 Factors Affecting Teachers' Attitudes towards Inclusion**

Studies within the domain of inclusive education indicate that a number of student- and teacher-related variables are correlated with teachers' attitudes towards inclusion. A typical example of a student-related variable is the type of disability. This variable appears to significantly influence teachers' attitudes towards inclusive education (Çagran & Schmidt, 2011; Forlin, 1995; Moberg & Savolainen, 2003; Roll-Pettersson, 2008; Yuen & Westwood, 2001). Furthermore, when it comes to including students with special needs in regular classrooms, teachers' perceptions have been shown to be affected by several teacher-related variables including efficacy beliefs (Meijer & Foster, 1988; Soodak & Podell, 1993; Soodak et al., 1998; Weisel & Dror, 2006), class size (Alquraini, 2012; Davies & Green, 1998; Lynch, Wolman, & Harris-Looby, 2012; Smith & Smith, 2000; Vaughn, Schumm, Jallad, Slusher, & Saumell, 1994), training (Avramidis, Bayliss, & Burden, 2000; Avramidis & Kalyva, 2007; Kurniawati, Minnaert, Mangunsong, & Ahmed, 2012; Leyser, Kapperman, & Keller, 1994; Van Reusen, Shoho, & Barker, 2000), years of teaching experience (Center & Ward, 1987; Clough & Lindsay, 1991; Leyser et al., 1994), age (Center & Ward, 1987; Clough & Lindsay, 1991; Cornoldi, Terreni, Scruggs, &

Mastropieri, 1998; Leyser et al., 1994), and prior experience with students with special needs (Alquraini, 2012; Avramidis & Kalyva, 2007; Batsiou et al., 2008; Kalyva et al., 2007; Kurniawati et al., 2012; Leyser et al., 1994; Van Reusen et al., 2000). These student- and teacher-related variables will be discussed in more detail in the following subsections.

### ***The Type of Disability***

Earlier studies have found that the type of disability is important in influencing teachers' attitudes towards inclusion. For instance, in a study investigating 273 educators' beliefs about inclusive practices in Western Australia, Forlin (1995) found that these educators were most accepting of a student with a physical disability and cautiously accepting of a child with a cognitive disability. In a similar study, Roll-Pettersson (2008) examined the responses of general educators in Sweden towards the inclusion of a student with either dyslexia or mild mental retardation ( $N = 175$ ). The findings suggested that the educators were more negatively disposed towards including a student with mild cognitive disability than they were towards including a student with dyslexia.

Avramidis and Norwich (2002) also carried out an extensive review of the literature on teachers' attitudes towards integration and inclusion. Their review, primarily of studies conducted in Europe, the United States, and Australia, suggested that the inclusion of students with physical and sensory impairments was generally accepted by teachers, as those students were not likely to need additional support from the teacher. In comparison, the teachers' attitudes towards the inclusion of students with learning difficulties and emotional and behaviour problems was less positive. Unlike findings from most attitude studies, students with hearing and visual impairments were more opposed for inclusion generally than those with moderate

learning difficulties and with severe emotional-behavioural difficulties (Avramidis & Norwich, 2002).

In a comparative study, Moberg and Savolainen (2003) assessed the perceptions of 1124 Zambian teachers and 512 Finnish teachers regarding inclusive education and, consequently, the teachers' opinions about the best placement for students with different disabilities. Their findings suggested that Finnish teachers viewed inclusive education as appropriate, especially for students with speech impairments, physical disabilities or specific learning disabilities. The Finnish teachers also believed that students with severe intellectual disabilities, behaviour difficulties, and hearing impairment should be placed in a full-time special class in a regular school. The Zambian teachers thought that a special school setting was the best placement for students with severe physical disabilities, while they preferred a more segregated environment for students with severe visual impairments and speech impairments. The Zambians were most optimistic about including students with specific learning disabilities. The reluctance shown by Zambian teachers towards the inclusion of students with physical disabilities or visual impairment appeared to be due to the long distances that children needed to travel in order to reach the nearest school.

In a more recent study, Čagran and Schmidt (2011) investigated the attitudes of 1360 primary school teachers in Slovenia regarding the inclusion of students with different types of special needs in primary schools. Their results indicated that teachers held the most negative attitudes towards the inclusion of students with behavioural and emotional disorders, followed by those with mild cognitive disabilities and learning disabilities. The teachers were most positive towards the inclusion of students with physical disabilities. The teachers' acceptance of the

students with physical disabilities may be linked to their awareness of the increased effectiveness of inclusive education for those types of students. In contrast, the teachers' negative attitudes towards including students with behavioural and emotional disorders may be due to the belief that it is more demanding and stressful both to manage behavioural problems that disturb other students as well as to teach those students effectively.

Although the studies mentioned above are important in terms of demonstrating the relationship between the type of disability and the teachers' attitudes towards inclusion, they do not address the relationship between the subtypes of AD/HD (primarily hyperactive-impulsive and primarily inattentive) and teachers' attitudes toward inclusion. Previous studies have only focused on physical disabilities, intellectual disabilities, learning disabilities, behavioural disorders, and visual impairment. Therefore, the question concerning the effect that the types of AD/HD have on teachers' attitudes towards inclusion still remains unanswered and represents a gap in the research that needs to be filled.

Behaviours associated with the hyperactive-impulsive type of AD/HD tend to be more obvious in classrooms than behaviours associated with the inattentive type of AD/HD. Hyperactive-impulsive behaviours can include being fidgety, running around or climbing excessively, leaving one's seat at inappropriate times, interrupting others in the classroom, talking excessively, and difficulty playing quietly. Behaviours identified as inattentive can include being easily distracted by external stimuli, difficulty remembering and following through on instructions in the classroom, often failing to pay attention to details, difficulty finishing schoolwork, making careless mistakes, and appearing to not listen when spoken to (American Psychiatric Association, 2000).

Generally, teachers were found to be less supportive of the inclusion of students with behavioural difficulties (Çagran & Schmidt, 2011; Moberg & Savolainen, 2003), and that might be because these externalised behaviours are obvious in classrooms. What is not known is how teachers respond to attention problems that are considered to be internalising behavioural problems. At present, it appears that very little research has focused on teachers' attitudes towards the inclusion of students with attention problems. Accordingly, this distinction between the two distinct subtypes of AD/HD will be addressed in the present study so that a deeper understanding of teachers' attitudes towards the inclusion of students with primarily hyperactive and primarily inattentive AD/HD-related behaviours can be developed.

### *Efficacy beliefs*

In several studies, self-efficacy has been linked to teachers' attitudes towards the inclusion of students with special needs. Meijer and Foster (1988) surveyed 230 Dutch primary school teachers to explore the relationships between teacher characteristics and their likelihood of referring students for special education. The study measured the self-efficacy of teachers using an 11-item scale, which was based on the work of Gibson and Dembo (1984), to assess the perceived capabilities of teachers to manage classroom problems. The scale measures specific domains of teaching self-efficacy, not just general self-efficacy for teaching. The results indicated that teachers' efficacy beliefs with regard to managing classroom problems significantly predicted their referral of children with special needs to special education services. Soodak and Podell (1993) used Gibson and Dembo's (1984) scale to investigate the effect of teachers' efficacy beliefs on their placement and referral decisions. Their study, which involved 192 teachers, found that regular and special

education teachers were more likely to support regular classroom placement if they had high efficacy beliefs.

In another study, Soodak et al. (1998) investigated the effects of teachers' self-efficacy on their responses to including students with disabilities in regular classrooms in the US. The study included 188 general education teachers. In order to measure the teachers' responses to inclusion, the teachers were given a brief scenario in which their principal informed them that a child with a disability would be included in their classrooms. The teachers were given a list of 17 pairs of adjectives; they rated each pair on a 4-point Likert-type scale. The authors did not provide any description of the child referred to in the survey in order to elicit the teachers' preconceived beliefs pertaining to disability. Self-efficacy was measured using 18 items adopted from Gibson and Dembo (1984). The results of the study show a positive relationship between the self-efficacy of the teachers and their responses to inclusion; that is, teachers with high teaching efficacy were found to be more receptive to the inclusion of students with disabilities.

In a later study, Weisel and Dror (2006) surveyed 139 primary teachers in order to further explore the influence of teachers' self-efficacy on their attitudes towards inclusion. Again, using Gibson and Dembo's (1984) teacher efficacy scale, the study found that teachers with high efficacy beliefs had more positive attitudes towards the inclusion of students with special needs in general education schools. Self-efficacy was reported to be the most significant factor affecting these attitudes.

While the studies outlined above describe the important effect of the self-efficacy of teachers on their attitudes towards inclusion, there is a need for further research in this important area. The studies mentioned above utilised Gibson and Dembo's (1984) teacher efficacy scale, which measures the perceived capabilities of

teachers to deal with generalised classroom problems. However, Bandura (1997) suggested that instruments of self-efficacy should be content specific rather than general in nature; that is, in order to achieve accuracy, self-efficacy needs to be assessed on the basis of particular skills or skill sets related to specific problems or challenges, as opposed to assessments based on measurements designed for generalised classroom problems. Based on this need for specific measurements, when exploring the self-efficacy of teachers with regard to teaching students with special needs, the self-efficacy measurements should determine whether the teachers believe they are capable of accommodating and dealing with the particular problems that might arise in the classroom due to the presence of such students. Hence, there is a need for further research that adopts measures of self-efficacy specific to dealing with different types of disabilities in students.

### ***Training***

A growing body of research has consistently stressed the importance of training regarding students with special needs and its influence on teachers' attitudes towards inclusion. Leyser et al. (1994) conducted a cross-cultural study of 3,639 general education teachers' attitudes towards mainstreaming across six nations: the United States, Germany, Israel, Ghana, Taiwan, and the Philippines. Findings indicated that knowledge about disabilities and mainstreaming, which was learned through training, fostered the development of positive attitudes amongst general education teachers. In another study carried out in England, 81 primary and secondary teachers were surveyed concerning their attitudes towards the inclusion of students with additional needs in regular schools. The teachers in this study, who received substantial training related to special education, had significantly more

positive attitudes towards inclusion than those with little or no training regarding inclusion (Avramidis et al., 2000).

In a study investigating teachers' attitudes towards the inclusion of students with special needs in regular classrooms, Van Reusen et al. (2000) surveyed 125 high school teachers in Texas, USA. The study revealed that teachers with more positive attitudes when it came to including and teaching students with disabilities in their regular classrooms reported the highest level of training in special education. Based on this result, the study concluded that teachers with training in special education and those who have favourable attitudes towards students with special needs might be predisposed to strive for more inclusive education practices and be more willing to accept and teach students with special needs in a regular classroom.

In Greece, Avramidis and Kalyva (2007) examined the impact of professional development on general education primary teachers' ( $N = 155$ ) attitudes towards inclusion. Findings indicated that teachers with training in special educational needs and issues surrounding inclusion had significantly more positive attitudes towards the inclusion of students with special needs in regular classrooms than their colleagues with little or no training. The study extended previous studies by suggesting that teachers with long-term professional development had significantly more positive attitudes towards inclusion than those with short-term professional development.

In a more recent study, Kurniawati et al. (2012) examined the opinions of 208 primary school teachers working in several special, inclusive, and regular schools in Indonesia regarding the inclusion of pupils with additional needs in their regular classrooms. The findings suggested that teachers with special education training were

more favourably disposed to the inclusion of children with special needs in a regular setting compared to teachers without such training.

### *Class Size*

Several studies have found that teachers' negative attitudes towards inclusion were associated with large class sizes or large numbers of students with a disability in a regular class. For example, Vaughn et al. (1994) used a focus group interview to better understand teachers' understanding and perceptions of inclusion. They interviewed 25 general education teachers in the United States. Findings of the study indicated that most of the teachers held strong, negative perceptions concerning inclusion and thought that decision makers were not informed about classroom realities. These negative perceptions arose from concerns regarding the number of students per class, inadequate resources, the degree to which inclusion would benefit all students, and lack of teacher preparedness.

In South Africa, Davies and Green (1998) surveyed 113 primary school teachers to explore their attitudes towards the mainstreaming of children with low to medium levels of special educational needs. Participants who had the least accepting attitudes towards such students were interviewed individually regarding their concerns about mainstreaming. The most important issues raised by those teachers were class size, lack of proficiency, and the increasing demands confronting teachers.

In a study investigating factors that facilitated or hindered teachers' success in inclusive classrooms, Smith and Smith (2000) interviewed six early childhood teachers (one kindergarten teacher and five primary school teachers) in the United States. Their findings revealed four themes that influenced teachers' perceptions concerning inclusion. The themes reported a need for additional teacher training,

better adjustments of class factors (including class size, ratio of students with disabilities to teacher, and type and severity of disabilities), greater support, and additional time to meet demands of inclusive classroom.

In a more recent study, Alquraini (2012) surveyed 303 teachers working in general primary schools in Saudi Arabia about their perceptions regarding the inclusion of students with severe intellectual disabilities. Results of the study indicated that Saudi teachers have slightly negative perceptions towards the inclusion of this group of students in general primary schools. The number of students per class was found to be significantly associated with teachers' perceptions concerning the inclusion of students with severe disabilities. Similarly, Lynch et al. (2012) examined the attitudes of 642 primary and secondary teachers in the Caribbean islands regarding inclusive education. Their findings suggested that teachers who taught fewer students in a class had more positive attitudes towards the inclusion of students with special needs.

### ***Teacher Age and Years of Teaching Experience***

Previous studies yielded inconsistent results regarding the associations between the age and years of experience for teachers and their attitudes towards inclusion. Although young teachers with little teaching experience were found to have a more positive attitude towards inclusion in some research (Center & Ward, 1987; Clough & Lindsay, 1991; Leyser et al., 1994), other studies found no correlation between the age and teaching experience of teachers and their attitude towards inclusion (Avramidis et al., 2000; Parasuram, 2006).

In Australia, Center and Ward (1987) examined the opinions of 2,551 teachers with regard to their attitudes towards the integration of children with disabilities in relation to currently available support services and the skills deemed

necessary for teaching students with disabilities in mainstream classrooms.

According to their results, more positive attitudes towards integration were consistently reported among the teachers with the least teaching experience (0–2 years). This result was also supported by Clough and Lindsay (1991), who explored the attitudes of 584 teachers in the UK with regard to integration and to the different kinds of available support. Their findings revealed a general positive attitude towards integration and that young teachers and those with few years of teaching experience were more supportive of integration than older and experienced teachers.

In their cross-cultural study of teachers' attitudes towards mainstreaming, Leyser et al. (1994) found that age and teaching experience were associated with attitudes; specifically, the scores of teachers under 30 years of age were significantly higher (more positive) than those of older teachers. Further, the scores of teachers with less than 10 years of experience were higher than those with over 14 years of experience. Similarly, Cornoldi et al. (1998) surveyed 523 general education teachers in Italy to investigate the teachers' attitudes towards inclusion after 20 years of inclusive education policy and practice. Their findings suggested that Italian teachers held generally positive attitudes towards the concept of inclusion, and that these attitudes were associated significantly with the age of the teachers. Teachers who were 40 years of age and under showed significantly more positive attitudes towards inclusion than those over 40 years of age.

Despite the somewhat contradictory findings discussed above, a number of studies found that neither a teacher's years of experience (Alquraini, 2012; Avramidis et al., 2000; Batsiou et al., 2008; Kalyva et al., 2007; Memisevic & Hodzic, 2011; Parasuram, 2006; Van Reusen et al., 2000) nor their age (Avramidis et al., 2000; Parasuram, 2006) influenced their attitudes towards inclusion; for instance,

Parasuram's (2006) study, which involved 300 general education teachers from India, attempted to investigate whether background variables, including teachers' ages and their years of teaching experience, affected their attitudes towards children with disabilities and towards the inclusion of these children in regular schools. The results indicated that while their age and teaching experience did influence teachers' attitudes towards students with disabilities, these variables had no effect on the teachers' attitudes towards inclusion.

These inconsistent findings in the literature suggest that the relationships between the age and teaching experience of teachers and their attitudes towards inclusion might be more complex than previously supposed. Further research in this area could provide additional information that might help to clarify these relationships.

### ***Prior Experience with Students with Special Needs***

Various studies determined that prior experience with students with special needs was a critical factor in forming teachers' attitudes towards inclusion (Alquraini, 2012; Avramidis & Kalyva, 2007; Batsiou et al., 2008; Kalyva et al., 2007; Kurniawati et al., 2012; Leyser et al., 1994; Van Reusen et al., 2000). This type of experience can not only affect the attitudes of teachers towards inclusion, but it can also raise the awareness of teachers about their roles in schools (Ivey & Reinke, 2002).

In a study examining the attitudes of 72 Serbian teachers with regard to the inclusion of students with special needs in regular classrooms, Kalyva et al. (2007) found that a significant difference existed between the teachers' attitudes towards inclusion and their experience in teaching students with special needs. In particular, it was reported that teachers with experience in teaching students with special needs

had more favourable attitudes towards inclusion than their counterparts without such experience.

In a comparative study conducted in Cyprus and Greece, Batsiou et al. (2008) surveyed 179 primary education teachers to investigate their attitudes and intentions towards teaching students with special needs in regular schools. Their findings indicated that the experiences of teachers working with children with special needs helped shape positive attitudes towards inclusion. The study also found that the teachers from Cyprus held more positive attitudes than the teachers from Greece. This finding was attributed to the fact that Cypriot teachers had more experience working with students with special needs, and that these experiences were more positive.

Despite these results associating experience in teaching children with special needs with positive attitudes toward inclusion, a number of studies have suggested that experience with individuals with disabilities by itself is not necessarily linked to positive attitudes (Avramidis & Norwich, 2002; Hayashi & May, 2011; Shannon, Tansey, & Schoen, 2009). Rae, Murray, and McKenzie (2010), for instance, found no relationship between years of experience in teaching students with learning disabilities and the attitudes of the teachers towards including these students in mainstream settings. Yunker (1994) claimed that a teacher's experience or contact with students with disabilities needed to be personal, rewarding, intimate, equal status, and cooperative, as such experiences can provide positive information and lead to favourable attitudes towards those with disabilities.

To summarise, previous studies have shown that a number of student- and teacher-related variables can affect the attitudes of teachers towards inclusion. Among these variables, training, class size, efficacy beliefs, the type of disability,

and the teacher's prior experience with students with special needs were consistently associated with teachers' attitudes towards inclusion. Other variables, however, such as the teachers' age and years of experience, were not consistently related to teachers' attitudes towards inclusion. It is important to note that the studies reviewed above – that investigated the impact of several student- and teacher-related variables on teachers' attitudes towards inclusion – did not involve students with AD/HD-related behaviours, but focused instead on various other groups of students with special needs. Further research is therefore necessary to explore the impact of these variables on the attitudes of teachers towards the inclusion of students with AD/HD-related behaviours.

Similar to the variable of attitudes towards inclusion, teachers' knowledge of AD/HD also has an effect on their reported behaviours towards students with AD/HD-related behaviours. A discussion of the literature on this important variable follows.

### **2.3.4 Teachers' Knowledge of AD/HD**

In a time when inclusive approaches to education have been widely adopted, teachers are expected to enter classrooms prepared to accommodate the needs of all students, including those who exhibit AD/HD-related behaviours. In order to implement successful inclusive practices, teachers need to be able to recognise diversity in their classes and to adapt educational environments to better accommodate diverse learners and their learning styles (Naiditch, 2010). Teachers, therefore, should be provided with adequate information about the needs and abilities of students with diverse needs and appropriate instructional accommodation for such students. This information is essential for teachers when it comes to establishing

inclusive, welcoming environments which are responsive to the diverse needs of all learners (Perold, Louw, & Kleynhans, 2010).

Teachers' knowledge about students with AD/HD-related behaviours is particularly important because such knowledge can affect how teachers employ inclusive education strategies for such students. According to Holz and Lessing (2002), knowledge about children with AD/HD-related behaviours is beneficial in terms of enabling teachers to meet these students' needs by adapting their teaching plans and strategies and exploiting students' strengths as the point of departure in their education. It has also been found that teachers with average or higher knowledge about AD/HD tend to provide more supportive and adaptive experiences for students compared with teachers with weaker knowledge (Ohan et al., 2008). Because of this, it is important for teachers to be well informed about the characteristics and needs of students with AD/HD-related behaviours in order to meet their diverse needs in inclusive settings.

The characteristics of AD/HD typically become more obvious in the first grades of a student's education (Brown & La Rosa, 2002; Mohammadi & Akhondzadeh, 2007; Pratt, 2007). Most children are first diagnosed with AD/HD during the primary school years (Brown & La Rosa, 2002; Sax & Kautz, 2003); moreover, teachers are often involved in making initial referrals for the evaluation of children with AD/HD-related behaviours (Snider, Busch, & Arrowood, 2003; Snider, Frankenberger, & Aspenson, 2000). This highlights the critical role that teachers play in the initial assessment for AD/HD. If teachers are to play such a role, they need to have sufficient, not to mention objective information about children with AD/HD-related behaviours, particularly in light of the current concerns about treatment of these children with stimulant medication (Snider et al., 2003).

Recognising the importance of teachers' knowledge about children with AD/HD-related behaviours, a number of studies have investigated teachers' knowledge of this topic in different parts of the world. Such studies have mostly measured teachers' knowledge of AD/HD using either Jerome, Gordon, and Hustler's (1994) 20-item scale or Sciutto, Terjesen, and Frank's (2000) 36-item scale. The highest AD/HD knowledge score was obtained by Canadian teachers (78%; Jerome et al., 1994), while the lowest was for South African teachers (42.6%; Perold et al., 2010).

Using Sciutto et al.'s (2000) scale (KADDS), Perold et al. (2010) surveyed 552 primary teachers in South Africa regarding their knowledge and misperceptions of AD/HD. The study showed that teachers had poor levels of overall knowledge about AD/HD (42.6%). In another study conducted by Jarque and Tárraga (2009) in Spain, 193 primary teachers were surveyed from both the public and the private schooling systems, and the result of the study was consistent with the previously reported one (i.e. 42.65%). The consistency of the results of these two studies can be explained in that the same scale (KADDS) was used to measure this knowledge, and there is no considerable time gap between these two studies were conducted.

Two recent studies conducted in South Korea showed a relatively greater awareness about AD/HD among teachers. KADDS scale was employed by Kang, Kim, and Yang (2011) to investigate knowledge regarding AD/HD amongst 204 primary school teachers in Busan, South Korea. Their findings indicated that Korean teachers had an overall correct knowledge score of 53.3%. In another South Korean study, a slightly higher score (59.3%) was reported (Yoo et al., 2009). The study aimed to describe AD/HD knowledge among 164 teachers in Korea using a scale that

was modelled from the scales employed by Jerome et al. (1994) and Ghanizadeh et al. (2006).

In comparison to the aforementioned research, a number of studies have demonstrated that teachers in Australia and New Zealand had a higher level of knowledge of AD/HD. Kos, Richdale, and Jackson, (2004) designed a scale to examine AD/HD knowledge among teachers. This was based on Jerome et al.'s (1994) and Sciutto et al.'s (2000) scales of AD/HD knowledge. The study involved a sample of 120 primary teachers from Victoria, Australia, and the overall correct knowledge score was found to be 60.7% for this sample. This result is consistent with the findings of West, Taylor, Houghton, and Hudyma's (2005) study, in which Sciutto et al.'s (2000) KADDS scale was extended to 67 items. Teachers ( $N = 131$ ) from primary schools located in Perth, Western Australia responded to this instrument. Findings indicated that 56% of the items on the knowledge scale elicited correct responses. In a more recent Australian study, Anderson, Watt, Noble, and Shanley (2012) used a shortened version of West et al.'s (2005) 67-item scale and found that 60.2% of the items on the knowledge scale elicited correct responses in a sample of 127 primary and secondary teachers from New South Wales (NSW), Australia.

In another recent Australian study, Ohan et al. (2008) surveyed 140 primary school teachers to explore their knowledge about AD/HD and its influence on their reported behaviour towards students with AD/HD. The study utilised Jerome et al.'s (1994) 20-item scale to investigate teachers' knowledge of AD/HD. According to their findings, Australian teachers had an overall correct knowledge score of 76%. A very similar result was reported by Curtis, Pisecco, Hamilton, and Moore (2006), who also employed Jerome et al.'s (1994) scale of AD/HD knowledge. Their study

involved a sample of 261 primary school teachers from New Zealand and found that teachers possessed good levels of overall AD/HD knowledge (76%).

The highest AD/HD knowledge scores were reported in North America. In 1994, Jerome et al. conducted a comparative study in the United States and Canada to assess teachers' knowledge and attitudes concerning AD/HD. The number of participants from the United States was 439, while there were 850 participants from Canada. The study employed a self-report questionnaire that included 20 true-false items and was designed to explore teachers' general knowledge of the basic information regarding the diagnosis and treatment of AD/HD. The overall correct knowledge scores were found to be 77% for American teachers and 78% for Canadian teachers (Jerome et al., 1994). A somewhat similar knowledge score (69.6%) was reported by Vereb and DiPerna's (2004) study, which involved a sample of 47 primary teachers from Pennsylvania and New Jersey, the United States.

A lower percentage of correct responses was obtained from a sample of 149 primary teachers in another US study conducted by Sciutto et al. (2000), who developed the KADDS scale. This scale consists of 36 items and utilises a 'True/False/Don't Know' response format. The KADDS was designed to examine teachers' knowledge in specific areas related to characteristics/diagnosis of AD/HD, general information about the nature, causes, and outcome of AD/HD as well as the treatment of AD/HD. Their results indicated that 47.8% of the items on the KADDS elicited correct responses by the teachers.

From the above discussion, it is clear that the studies that used Jerome et al.'s (1994) scale reported higher AD/HD knowledge scores than studies that used Sciutto et al.'s (2000) scale. This might have occurred because Jerome et al.'s scale uses a 'True/False' response format. Such a format can overestimate teachers' knowledge

of AD/HD because participants always have a 50% chance of giving correct answers simply by guessing. In contrast, Scitutto et al.'s (2000) scale was designed with a 'True/False/Don't Know' response format which does not force participants to guess when they are uncertain of a response.

As described above, different research studies have been performed worldwide to investigate teachers' knowledge concerning children with AD/HD-related behaviours. To date, however, this researcher has been unable to find any studies that have been conducted in Arab countries to examine teachers' knowledge and perceptions about children with AD/HD-related behaviours. Here, an interesting question arises: How knowledgeable are teachers in Saudi Arabia about children with AD/HD-related behaviours? Answering this question will provide important information which can be used to assist and support teachers in Saudi Arabia to better accommodate the needs of students with AD/HD-related behaviours.

In brief, having adequate knowledge about AD/HD as well as teaching and supporting children and adolescents with AD/HD-related behaviours is essential for teachers, especially those teaching in inclusive classrooms. As a result, several studies conducted across a range of different countries have examined teachers' knowledge about children with AD/HD-related behaviours using either Jerome et al.'s (1994) 20-item scale or Scitutto et al.'s (2000) 36-item scale. The AD/HD knowledge scores ranged from 42.6% for South African teachers (Perold et al., 2010) to 78% for Canadian teachers (Jerome et al., 1994).

Teachers' efficacy beliefs for teaching students with AD/HD-related behaviours can also be influenced by their knowledge about these students, providing further support for the importance of such knowledge for teachers. The relationship

between teachers' efficacy beliefs and their knowledge will be discussed in the next section.

### **2.3.5 Teachers' Knowledge and Efficacy Beliefs**

Teachers of students with AD/HD-related behaviours can have a great impact on the academic performance of these students (Reid, Vasa, Maag, & Wright, 1994). Teachers, who have positive relationships with students with AD/HD-related behaviours as well as adequate knowledge about students' characteristics, are more likely to be confident in their capabilities to meet the needs of these students. It has been suggested that unless teachers have adequate knowledge, skills, and confidence, they are unlikely to implement needed accommodations for these students on a consistent basis in mainstream (now termed inclusive) school settings (Schumm, Vaughn, Gordon, & Rothlein, 1994).

Teachers' information and understanding about AD/HD and the associated problems that can arise for both teachers and students with AD/HD-related behaviours may also impact on teachers' pedagogy and their relationship with students who display AD/HD-related behaviours (Miranda, Presentation, & Soriano, 2002). In a study in South Korea, teachers stated that they experienced problems in their classrooms because of the excessive display of AD/HD-related behaviours by some students who were diagnosed with AD/HD, but that their lack of knowledge about AD/HD prevented them from adequately supporting such children (Hong, 2008). Thereby, teachers without accurate information about AD/HD and related behaviours may remove students from class or expose them to punishment that may not be appropriate (Alqahtani, 2010). Research has demonstrated, however, that students with AD/HD-related behaviours who are taught by teachers with average and higher knowledge of AD/HD are likely to be provided with more supportive and

adaptive experiences than students taught by teachers with weaker knowledge (Ohan et al., 2008). Lastly, given that a student with AD/HD-related behaviours is at high risk of failure at school (DuPaul & Eckert, 1997), teachers need to have adequate knowledge and training about AD/HD to be able to provide strategies that effectively improve student academic performance.

There are two studies in the literature that have reported a positive link between teachers' knowledge about children with AD/HD-related behaviours and their efficacy beliefs for teaching such students. First, in a US study examining teachers' knowledge and misperceptions about AD/HD, Sciutto et al. (2000) surveyed 149 primary teachers using their KADDS scale. The teachers were also asked to rate their confidence in their ability to effectively teach students with AD/HD on a 7-point scale. Their results indicated a positive correlation between teachers' overall knowledge of AD/HD and their confidence in being able to teach children with AD/HD effectively. This result was supported by the findings of a study conducted in South Africa with 552 primary teachers. The study used the same measures of AD/HD knowledge and self-confidence employed by the previous researchers (Sciutto et al., 2000) and found that teachers with high knowledge of AD/HD rated themselves as being more confident in teaching students with AD/HD than those with low knowledge of AD/HD (Perold et al., 2010).

In contrast to the findings described above, another study from Australia has reported a negative relationship between teachers' knowledge of AD/HD and their confidence in managing children with AD/HD (Ohan et al., 2008). While the study relied on a single question to serve as a measure for teachers' confidence to teach these students, it used Jerome et al.'s (1994) 20-item scale to assess teachers' knowledge of AD/HD. The findings indicated that teachers with average and higher

knowledge of AD/HD rated themselves as being less confident in managing students with AD/HD in their classrooms than teachers with low knowledge of AD/HD. Ohan et al. (2008) suggested that this result may reflect teachers' knowledge that children with AD/HD-related behaviours have serious problems that need a team to deal with effectively.

Although the studies discussed above provide important insights into the relationship between teachers' knowledge about children with AD/HD-related behaviours and their efficacy beliefs, these studies have a number of important methodological limitations. The first limitation relates to measurement; specifically, the use of a single-item scale (rather than a multiple-item scale) to assess teachers' confidence in their ability to effectively teach students with AD/HD. Such single-item scales have been criticized because they could not be assessed for internal consistency reliability (Wanous, Reichers, & Hudy, 1997). In particular to self-efficacy, Bandura (1997) proposed that single-item scales of self-efficacy assess only a single level of task demand, and that such a narrow scope has the effect of lowering the magnitude of the relationships identified.

Another limitation to the previous studies is that some researchers (e.g., Sciutto et al., 2000) used the terms *self-efficacy* and *confidence* synonymously. Bandura (1997), however, distinguished between the construct of *self-efficacy* and the colloquial term *confidence*, noting that "confidence is a nondescript term that refers to strength of belief but does not necessarily specify what the certainty is about" (p. 382); thus, this term is considered as a catchword rather than a theoretical construct.

Given these limitations as well as the exploratory nature of the studies that were conducted, the association between teachers' knowledge of AD/HD and their

efficacy beliefs should be regarded as a preliminary finding. Additional studies focusing on the relationship between teachers' knowledge about students with AD/HD-related behaviours and their self-efficacy for teaching these students are needed. Such research should use multiple-item scales of teachers' self-efficacy and consider the logical and theoretical reasons for avoiding the interchangeable use of the terms *self-efficacy* and *confidence*. These earlier preliminary studies motivated the present study to further examine this relationship by using the Brownell and Pajares's (1999) 11-item Teacher Efficacy Beliefs Scale (TEBS) and the Scituito et al.'s (2000) 36-item KADDS scale.

In summary, it appears that there is a significant relationship between teachers' efficacy beliefs for teaching students with AD/HD-related behaviours and their knowledge about these students. While two studies reported a positive relationship between teachers' efficacy beliefs and their knowledge (Perold et al., 2010; Scituito et al., 2000), another found a negative relationship. These studies, however, had certain limitations that need to be addressed in future research.

The theories of planned behaviour and self-efficacy provide a suitable theoretical basis to explain and understand the research of this study. In the following section, these two theories will be described. Then a discussion of the conceptual framework of the present study will follow.

## **2.4 THEORETICAL BACKGROUND**

### **2.4.1 Theory of Planned Behaviour**

The Theory of Planned Behaviour is a theoretical framework that seeks to explain and predict human behaviours in different contexts (Ajzen, 1991). It was developed by Ajzen in 1985 as an extended form of the earlier Theory of Reasoned Action. The latter theory originated in the field of social psychology and was

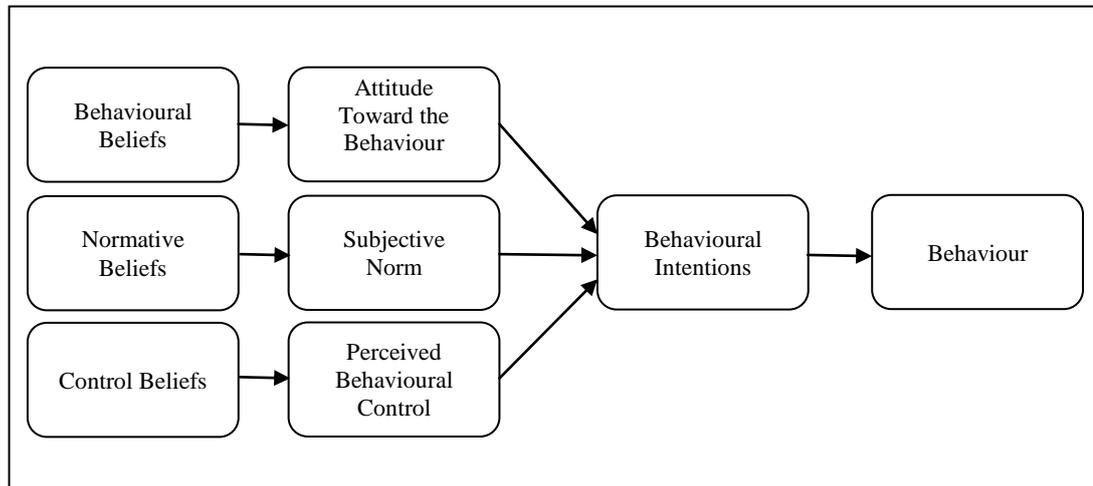
developed by Fishbein and Ajzen in 1980 with a view to understanding how individuals make reasoned decisions about whether to engage in a particular behaviour (Ajzen & Cote, 2008).

In the Theory of Reasoned Action, individuals' behaviours are assumed to be under voluntary control; thus, the most important factor that may influence individuals' decision to perform a specific behaviour is their intention to do so (Fishbein & Ajzen, 2010). This is referred to as behavioural intention. Behavioural intentions are factors that indicate how hard individuals are willing to try to carry out a specific behaviour. Strong intentions to engage in the behaviour indicate that it is likely the behaviour will occur (Ajzen, 1991).

In some cases, however, it appears that behaviours are not fully volitional; rather, they are influenced by people's perception of their ability to perform them. Because of this, Ajzen (1985) extended the Theory of Reasoned Action by adding perceived behavioural control. The new theory is known as the Theory of Planned Behaviour (Ajzen, 1985).

As with the Theory of Reasoned Action, Theory of Planned Behaviour assumes that "human beings usually behave in a sensible manner; that they take account of available information and implicitly or explicitly consider the implications of their actions" (Ajzen, 2005, p. 117). According to the Theory of Planned Behaviour, intention to perform a behaviour (as seen in Figure 2.1) is a function of three important determinants: (1) an individual's evaluation of a specific behaviour (attitude towards the behaviour), (2) his or her perception of other individuals' views of such behaviour (subjective norm), and (3) the perception of his or her ability to perform the behaviour (perceived behavioural control or self-efficacy). These factors will produce the individual's behavioural intention, which

may then lead to performing this behaviour (Ajzen, 2005; Fishbein & Ajzen, 2010). That is, “the more favorable the attitude and subjective norm, and the greater the perceived behavioral control, the stronger should be the person’s intention to perform the behavior in question” (Ajzen & Cote, 2008, p. 301).



*Figure 2.1.* Theory of Planned Behaviour.

People’s attitudes towards a specific behaviour refer to their evaluation (positive or negative) of it; that is, attitude denotes the degree to which performance of the behaviour is positively or negatively valued. Attitudes are formed by a series of beliefs known as behavioural beliefs, and these reflect one’s views about the outcomes and consequences of the behaviour (Ajzen, 1991). If the outcomes and consequences are considered as positive, desirable, beneficial, and advantageous, then the attitude will be favourable; this increases the likelihood of engaging in that behaviour (Hayden, 2009).

In addition to attitude, intention to perform a behaviour is influenced by subjective norms, which are defined as “the perceived social pressure to perform or not to perform the behavior” (Ajzen, 1991, p. 188). An individual’s subjective norm is determined by his or her normative beliefs. Normative beliefs are a combination of

beliefs regarding other people's views of a behaviour and willingness to conform to those views. That is, normative beliefs are the expectations that an individual perceives important people in his or her life to have about performing a specific behaviour, and how motivated that individual is to comply with those important people and to submit to those expectations (Ajzen, 1991; Ajzen & Cote, 2008). According to the Theory of Planned Behaviour, the more normative beliefs about engaging in a specific behaviour exist, the stronger the subjective norm will be, which in turn will lead to more intention to perform the behaviour (Ajzen, 1991).

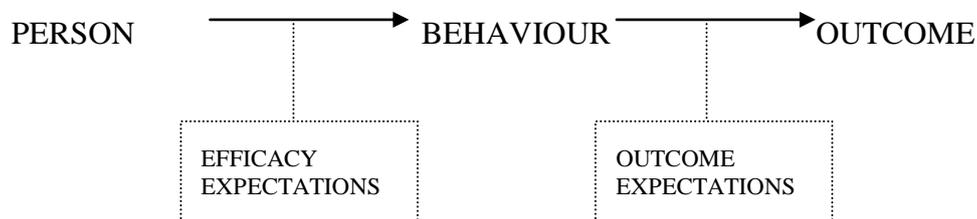
The third determinant of behavioural intention in the theory of planned behaviour is perceived behavioural control. This construct is similar to the concept of self-efficacy in Bandura's (1997) Self-efficacy Theory (Ajzen, 2005). Perceived behavioural control refers to an individual's perception of his or her ability to perform a behaviour and beliefs about how easy (or difficult) it is to engage in it (Ajzen, 2002). Perceived behavioural control is assumed to be influenced by a set of control beliefs (Ajzen, 2005). These are beliefs an individual has about the presence or absence of the necessary resources, skills, and factors to facilitate performing the behaviour. The more resources and opportunities an individual believes he or she has, and the fewer hindrances he or she expects, the greater his or her perceived control over the behaviour should be (Ajzen, 1991).

To sum up, according to the Theory of Planned Behaviour, attitudes, subjective norms, and perceived behavioural control influence and predict intention and therefore, behaviour. As a rule, individuals have the intention to perform a behaviour when they have a positive evaluation of the behaviour, when they experience social pressure to perform it, and when they believe that they have facilitating factors to do so (Ajzen, 2005).

### 2.4.2 Theory of Self Efficacy

The concept of self-efficacy was first introduced by Bandura in 1977 as part of his social cognitive theory. Self-efficacy can be defined as “people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986, p. 391). Bandura's view of self-efficacy is comprised of two components, efficacy expectations and outcome expectations, which are cognitive processes that affect whether or not an individual will perform a particular behaviour (Bandura, 1977). In other words, people’s actions are determined by their confidence in an expected outcome, coupled with the confidence they have in their ability to execute the behaviour (Soodak & Podell, 1996).

Efficacy expectations are differentiated from outcome expectations. Outcome expectancy refers to the estimated consequences resulting from the performance of a particular action; efficacy expectation is the “conviction that one can successfully execute the behaviour required to produce the outcomes” (Bandura, 1977, p. 193). The differentiation between efficacy and outcome expectations is shown diagrammatically in Figure 2.1, taken from Bandura (1977, p. 193).



*Figure 2.2.* Graphical representation of the distinction between efficacy expectations and outcome expectations.

Bandura's theory claims that expectations of efficacy have a direct impact on both the "initiation and persistence of coping behaviour" (Bandura, 1977, p. 193). According to Bandura, self-efficacy influences the choice of activities in which a person might engage, how much effort the person might expend, and how long they will persist in overcoming barriers (Bandura, 1977, 1982). Highly efficacious people are more likely to get involved in activities and persist for a long time with coping behaviours, which results in increased mastery experiences that further raise the level of self-efficacy (Gist, 1987). Those with low self-efficacy frequently lack coping skills and therefore tend to avoid threatening activities and quit very easily after initiating a task, which in turn leads to a decreased sense of self-efficacy (Bandura, 1977; Gist, 1987).

Self-efficacy expectations have three dimensions – magnitude, strength, and generality – and these have a significant influence on performance. Magnitude relates to a task's degree of difficulty. People with low-magnitude expectations believe they have the ability to perform only simple tasks, while those with high-magnitude expectations feel capable of accomplishing complex tasks (Bandura, 1977, 1982a). Strength refers to confidence in performing a particular behaviour. The third dimension, generality, defines the extent to which an efficacy expectation for a specific behaviour is generalized across other situations (Bandura, 1977).

In summary, self-efficacy is an important psychological construct that impacts the choices individuals make, the effort they exert, and degree of their perseverance in the face of challenges. The components underlying Bandura's self-efficacy concept are efficacy expectations and outcome expectations. Moreover, efficacy expectations have three dimensions – magnitude, strength, and generality – each of which has significant implications for performance.

### 2.4.3 Conceptual Framework

The conceptual framework for the present study was informed by the Theory of Planned Behaviour (Ajzen, 1985) and the Theory of Self-efficacy (Bandura, 1977). Here, the Theory of Planned Behaviour was utilised to assess teachers' attitudes towards the inclusion of students with AD/HD-related behaviours, as well as factors that influence these attitudes. On the other hand, the Theory of Self-efficacy was used to understand the relationships among teachers' efficacy beliefs related to teaching students with behavioural problems, their attitudes towards inclusion, and their knowledge of AD/HD.

According to the Theory of Planned Behaviour (Ajzen, 1985), attitudes are formed through a series of beliefs known as behavioural beliefs; these reflect an individual's views about the outcomes and consequences of the behaviour (Ajzen, 1991). If the outcomes and consequences are considered positive, desirable, beneficial, and advantageous, then the attitude will be favourable; this will increase the likelihood of engaging in that behaviour. Generally, the more positive the attitude towards a certain type of behaviour, the greater an individual's intention to carry out the behaviour in question (Ajzen, 1991). This implies that teachers' attitudes towards the inclusion of students with AD/HD-related behaviours are directly based on their beliefs about teaching these students in regular classrooms. If those beliefs primarily associate inclusion with favourable outcomes for these students, a teacher's attitude is more likely to be positive; the opposite is true of beliefs that associate inclusion with unfavourable outcomes.

An attitude, once formed, is expected to predict and explain human behaviour. Positive attitudes are presumed to bring about approach tendencies, while negative ones lead to the development of avoidance tendencies (Ajzen & Fishbein,

2000; Ajzen & Sexton, 1999). In an inclusive classroom, for example, a teacher's tendency to engage in approach or avoidance behaviours can be interpreted as inclusionary or exclusionary behaviours, respectively. Teachers with a positive attitude towards the inclusion of students with AD/HD-related behaviours are more likely to exhibit inclusionary behaviours which foster a supportive learning environment where all learners, including those with AD/HD-related behaviours, feel acknowledged, valued, included, and welcomed. In contrast, teachers with a negative attitude towards the inclusion of students with AD/HD-related behaviours are more likely to display exclusionary behaviours, creating a discriminating learning environment in which some learners – including those with special needs – feel marginalized, devalued, excluded, and unwelcome.

The Theory of Planned Behaviour recognises the potential importance of the influence of background factors on individuals' beliefs and attitudes. The theory argues that such factors (age, gender, ethnicity, education, etc.) categorise the population into several groups with very diverse life experiences. Consequently, people in different groups are likely to have diverse beliefs about a particular behaviour. The theory does not specify the types of background factors that should be taken into account in relation to a certain behaviour. Nevertheless, it does propose that if we consider the possibility that individuals who vary in terms of a factor might have been exposed to diverse experiences and formed different attitudes towards a particular behaviour as a result of this, that background factor should be considered. Support for this possibility can be found in previous research that points to the importance of certain types of background factors and their implications for behaviour (Fishbein & Ajzen, 2010). In the present study, a number of variables – teacher age, class size, training, years of teaching experience, prior experience with

children with AD/HD-related behaviours, and the subtype of AD/HD – were considered to have the potential to influence teachers' attitudes towards the inclusion of students with AD/HD-related behaviours. Based on the previous research results discussed above, it is postulated that teachers who vary in terms of the aforementioned variables may have been exposed to different experiences and thus exhibit contrasting attitudes towards the inclusion of students with AD/HD-related behaviours.

Individuals' attitudes can also be influenced by their self-efficacy beliefs. According to Bandura's (1977) Self-efficacy Theory, individuals' self-efficacy beliefs affect their thought patterns and emotional reactions, as well as the choices they make (Bandura, 1982b). Highly efficacious people tend to approach difficult tasks with feelings of serenity. In contrast, people with low self-efficacy tend to think that situations are more difficult than they really are (Pajares, 1996), and therefore might choose to avoid such difficult situations (Bandura, 1994). Based on this, it can be expected that teachers with high self-efficacy beliefs related to their capacity to deal with and teach students with AD/HD-related behaviours will be more willing to accept such students in their regular classrooms. Conversely, teachers who doubt their ability to teach these students are more likely to believe that interactions with them are difficult and demanding; thus, these teachers may form negative attitudes towards the inclusion of such students.

The Theory of Self-Efficacy (Bandura, 1977) has direct application to how teachers approach students' behaviours. The theory proposes that individuals with high self-efficacy approach demanding tasks as challenges to be overcome, while less efficacious people perceive them as threats to be avoided (Bandura, 1994). On this theoretical basis, it is logical to assume that teachers who judge themselves

efficacious in instructing students with AD/HD-related behaviours tend to perceive the behaviours of these students as challenges to be addressed and therefore may form positive attitudes towards the inclusion of these students in their regular classrooms. On the other hand, teachers with low self-efficacy beliefs will likely see such behaviours as threats they want to avoid rather than confront; as a result, they might form negative attitudes towards the inclusion of such students. Thus, it appears that a teacher's belief system is indeed an important factor in the successful inclusion of students with AD/HD-related behaviours in regular classrooms, and that self-efficacy is an important element of this belief system.

As postulated in Bandura's (1977) Theory of Self-efficacy, there are several sources that influence people's perceived self-efficacy. Among these, self-efficacy perceptions are assumed to be more heavily influenced by mastery and vicarious experiences, respectively. Mastery experience is based on past personal successes in completing tasks. Such successes build people's robust beliefs in their personal efficacy and help them to persevere in the face of obstacles. The second source of developing and increasing efficacy beliefs is through vicarious experience, which is based on witnessing others' success. When individuals observe similar people successfully completing a task by sustained effort, they come to think that they also possess the ability to succeed in comparable tasks (Bandura, 1994). Based on this, it can be proposed that if teachers have experienced past success in including and teaching students with AD/HD-related behaviours in their classrooms, they are likely to exhibit high self-efficacy when it comes to teaching such students in inclusive settings. Moreover, if teachers have observed the successes of other teachers in teaching such students, they are likely to have high self-efficacy beliefs. In contrast, less efficacious teachers are expected to lack both prior success in teaching students

with AD/HD behaviours and experiences of witnessing others' successes in teaching such students, thereby leading to more negative perceptions of inclusion.

Teachers' self-efficacy beliefs about teaching children with AD/HD-related behaviours may also be affected by their knowledge about such children. The Theory of Self-efficacy (Bandura, 1986) proposes that knowledge, competence, and different aspects of self-knowledge and self-belief act together to produce appropriate explanations of action. Moreover, it suggests that self-efficacy is a mediator between knowledge and action. Therefore, whatever its amount, self-efficacy would not by itself lead to a competent behaviour being carried out if the requisite skills and knowledge are lacking (Pajares, 2002). Instead, "competent functioning requires harmony between self beliefs on the one hand and possessed skills and knowledge on the other" (Pajares, 1997, p. 3). Based on this theoretical perspective, it is assumed that when teachers have sufficient information about AD/HD and its associated behaviours, causes, and appropriate accommodations, they might have higher self-efficacy beliefs when it comes to teaching students with AD/HD-related behaviours than less knowledgeable teachers. Such highly efficacious teachers are more likely to believe that students with AD/HD-related behaviours belong in the regular classroom; moreover, they will be better able to adapt their pedagogical strategies to meet these students' needs.

In conclusion, this chapter has reviewed relevant research in relation to AD/HD, the development of inclusive education, teachers' attitude towards the inclusion of students with AD/HD-related behaviours in mainstream classrooms, and teachers' knowledge about AD/HD. This chapter has concluded with an examination of the Theory of Planned Behaviour (Ajzen, 1985) and the Theory of Self-efficacy (Bandura, 1977) as a conceptual framework to guide the present research study.

These theories provide particularly useful tools for understanding individuals' belief systems; therefore, using the perspectives of these two theories represents a justifiable approach given the topic of this study. Before describing the design and methods used to conduct the study in the next chapter, it should be noted that the results of the present study will be discussed under the umbrella of these theories in the final chapter, generating recommendations for further research as well as professional development programmes that may enhance teachers' understanding of, and interaction with, students with AD/HD-related behaviours in inclusive settings.

## Chapter 3: Methodology

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As noted in Chapter One, the purpose of this study was to examine teachers' knowledge of AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. In addition, this study aimed to investigate the relationships among teachers' attitude towards inclusion, knowledge of AD/HD, efficacy beliefs for teaching students with behavioural problems, and a number of background factors including teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD. Data to address the aims of the study were collected by means of quantitative questionnaires and qualitative interviews with Saudi mainstream primary teachers in the Madinah administrative area of Saudi Arabia.

This chapter describes the methodology that was used to conduct the study. It begins with a discussion about quantitative, qualitative, and mixed methods research paradigms and a justification for the research design. The chapter also presents the research questions and describes the population studied as well as the approaches used to develop the sample of participants. It then proceeds to describe data collection methods, followed by the procedures for translation and pilot testing of the questionnaire and for data collection. Next, detailed information about the data analysis methods used to analyse data from the two phases of the study is described. Finally, ethical issues underlying this type of research are identified and discussed.

### **3.1 RESEARCH DESIGN**

To address the research questions for the current study, an explanatory sequential mixed methods design was adopted. The use of a mixed methods technique is becoming increasingly common in education research (Teddlie & Tashakkori, 2009). The selection of an appropriate research design is an important decision and should be based on “the nature of the research problem or issue being addressed, the researcher’s personal experiences and the audiences for the study” (Creswell, 2009, p. 3). It is important, therefore, to gain a fundamental understanding of the literature on research methods. The present section discusses some important issues pertaining to research methods and paradigms, as well as how these issues have shaped the design of the present study.

#### **3.1.1 Quantitative and Qualitative Methodologies**

Quantitative methodologies dominated the field of social and behavioural sciences throughout most of the 20th century and historically have been closely linked to the research paradigm of positivism (Ary, Jacobs, Sorensen, & Razavieh, 2010; Robson, 2011; Tashakkori & Teddlie, 2003a; Teddlie & Tashakkori, 2009). Quantitative research refers to a range of methodological approaches associated with the collection, analysis, interpretation, and presentation of numerical data (Teddlie & Tashakkori, 2009). It is based on positivism, which reflects the perspective that “social research should adopt scientific method, that this method is exemplified in the work of modern physicists, and that it consists of the rigorous testing of hypotheses by means of data that take the form of quantitative measurements” (Atkinson & Hammersley, 1994, p. 251). Further, positivism asserts that true knowledge can be obtained from the direct experience or observation of an objective, value-free, and uninvolved knower (Wellington, 2000), while rejecting invisible and

theoretical entities (Robson, 2011). According to this paradigm, knowers (inquirers) should be independent from the known (knowledge) by eliminating their biases and remaining emotionally separated from the objects of research (Johnson & Onwuegbuzie, 2004). In this way, they will not allow their values to influence how they perform their studies and interpret their results (Teddlie & Tashakkori, 2009). For the positivist researcher, the goal is to derive generalisations and hard numerical data (Wellington, 2000).

During the last quarter of the 20th century, many researchers in the social and behavioural sciences rejected positivism and proposed qualitative research, which is associated with a worldview known as constructivism and its variants (Niglas, 2010; Tashakkori & Teddlie, 2003a). Qualitative research refers to a diverse range of techniques associated with the collection, analysis, interpretation, and presentation of narrative data (Teddlie & Tashakkori, 2009). Proponents of qualitative research argued that the use of positivism is inadequate in social science research because the focus in these fields is on human phenomena, which are distinct from inanimate objects studied in the physical sciences; thus, they advocated the use of alternative methodologies (Onwuegbuzie, 2002; Robson, 2011), such as constructivist/ hermeneutic approaches (Onwuegbuzie & Leech, 2005a). Constructivists assert that reality is socially constructed and hence subjective (Onwuegbuzie & Leech, 2005a). According to this school of thought, the knower (inquirer) makes a difference to the known (knowledge), and the researcher's goal is to "explore perspectives and shared meanings and to develop insights into situations, e.g., schools, classrooms" (Wellington, 2000, p. 16).

The use of quantitative approaches in research has both advantages and disadvantages (Connolly, 2007; Johnson & Onwuegbuzie, 2004). Quantitative

methods such as survey questionnaires are valuable for the study of a large number of participants using a short timeframe. Generally, this type of method has greater credibility when it comes to being accepted by decision makers, such as politicians, administrators, and program funders (Johnson & Onwuegbuzie, 2004). When quantitative research data are collected from a representative sample of a population, the research findings can be generalised to the entire target population (Fraenkel & Wallen, 2006; Gay, Mills, & Airasian, 2009; Johnson & Onwuegbuzie, 2004; Robson, 2011).

There are, however, limitations in the use of the quantitative research. For example, quantitative findings may lack rich descriptions about the topic being examined (Lawrence, 2004) and thus be too abstract and general when it comes to applying them in particular social contexts (Johnson & Onwuegbuzie, 2004). As a result, some researchers have argued that “the dead hand of numbers and statistics was no way to understand anything worthwhile about people and their problems” (Robson, 2011, p.18). In contrast to this negative position, Connolly (2007) argues that the problem is not with the quantitative approach per se, but rather with the way it is sometimes conducted. When used properly in educational research, quantitative data analysis can effectively reveal the diversity and complexity of social life; thus, it provides a powerful and increasingly important tool that can be utilised to complement and expand on the insights obtained through qualitative research.

Qualitative methods are becoming increasingly prevalent in education research. The main advantage of a qualitative research is that a variety of qualitative approaches can be utilised to collect descriptive, narrative data, allowing in-depth understanding of the research problem (Gay et al., 2009). Qualitative approaches, therefore, are useful for producing “thick description” for the purpose of

understanding social phenomena in their natural settings (Draper, 2004, p. 643).

Further, this type of research is responsive to the needs of local situations, conditions, and constituents (Johnson & Onwuegbuzie, 2004).

A limitation of qualitative method, however, is that it can be time consuming, as it requires a higher involvement in some social world. This undoubtedly represents a key reason for the popularity of quantitative approaches – which are relatively less time consuming because they likely involve very limited or possibly no connection with the participants under study (Blaikie, 2010). Moreover, because qualitative research usually involves a limited number of cases, the results obtained might not be generalisable to other populations or settings. That is, the results might be unique to the relatively few participants involved in the research (Johnson & Onwuegbuzie, 2004).

From the discussion above, it is clear that quantitative and qualitative approaches represent different paradigms, and both have their own characteristic strengths and weaknesses. Because all approaches have their shortcomings, it is necessary to have different approaches available so that topics under consideration can be looked at from more than one perspective.

Recently, there has been a rapid growth in the use of quantitative and qualitative approaches in the same study; this is often called mixed methods research (Teddlie & Tashakkori, 2009). Johnson and Onwuegbuzie (2004) advocated the use of mixed methods, stating that: “We hope the field will move beyond quantitative versus qualitative research arguments because, as recognised by mixed methods research, both quantitative and qualitative research are important and useful” (p. 14). The mixed methods approach will be discussed in more details in the subsequent section.

### 3.1.2 Mixed Methods Methodology

The use of mixed methods research in various disciplines of the social sciences has been advocated by many researchers since the 1960s (Collins, Onwuegbuzie, & Jiao, 2007). After analysing 19 definitions adopted by leading researchers in the mixed methods field, Johnson, Onwuegbuzie, and Turner (2007) proposed the following general definition:

Mixed methods research is the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches (e.g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration. (p. 123)

The mixed methods approach involves adopting quantitative research methods for one stage of a research study and qualitative methods for another stage (Creswell & Plano Clark, 2011; Leech & Onwuegbuzie, 2009). These two stages can be carried out concurrently (quantitative and qualitative data are collected simultaneously) or sequentially (quantitative and qualitative data are collected one after the other) (Creswell & Plano Clark, 2011; Johnson & Onwuegbuzie, 2004; Leech & Onwuegbuzie, 2009).

The use of mixed methods research represents an opportunity to gain an in-depth understanding of the phenomenon under study. In some studies, the distinct features of both quantitative and qualitative methods will make one method more appropriate than another; in many cases, however, the insights and procedures of both methods can be incorporated to obtain a more workable solution and provide a superior product (Johnson & Onwuegbuzie, 2004). In such work, combining quantitative and qualitative approaches into a single study seems to significantly enhance the interpretation of data.

The purpose of the mixed methods approach is to exploit the strengths of both quantitative and qualitative methods and minimise their weaknesses in single research studies, rather than replacing either of these methods (Johnson & Onwuegbuzie, 2004). The *fundamental principle of mixed research* states that multiple data should be collected using different methods, approaches, and concepts, resulting in an overall design that has complementary strengths and non-overlapping weaknesses (Hibberts & Johnson, 2012; Johnson & Turner, 2003). According to Johnson and Onwuegbuzie (2004), using this principle effectively provides a greater degree of justification for mixed methods research design because the product will be superior to those of single method studies. For example, an addition of an interview approach in a study might help to minimise some weaknesses involved in a questionnaire approach.

Mixed methods research is often coupled with the philosophy of pragmatism. Johnson and Onwuegbuzie (2004) identify this approach as the ‘third wave’ or third research movement and comment that it “makes use of the pragmatic method and system of philosophy” (p. 17). According to the tenets of pragmatism, both qualitative and quantitative research techniques have significant benefits and should often be thoughtfully combined in single research projects. Ultimately, the important issue for pragmatism is what works in practice and what improves social justice (Johnson & Christensen, 2012).

Tashakkori and Teddlie (2003b) created a formal linkage between mixed methods research and pragmatism. One of their key points was that pragmatic research considers the research questions to be more important than either the method applied or the philosophical claims that underpin the method. Johnson and Onwuegbuzie (2004) also emphasise the primary importance of the research

questions and argue that the research methods should be guided by these questions in such a way that the best opportunity to achieve useful answers is provided.

Pragmatists also refuse a forced choice between qualitative and quantitative research methods (Tashakkori & Teddlie, 2003b). Instead, they argue that researchers should not be restricted from employing multiple methods if this will aid in answering their research questions (Johnson & Onwuegbuzie, 2004).

The current study used a mixed methods design because when both quantitative and qualitative approaches are combined in a single study, the strengths of both can be exploited and “much more complete accounts of social reality can ensue” (Bryman, 1988, p.126). The purposes of using the mixed methods design will be discussed further below.

### **3.1.3 Rationale for Mixed Methods**

A review of the literature suggests that a variety of rationales have been proposed for utilising mixed methods research (Collins, Onwuegbuzie, & Sutton, 2006; Greene, 2007; Greene, Caracelli, & Graham, 1989; Morse, 1991; Onwuegbuzie, 2003; Onwuegbuzie & Leech, 2005b). One example of these rationales is *significance enhancement*, which represents a combination of qualitative and quantitative approaches to maximise the interpretations and understanding of the phenomenon under investigation (Collins et al., 2006). Another rationale for mixing quantitative and qualitative approaches is *complementarity*. With this rationale, “a mixed methods study seeks broader, deeper, and more comprehensive social understandings by using methods that tap into different facets or dimensions of the same complex phenomenon” (Greene, 2007, p. 101). These rationales had to do with the logic of the pragmatist position, which implies that neither quantitative nor

qualitative approaches alone are sufficient to gain deeper insights into the research problem.

In the present study, a mixed methods design is used for purposes of significance enhancement and complementarity. The purpose of significance enhancement was compatible with the theoretical framework of this study. According to the Theory of Planned Behaviour, attitude is a hypothetical construct that cannot be directly observed but can only be inferred on the basis of evaluative responses to the attitude object (Ajzen, 2005). Given the primary aim of this study is to explore the attitudes of teachers towards inclusion, it was determined to use both questionnaire and semi-structured interview methods, which can result in richer information about the attitudes than would have been gathered using a single method, thereby enhancing the significance of the results (Onwuegbuzie & Leech, 2004). Although some have warned that the use of mixed methods may produce conflicting findings (Milburn, Fraser, Secker, & Pavis, 1995), such results could be considered beneficial. According to Johnson and Onwuegbuzie (2004), if a study's results are supported across multiple methods, then the singular conclusion can be accepted with considerable confidence. In contrast, if the results are contradictory, then more information can be obtained and utilised accordingly to revise interpretations and conclusions.

The second purpose for employing mixed methods in this research study was complementarity; that is, different methods utilised to explore different aspects of the phenomenon under examination (Greene, 2007; Greene et al., 1989). This purpose was also compatible with the Theory of Planned Behaviour, which posits that people's attitudes towards an object are directly based on their beliefs about the object (Ajzen & Fishbein, 2000; Fishbein & Ajzen, 2010). Specifically, people's

beliefs about an object are formed by linking the object with certain attributes, qualities, and characteristics which will produce their overall attitudes towards the object (Fishbein & Ajzen, 2010). The present study, therefore, used a semi-structured interview approach in addition to a questionnaire approach for the purpose of gaining an in-depth understanding of teachers' attitudes towards inclusion. Particularly, the questionnaire appears to be useful for describing the overall attitudes of teachers towards the inclusion of students with AD/HD-related behaviours. The use of an interview approach can also help to explain in greater detail teachers' attitudes by tapping into the beliefs that form the foundations for their attitudes. In other words, the questionnaire was used to determine how positive or negative teachers are towards inclusion, and the interview was designed to capture justifications of these attitudes. Thus, a complete picture of teachers' attitudes can be captured.

The use of a mixed methods approach was deemed appropriate for this study because this approach facilitates a deep understanding of the attitudes of teachers towards inclusion and also permits the use of multiple sources of evidence such as questionnaire responses and interview findings to assess different aspects of these attitudes. The design framework of this study will be discussed in the following section.

#### **3.1.4 Research Design of the Present Study**

The design framework is a crucial part of any research study and should "have high compatibility between purposes, research questions, conceptual framework and sampling strategy" (Robson, 2011, p.73). Taking this into account, the current study adopted a pragmatic theoretical perspective allowing for the use of a combination of quantitative and qualitative methods; it is believed that this methodology has been appropriately designed to address the study's problem and

questions (Johnson & Christensen, 2012; Johnson & Onwuegbuzie, 2004).

*Pragmatist researchers*, as described by Onwuegbuzie and Leech (2005a), are those who learn to use and to appreciate both qualitative and quantitative approaches. The study used an explanatory sequential mixed methods design with a quantitative phase followed by a qualitative phase. In this type of design, the quantitative phase has the priority in the study, and the qualitative phase is used to explain the initial quantitative findings (Creswell & Plano Clark, 2011).

In the quantitative phase of the current study, a questionnaire approach was used to examine Saudi teachers' knowledge about AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. Quantitative data were also used to explore the relationships among knowledge, self efficacy, attitude towards inclusion as well as a number of background factors including teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD.

In the second, qualitative phase, the semi-structured interview method was used to follow up on the earlier quantitative results from the questionnaire for the purpose of gaining an in-depth understanding of 'how' Saudi mainstream teachers perceive the inclusion of students with AD/HD-related behaviours. Specifically, the main purposes of the interview approach were to investigate teachers' attitudes towards the inclusion of students with AD/HD-related behaviours and to explore and elaborate on the significant predictors of teachers' attitudes identified in the initial quantitative analyses. Some complex theoretical constructs, such as teachers' attitude, need to be investigated with different research methods because such construct cannot be well captured using either purely quantitative or purely

qualitative approaches (Teddlie & Tashakkori, 2003). Because of this and other reasons mentioned above, mixed methods research methodology was considered appropriate for this research.

As a final consideration, it is necessary to note that simply collecting and analysing quantitative and qualitative data is insufficient; rather, the two types of data must be “mixed” in some manner so that, together, they provide a more detailed picture of the issue being addressed than they do when left separate (Creswell & Plano Clark, 2007, p. 7).

In the present study, the quantitative data were integrated with the qualitative data on two levels. The first level of integration occurred at the intermediate stage of the research process while sampling interview participants based on their responses to the questionnaire. Second, the findings of the quantitative and qualitative analyses were connected during the presentation of the qualitative results and the interpretation phase of the research. Figure 3.1 illustrates the visual framework of the procedures for the explanatory sequential mixed methods design of this research.

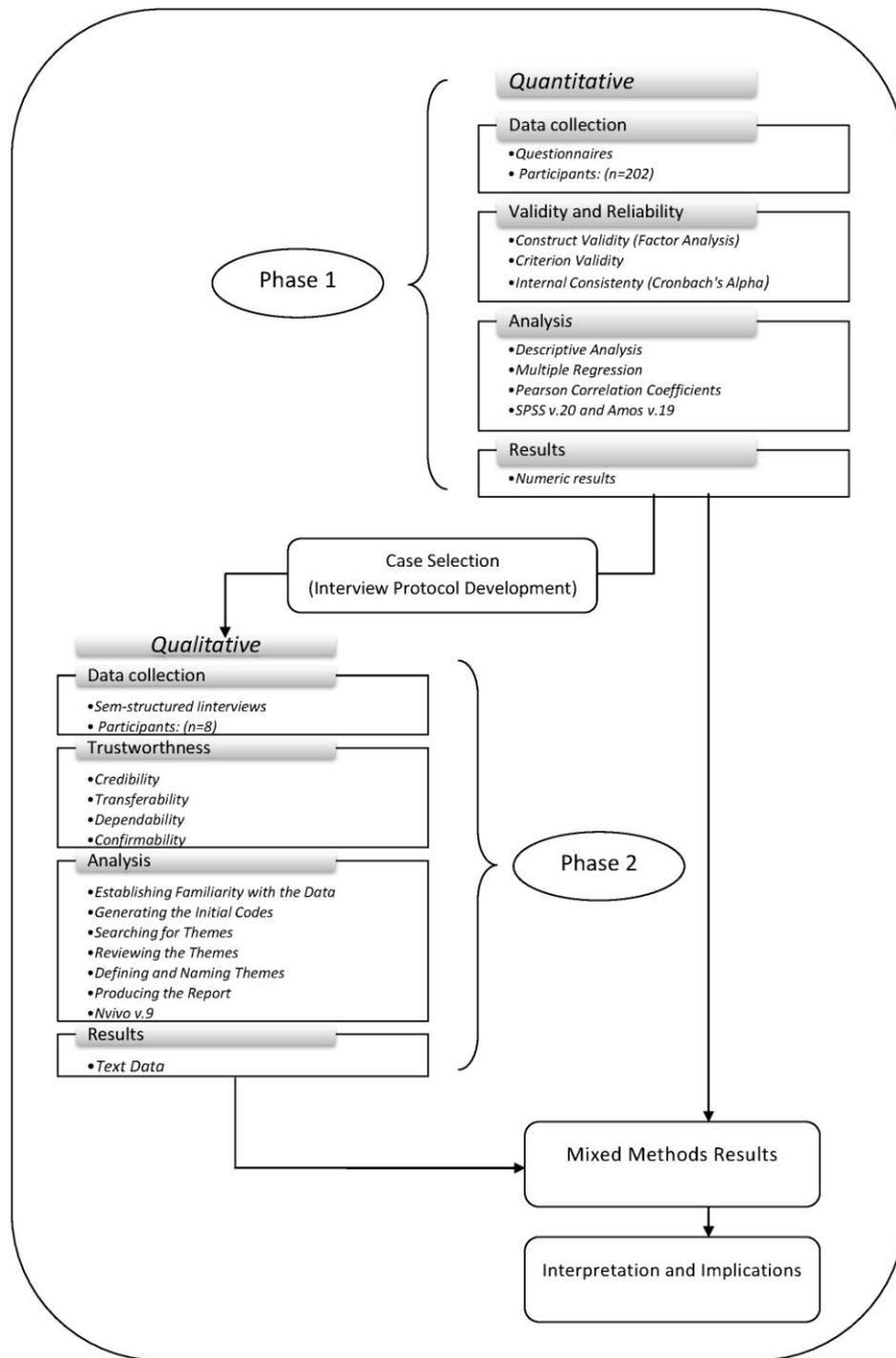


Figure 3.1. Visual framework of the procedures for the explanatory sequential mixed methods design of the study.

## 3.2 RESEARCH QUESTIONS

The present study was designed to answer the following questions:

### **Research question #1:**

What perceptions and attitudes do Saudi teachers have about the inclusion of students with AD/HD-related behaviours?

**Sub-question 1.1:** What is the attitude of Saudi mainstream teachers towards the inclusion of students with AD/HD-related behaviours as measured by the Teacher Attitude towards Inclusion Scale (TAIS)?

**Sub-question 1.2:** How do Saudi mainstream teachers perceive the inclusion of students with AD/HD-related behaviours and the factors influencing their attitude towards inclusion?

### **Research question #2:**

What is the knowledge of Saudi mainstream teachers with regard to AD/HD as measured by the Knowledge of Attention Deficit Disorders Scale (KADDS)?

### **Research question # 3:**

How well does teachers' knowledge of AD/HD correlate with their efficacy beliefs for teaching students with behavioural problems?

### **Research question # 4:**

How well do the independent variables – efficacy beliefs, teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD – predict teachers' attitude towards the inclusion of students with AD/HD-related behaviours? Which of these independent variables is the most important predictor of teachers' attitude towards the inclusion of students with AD/HD-related behaviours?

The questions posed in the present study consist of a mixed methods research question (#1) and several quantitative research questions (#2-4). The first research question in this study is considered a mixed methods question, which contains quantitative (1.1) and qualitative (1.2) sub-questions. Mixed methods research questions are defined by Teddlie and Tashakkori (2009) as questions “concerned with the unknown aspects of a phenomena and are answered with information that is presented in both narrative and numerical forms” (p.129). The nature of research questions in mixed methods research was explored by Tashakkori and Creswell (2007). They suggested formulating at least one mixed methods question that can be expanded into quantitative and qualitative sub-questions. The advantage for developing such a question is its potential to address the aims and research questions of the study by connecting the strands (quantitative and qualitative) (Tashakkori & Creswell, 2007).

The second, third and fourth research questions in this study are considered quantitative research questions. Quantitative research questions typically generate numerical information (Kemper, Stringfield, & Teddlie, 2003), and they can generally be categorised into either comparative, descriptive or relationship questions (Onwuegbuzie & Leech, 2006). The dependent variable(s) and population should be clearly represented in the quantitative research question, which is either comparative, descriptive or relationship oriented question. If it is a comparative based or relationship based research question, it should also identify the independent variable(s) (Onwuegbuzie & Leech, 2006).

### **3.3 POPULATION AND SAMPLE**

#### **3.3.1 Identification of the Population**

The target population in this study consisted of the teachers employed in the primary inclusive schools of the Madinah administrative area of Saudi Arabia during the 2011–2012 school year. Inclusive schools refer to regular schools which include students with and without special needs together. A list of all the teachers' names and their school addresses was obtained from the Ministry of Education. This list, which constituted the sample frame for this study, included the names of 1779 teachers.

The area of study, Madinah, was chosen for several reasons. First, it is one of the largest regions in Saudi Arabia where the development of inclusive education has been implemented increasingly over the past few years. Second, the target sampling area was accessible to the researcher and it is representative of the entire Saudi population in that all of the teachers had similar sociodemographic characteristics. Finally, the primary school level was selected because the characteristics of AD/HD typically become more apparent in the first grades of a child's education (Brown & La Rosa, 2002; Mohammadi & Akhondzadeh, 2007; Pratt, 2007). Most children are first diagnosed with AD/HD during the primary school years (Brown & La Rosa, 2002; Sax & Kautz, 2003).

#### **3.3.2 Determination of the Sample Size**

In mixed methods research, the choice of an appropriate sample size for both quantitative and qualitative phases is essential because it influences the extent to which research results can be statistically and/or analytically generalised (Onwuegbuzie & Collins, 2007). In the present study, a sample size of 230 teachers was sought for the first quantitative phase. In the second qualitative phase, a sample size of eight teachers was considered to be sufficient for this study.

In quantitative studies, large sample sizes are necessary in order to ensure that requisite statistical analyses can be conducted. Therefore, it was important to estimate the minimum sample size required for this study. The minimum acceptable sample size for the quantitative research can be determined by using guidelines such as those described by Green (1991) or by conducting a power analysis. Conversely, the criteria for determining sufficient sample size in qualitative research is mainly dependent on general guidelines (Collins et al., 2007; Sandelowski, 1995) and on the data saturation (Guest, Bunce, & Johnson, 2006), which is a point in qualitative data analysis where “no additional data are being found” (Glaser & Strauss, 1967, p. 61). A detailed discussion of sample size considerations follows.

Research question #4 of this study was addressed by a regression analysis, which requires a sufficiently large sample. Green (1991) introduces two general guidelines to calculate minimum sample size for a multiple regression. In the first method, he suggests a minimum sample size of  $50+8\kappa$ , where  $\kappa$  represents the number of predictor variables, and in the second one a size of  $104+\kappa$  is recommended. The first method is used for testing the  $R^2$  of the regression model, while the second method is employed to test the contribution of predictor variables. For those interested in testing both the  $R^2$  and predictor variables, Green (1991) suggests that both methods should be used to calculate the minimum sample sizes and the largest sample size should be assigned for the study.

In the present study, there are eight predictor variables included in the multiple regression analysis. Thus, based on Green’s (1991) general guidelines, a sample size of 114 is needed for the current study. These general guidelines seem straightforward, but they do not consider some important factors such as the estimated effect size and the test’s statistical power. Such problems with these

general guidelines might lead to non generalizable or misleading findings (Miles & Shevlin, 2009). Due to the limitations associated with the previous general guidelines, the use of power analysis is more preferable when considering the sample size in quantitative research (Ellis, 2010; Miles & Shevlin, 2009).

In order to use power analysis to estimate the minimum sample size the following information is needed: (a) alpha level, (b) the desired level of power, and (c) the effect size. Alpha level (significance level) refers to the probability of making a type I error, or the probability of falsely rejecting the null hypothesis when it is in reality true. Statistical power represents the likelihood of accurately rejecting the null hypothesis (i.e. detecting a significant effect, if one does exist in the population) (Cohen, 1988). Setting the values of significance level and power at .05 and .80 respectively is considered appropriate for a wide variety of behavioural research (Cohen, 1988; Hair, Black, Babin, & Anderson, 2010). Finally, “the term effect size is used most broadly to refer to any statistic that quantifies the degree to which sample results diverge from the expectations (e.g., no difference in group medians, no relationship between two variables)” (Vacha-Haase & Thompson, 2004, p. 473). Cohen's (1988) table for insignificant, small, medium, and large effect sizes has been used commonly in several behavioural and educational research (Dunst & Hamby, 2012).

Once the effect size, the power, and alpha have been identified, the number of subjects needed for a study can be calculated using power analysis. Because of the complexity to calculate the power by hand (Ellis, 2010; Miles & Shevlin, 2009), many researchers tend to perform the power analysis using computer packages such as G\*Power. G\*Power is a comprehensive power analysis program for a broad range

of statistical techniques widely used in the behavioural and social research (Faul, Erdfelder, Buchner, & Lang, 2009).

Using G\*Power 3, the sample size required in order to conduct Pearson correlations and multiple regression analyses was estimated using a power of .80 with an alpha of .05. The sample size calculation also included a consideration of medium effect sizes for Pearson correlations ( $r = .30$ ) and multiple regression ( $R^2 = .13$ ) (Cohen, 1988). As a result, the sample sizes for Pearson correlations and multiple regressions, with eight predictors, were calculated as 84 and 63, respectively. These represent minimum sample sizes. It is more advantageous, though, to increase the sample size so the generalisability of the findings increases and the sampling error reduces (Matthews & Ross, 2010). Also, by taking into account a possible low response rates and incomplete questionnaires, a sample size of 230 was aimed for in the questionnaire phase of the present study.

With regard to qualitative research, estimating a required sample size is more controversial. Patton (2002) indicates that “there are no rules for sample size in qualitative inquiry” (p. 244). Nevertheless, a general guideline is that the sample size in qualitative studies should be neither too small nor too large. A very small sample size can lead to difficulties in obtaining data saturation, while a very large sample size can lead to problems in deriving in-depth information about the research problem (Collins et al., 2007; Sandelowski, 1995). Moreover, saturation is typically used as criterion for estimating the sample size in qualitative research (Fossey, Harvey, Mcdermott, & Davidson, 2002; Guest et al., 2006; Sandelowski, 1995). That is, sampling continues until saturation emerges. Although, the concept of saturation is crucial in qualitative inquiry, “there are no published guidelines or tests of

adequacy for estimating the sample size required to reach saturation” (Morse, 1995, p. 147).

In responding to the need for a general, numerical guideline regarding sample size in qualitative research, Guest et al. (2006) conducted a study to determine how many interviews are enough to obtain theoretical saturation. This methodological study used data gathered from sixty interviews in order to systematically review the degree of data saturation over the period of the analysis and provide practical recommendations concerning qualitative sample sizes. The findings of this study indicated that saturation was achieved within the first twelve interviews, while metathemes were evident after six interviews. In addition, findings from the study suggested that a sample of six interviews might be “sufficient to enable development of meaningful themes and useful interpretations” (Guest et al., 2006, p. 78). Based on this information, it was determined that interviews with eight participants would be necessary.

### **3.3.3 Sampling Methods**

In social sciences research, there are two major sampling methods: probability and non-probability sampling. In the current study, both probability and non-probability samplings were used for the questionnaire and interview phases, respectively. In probability sampling, also known as random sampling, participants are drawn from a larger population in such a way that each member of the population has an equal chance of being included in the sample (McMillan & Schumacher, 2010; Teddlie & Yu, 2007). Probability sampling techniques include simple random sampling, systematic random sampling, cluster random sampling, multistage random sampling, and stratified random sampling (McMillan & Schumacher, 2010). These types of sampling are considered to be the most precise sampling methods in

quantitative research as the samples will likely represent the population from which they were drawn, thus researchers can make generalizations to the population (Creswell, 2012).

In non-probability sampling, also known as non-random sampling, researchers choose participants who might represent certain types of characteristics or be accessible, hence, no random selection is involved in these methods (McMillan & Schumacher, 2010). These types of sampling techniques consist of convenience sampling, purposive sampling, and quota sampling (Creswell, 2012; McMillan & Schumacher, 2010). Non-probability sampling methods are more appropriate for qualitative research where researchers are not seeking for generalizations, rather, describing a particular context in depth (Gay et al., 2009).

In order to draw a representative sample for the questionnaire phase, two random sampling methods were adopted: cluster random sampling and systematic random sampling techniques. In cluster random sampling, groups, for example, classrooms or schools, not individuals, are randomly selected (Gay et al., 2009; McMillan & Schumacher, 2010). The cluster random sampling technique is more convenient when the population is spread over a wide geographic area (Gay et al., 2009). As discussed earlier, the current study was conducted in the Madinah administrative area, which is one of the largest regions in Saudi Arabia. Thus, the cluster random sampling technique seemed to be appropriate for this study. Despite that, this method may sometimes produce samples that are not representative of the population if researchers choose too few clusters. Hence, it is important for researchers who intend to use the cluster random sampling technique to select a large number of clusters to increase the probability that the selected clusters represent the population adequately (Gay et al., 2009). With regard to the systematic random

sampling technique, a researcher, in using this method, selects every  $n$ th case in the population until he or she reaches the desired sample size (McMillan & Schumacher, 2010). This method is useful because the population members do not have to be numbered such as in the case with simple random sampling (Creswell, 2012). The systematic random sampling technique was used in the questionnaire phase when selecting both the required numbers of schools and the required numbers of teachers from each school.

To illustrate in detail the sampling techniques used for the questionnaire phase of this study, the following steps were applied. First, the population included all the 1779 mainstream primary school teachers in the Madinah administrative area, and the desired sample size was 230. The researcher had a list of all 63 schools in the Madinah administrative area including both male and female schools. To increase the likelihood that the selected schools represented all schools in the Madinah administrative area adequately, eight teachers from each school were selected. Thus, the number of clusters, that was, schools, to be selected was 29 (the desired sample size divided by the number of teachers needed from each school). Therefore, 29 out of 63 schools were selected using a systematic random sampling technique. This involved determining  $n$  by dividing the number of all schools in the Madinah administrative area (63) by the number of clusters needed (29), which gives  $n \approx 2$ . The researcher started at a random point in the list of all schools and then took every second school in the list until the desired number of schools (29) was achieved. After selecting 29 schools, the systematic random sampling strategies to select eight teachers from each school was repeated, by considering the calculation of  $n$  for each school depending on the actual number of teachers in that school. This resulted in a final sample of 202 teachers (28 teachers did not return the questionnaire) for

conducting questionnaire phase of this study. All of these teachers who took part in the study were volunteers and were provided with enough information about the study to make an informed decision about whether or not to participate.

For the interview phase, a purposive sample of eight teachers was selected from participants who provided their consent to participate in follow-up interviews. As mentioned earlier, purposive sampling method is a non-probability sampling technique. Purposive sampling method is commonly used in qualitative research and may be defined as selecting participants based on specific purposes related to answering the questions of a research study (Teddlie & Yu, 2007). There are different sampling strategies in purposive sampling (Ary et al., 2010; Collins et al., 2007; Creswell, 2012; McMillan & Schumacher, 2010). Each strategy has different intent, depending on the research purposes and the questions a researcher would like to answer in his or her study (Creswell, 2012).

Because the interview phase of the current study mainly aims to understand “how” Saudi mainstream teachers perceive the inclusion of students with AD/HD-related behaviours, stratified and random purposeful sampling techniques were adopted in this phase of the study. The sampling frame for this part was participants who provided their consent to participate in follow-up interviews. First, by using stratified purposeful sampling method, the participants from the mentioned sampling frame were divided into four strata to obtain relatively homogeneous subgroups. The strata were established after the analysis of the quantitative part, and they were based on the participants’ attitude towards the inclusion. The four strata were male teachers with positive attitude, male teachers with negative attitude, female teachers with positive attitude, and female teachers with negative attitude. After identifying the

homogeneous subgroups, a random purposeful sampling method was applied in order to randomly select a number of two teachers from each stratum.

### **3.4 DATA COLLECTION**

Data were collected using a four-part, self-report questionnaire and a semi-structured interview designed for the study. The sections of the questionnaire are entitled, *Part A: Teacher Attitude towards Inclusion Scale (TAIS)* (adapted from Soodak, Podell, and Lehman (1998), *Part B: Teacher Efficacy Beliefs Scale (TEBS)* (Brownell & Pajares, 1999), *Part C: Knowledge of Attention Deficit Disorders Scale (KADDS)* (Sciutto et al., 2000), *Part D: Demographic Questionnaire (DQ)*. For the qualitative portion, a semi-structured interview was used. Table 3.1 shows an overview of the methodology.

Table 3.1  
*Overview of the Methodology*

Research Questions	Variables	Data Collection	Data Analyses
<p><b>Research Questions #1</b>  <b>Sub-question 1.1:</b> What is the attitude of Saudi mainstream teachers towards the inclusion of students with AD/HD-related behaviours as measured by the Teacher Attitude towards Inclusion Scale (TAIS)?</p> <p><b>Sub-question 1.2:</b> How do Saudi mainstream teachers perceive the inclusion of students with AD/HD-related behaviours and the factors influencing their attitude towards inclusion?</p>	<p>1. Attitude towards inclusion (continuous)</p>	<p>1. <u>Survey - Part A:</u> Teacher Attitude towards Inclusion Scale (TAIS), 2 vignettes each with 17 adjectives, 4-point Likert scale, researcher developed based on (Soodak et al., 1998)</p> <p>2. <u>Semi-structured interview</u></p>	<p>Descriptive analysis (Means, standard deviations, and percentages) and Thematic Analysis</p>
<p><b>Research Questions #2</b>            What is the knowledge of Saudi mainstream teachers with regard to AD/HD as measured by the Knowledge of Attention Deficit Disorders Scale (KADDS)?</p>	<p>1. Knowledge of AD/HD (continuous)</p>	<p>1. <u>Survey - Part C:</u> Knowledge of Attention Deficit Disorders Scale (KADDS) (Sciutto et al., 2000) 24 items T/F/DK</p>	<p>Descriptive analysis (Frequency and percentages)</p>
<p><b>Research Questions #3</b>            How well does teachers' knowledge of AD/HD correlate with their efficacy beliefs for teaching students with behavioural problems?</p>	<p>1. Knowledge of AD/HD (continuous)            2. Self-efficacy for teaching (continuous)</p>	<p>1. <u>Survey - Part C:</u> KADDS  <u>Survey - Part B:</u> Teacher Efficacy Beliefs Scale (TEBS) (Brownell &amp; Pajares, 1999), 8 items, 6-point Likert scale</p>	<p>Pearson's correlation coefficients</p>
<p><b>Research Questions #4</b>            How well do the independent variables – efficacy beliefs, teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD – predict teachers' attitude towards the inclusion of students with AD/HD-related behaviours? Which of these independent variables is the most important predictor of teachers' attitude towards the inclusion of students with AD/HD-related behaviours?</p>	<p>1. Attitude towards inclusion (continuous)            2. Self-efficacy for teaching (continuous)            3. Demographic variables (categorical and continuous)</p>	<p>1. <u>Survey - Part A:</u> TAIS  <u>Survey - Part B:</u> TEBS  <u>Survey - Part D:</u> Demographic Questionnaire (DQ)</p>	<p>Multiple regression analysis</p>

### **3.4.1 Part A: Teacher Attitude towards Inclusion Scale (TAIS)**

The Teacher Attitude towards Inclusion Scale (TAIS) (Soodak et al., 1998) was adapted for the present study. In the original survey, participants were given a brief scenario in which their principal informed them that a student with special needs would be included in their classrooms. Each teacher was assigned to only one of the different disability categories, which included hearing impairment, learning difficulty, intellectual disability, behaviour disorder, and physical disability. Participants then responded to a list of 17 pairs of adjectives that are rated on a 4-point Likert-type scale (Soodak et al., 1998).

In the present study, the scale was used for gathering data related to teacher attitudes towards the inclusion of students with AD/HD-related behaviours in the regular classroom. In this part of the questionnaire, the researcher designed four hypothetical vignettes (See Appendix A). Participants were asked to read vignettes, half of which described a primary school aged student who meets the DSM-IV criteria for AD/HD-inattentive subtype (AD/HD-I) and the other half of which depicted a student with behaviours associated with AD/HD-hyperactive/impulsive subtype (AD/HD-HI). Each participant was assigned to only one of the four vignettes at random. The two vignettes designed for each subtype described the same behaviours and condition, but they only varied by the gender of the student name (Salem or Salma). Schools in Saudi Arabia are segregated by gender, at both student and teacher level (female teachers teaching girls and male teachers teaching boys). Therefore, female respondents received one of the two vignettes with a girl's name, and male respondents received one of the two vignettes with a boy's name.

The following hypothetical scenario was appended to each vignette: "suppose that your school decides to include (Salem or Salma) in your classroom". After

reading this scenario, the teachers responded to a list of 17 pairs of adjectives that are rated on a 4-point Likert-type scale. The adjectives describe teachers' possible feelings when a student with AD/HD-related behaviours is included in their regular classrooms (eg, 1 = "accepting" to 4 = "opposing" or 1 = "comfortable" to 4 = "uncomfortable") (See Appendix A). The TAIS consists of 11 items with a four category response scale; hence, the possible minimum score is 11 (most negative attitude) and the possible maximum score is 44 (most positive attitude).

In the present study, vignettes without labels were utilised to assess teachers' attitudes towards inclusion. Based on a methodological review, it was concluded that using an appropriately designed vignettes is a useful method for examining teachers' cognitive attitudes (Poulou, 2001). In their comprehensive review of the literature on teachers' attitudes and beliefs about inclusion of students with special needs, Avramidis and Norwich (2002) suggested that the use of labels, such as 'autistic' or 'mentally disabled', without providing particular descriptions of a disabled child's characteristics may be disadvantageous because respondents might have different interpretations of the same label based on their individual perspectives which could be negative or positive. This issue of different interpretations can be alleviated by the utilisation of a vignette technique that includes descriptions of the behaviours and characteristics of people with special needs, rather than referring to a group of people by a disabling label. Thus, there was intentionally no mention of the label of AD/HD in the vignettes in this study, only general information and a description of a child with AD/HD-related behaviours.

### **3.4.2 Part B: Teacher Efficacy Beliefs Scale (TEBS)**

Teachers' perceptions of their efficacy for instructing and managing students with behavioural difficulties were measured using the Teacher Efficacy Beliefs Scale

(TEBS). This 11-item scale was designed by Brownell and Pajares (1999) to explore teachers' efficacy beliefs to instruct and manage students with learning and behavioural difficulties. For this study, the three items that relate to students with learning difficulties were excluded because the present study mainly focuses on students who display behavioural difficulties such as those associated with AD/HD. Such exclusion is consistent with the guidelines provided by Bandura (1997), who suggested that instruments of self-efficacy should not be too general, but should be context-specific; that is, in order to achieve accuracy, self-efficacy needs to be assessed on the basis of particular skills or skill sets. For instance, teachers might feel efficacious for instructing certain students in particular settings, and they might feel more or less efficacious under different situations (Tschannen-Moran, Hoy, & Hoy, 1998).

The possible responses to the items in the TEBS scale range from 1 to 6, with a score of 1 indicating that the respondent can do “nothing” and a score of 6 indicating that the respondent can do “a great deal”. Scores from all of the items are summed to obtain a total score, ranging from 8 to 48 and coded such that higher scores are indicative of higher levels of self-efficacy. Each item starts with the phrase “how much can you do to ...”, and some examples of the items are as follows: “How much can you do to keep students with behavioural problems on task with difficult assignments?” and “How much can you do to individualize learning for students with behavioural problems?” (See Appendix B). Brownell and Pajares (1999), who used this measure in their study, reported a reliability coefficient of .90, which is excellent.

### **3.4.3 Part C: Knowledge of Attention Deficit Disorders Scale (KADDS)**

The Knowledge of Attention Deficit Disorders Scale (KADDS) was used to assess participants' knowledge about AD/HD. This instrument was created by Sciotto, Terjesen, and Frank (2000) and has been used primarily in Western countries such as the USA and Australia (e.g., Garcia, 2009; Kos, 2004; Sciotto et al., 2000; Small, 2003) and less so in other parts of the world such as South Africa and Taiwan (e.g., Graeper et al., 2008; Perold et al., 2010; Tsai, 2003). It is thought that the present study is the first to use the KADDS translated into Arabic in an Arabic country.

The original KADDS consists of 39 items designed to examine teachers' knowledge about the characteristics/diagnosis of AD/HD, general information about the nature, causes, and outcomes of AD/HD and the treatment of AD/HD. The third section of the KADDS focusing on treatment was excluded because it was regarded as being not relevant to the present study for several reasons. First, the Saudi community has been largely unaware of AD/HD as a diagnosable medical disorder until the government approved the National Project for Dealing with Children with Attention Deficit and Hyperactivity Disorder (NPDCAD/HD) in 2009. Second, the number of qualified practitioners able to diagnose the disorder remains low in Saudi Arabia (Allothman, 2011a). Given the recency of awareness and treatment of AD/HD in Saudi Arabia, it was decided to explore only teachers' knowledge of AD/HD and their attitudes towards the inclusion of students with AD/HD and/or AD/HD-related behaviours. It would, however, be of benefit to explore teacher, parent and paraprofessional knowledge of AD/HD treatments when AD/HD is more widely recognised and diagnosed among children in Saudi Arabia.

The version of the KADDS used in the present study contains 24 items. Participants respond to each item on the KADDS by choosing one of these answers “True,” “False,” or “Don't Know” (See Appendix C). This structure allows the researcher to ascertain whether a respondent is knowledgeable, lacks knowledge or is misinformed. The addition of a “Don't Know” option reduces the possibility that respondents have 50% chance of giving correct “True” or “False” answers simply by guessing. High scores on this instrument represent high knowledge regarding AD/HD. One point is given to correct answers while zero points are given to incorrect and “Don't Know” answers.

The only amendment this researcher made to the KADDS was to reword the items using the term “Children with AD/HD” instead of “AD/HD Children” because this formulation puts the individual first and reduces concentration on the problem or condition (e.g., AD/HD). Carter, Parmenter, and Watters (1996) pointed out that the use of "children first" terminology has achieved increasing acceptance. Sample questions include, “Children with AD/HD often have difficulties organising tasks and activities” and “In order to be diagnosed with AD/HD, a child must exhibit relevant characteristics in two or more settings (e.g., home, school)” (See Appendix C).

#### **3.4.4 Part D: Demographic Questionnaire (DQ)**

The final part of the questionnaire booklet was focused on understanding the background information of the participants. The main purpose of this portion was to gather some demographic information about the respondents including: gender, age, years of teaching experience, educational qualification, class size, prior experience with a child with attentional problems, prior experience with a child with behavioural

problems, and training about students with AD/HD-related behaviours (See Appendix D).

### **3.4.5 Semi-structured Interview**

Denzin and Lincoln (2000) suggested that interviewing is a useful approach to understanding a person's point of view, of how he or she constructs meaning, and also as a means to arrive at a thick description. The main purposes of the analyses of the interview transcripts were: (1) to investigate teachers' attitude towards the inclusion of students with AD/HD-related behaviours and (2) to explore and elaborate on the key findings from analyses of the questionnaire specifically in relation to the significant predictors of teachers' attitudes towards inclusion.

Semi-structured vignette-based interviews designed by the researcher were conducted with a selected sub-sample of the participants. In order to make participants feel comfortable, interviews began by asking a few introductory questions about participants' age, city of birth, subject area, and number of years of experience. Kvale (1996) pointed out that introductory questions such as "tell me about-- questions" encourage respondents to provide more detailed answers because these types of questions are brief, straightforward, and comfortable to respond to. Next, each interviewee was assigned the same vignette he or she responded to in the Teacher Attitude towards Inclusion Scale (TAIS). After having read the vignette, respondents were asked several open-ended questions.

The open-ended questions in the interviews were grouped into four categories and served to guide the interview process (see Appendix H). First, questions 1 to 7 were developed on the basis of previous research (Bradshaw & Mundia, 2006; Haihambo & Lightfoot, 2010; Salend, 1999) to investigate teachers' attitude towards the inclusion of students with AD/HD-related behaviours. Second, questions 8 to 11,

which were designed on the basis of Bandura's (1997) Theory of Self-efficacy for the purpose of examining teachers' efficacy beliefs for teaching students with AD/HD-related behaviours and sources of their efficacy beliefs, were asked. Finally, questions 12 and 13, which concerned teachers' perceptions of training needs, and questions 14 and 15, which concerned teachers' perceptions about the issue of class size, were asked. The development of questions 12 to 15 was based on a review of pertinent literature (Fletcher et al., 2010; Salend, 1999).

### **3.5 TRANSLATION AND PILOT TESTING**

Before the pilot study was conducted, the questionnaires used in this study were translated into Arabic, which is the first language of the teachers, in order to facilitate comprehension of the questions as well as ease of responding. The procedure for determining the final Arabic version included three different steps. First, a certified translator, who was fluent in both English and Arabic, translated the questionnaires into Arabic. In the second step, the Arabic version of the questionnaires was translated back into English by another certified translator who was blind to the original English version. Finally, the original English version was compared with the English translation of the Arabic version by the researcher and a PhD student, who is bilingual in English and Arabic. Based on this comparison, a few items and wordings of the Arabic version were corrected, and the final Arabic versions were then prepared for use in the study.

After the translation procedures, the questionnaires were piloted with a small sample of 32 teachers who were selected at random from the same population from which the participants in the main study were chosen. These teachers then were excluded from the participant sample for the main study, as recommended by Pett, Lackey, and Sullivan (2003). The pilot study was conducted to examine the validity

and reliability of the questionnaires. The pilot study is discussed in further detail in following subsections.

### **3.5.1 Validity**

Validity of a scale is the degree to which a scale measures what it is supposed to measure (Gay et al., 2009) and is a necessary condition in all forms of research (Ary et al., 2010; Gay et al., 2009). There has been controversy recently, however, about types of validity (Miller, McIntire, & Lovler, 2011). The basic types of validity can be classified as content validity, criterion validity, and construct validity (Carmines & Zeller, 1979; Groth-Marnat, 2009). Content validity concerns whether the assessment instrument represents the construct being measured (Groth-Marnat, 2009). Face validity is a form of content validity, which is established by asking examinees to review the content of the questionnaire. It refers to the degree to which respondents believe the scale is measuring what it is intended to measure (Ary et al., 2010). In the present study, the 32 teachers who participated in the pilot study were asked to critique the questionnaires for any ambiguities, confusions, replications, overlapping items, and misunderstandings and to suggest additional comments about inclusion, exclusion, or clarification for any item. The participants did not report any difficulties in understanding and answering the questionnaires. This supported the presence of face validity of the questionnaires; accordingly, no modifications were made to the questionnaires.

### **3.5.2 Reliability**

Reliability refers to the capability of an instrument to yield the same findings when used again under the same or similar conditions (Field, 2009). In other words, reliability addresses the degree to which scores achieved by a respondent are the same if the respondent is reexamined by the same test in a different situation (Groth-

Marnat, 2009). Reliability is considered to be a very important property of a measurement scale (Ary et al., 2010; Miller et al., 2011). As is the case with validity, there are several types of reliability, each of which engages with different aspects of consistency and is determined by a different method. Common types of reliability include test-retest reliability, equivalence, internal consistency reliability, scorer/rater reliability, reliability coefficients, and standard error of measurement (Gay et al., 2009). For the pilot study, the internal consistency reliability was calculated by using Cronbach's alpha coefficient, which is the most widely used assessment of internal consistency. A Cronbach's alpha value of .70 is widely considered as adequate for reliability (Kline, 2010). The internal consistency (Cronbach's alpha coefficient) of the scales of TAIS, TEBS, and KADDS were .92, .85, and .75, respectively. All the Cronbach's alpha values were higher than .7, and thus the questionnaires were judged to be adequate for use in the present study.

### **3.6 PROCEDURE**

Before conducting the study, it was necessary to obtain Ethical Approval from QUT's University Human Research Ethics Committee and from the Saudi Ministry of Education. The approval was granted for this study (see Appendices I and J). Following approval, principals of selected schools were contacted in order to request permission for conducting the study in the schools. No school refused to participate in the study. The principals were each given the approval letter from the Ministry of Education and informed about the research as well as the process for teachers to complete the questionnaires.

The researcher then invited teachers to participate in the study. Each teacher received a letter of invitation, which contained all the necessary information (e.g., that participation was voluntary, that all responses would remain confidential, and

that their identity would not be revealed). Copies of the questionnaires were also attached with these letters. After questionnaires were distributed to respondents, collection of data was started. Every teacher was requested to complete all of the items on the questionnaires and to return the questionnaire booklet to the researcher when he revisited the school seven days later.

Qualitative data collection commenced after the survey results had been analysed. Eight teachers were selected by a random purposeful sampling method to participate in the individual interview. All interviews were performed at a place and time of convenience for each participant and lasted for about 35 minutes. The interviews were audio-tape recorded and later transcribed. Data collection procedures and duration are outlined in Table 3.1.

Table 3.2

*Data Collection Procedures and Duration*

Phases	Activities	Duration
Preparation	Permission received from the Ministry of Education	
	Permission received from QUT ethics committee	
	Details of the study and questionnaire reviewed with the principals	
	Teachers invited to participate in the study	
	Information about confidentiality reviewed with teachers	
Phase 1	Teacher Attitude towards Inclusion Scale (TAIS)	6 mins.
	Teacher Efficacy Beliefs Scale (TEBS)	7 mins.
	Knowledge of Attention Deficit Disorders Scale (KADDS)	11 mins.
	Demographic Questionnaire (DQ)	3 mins.
	Duration of Phase 1	(27 mins.)
Phase 2	Semi-structured interviews	35 mins.
	Duration of Phase 2	(35 mins.)
	Total duration	(62 mins.)

### 3.7 THE PHASE ONE ANALYSES

Two sequential steps were used to analyse data in Phase One of the study.

The first involved preparing and organising data for analysis. The second involved conducting analyses of data. Data preparation for analysis involved data coding, choosing a statistical software package, and then entering the data into a computer program. After preparing the data, the next step was performing statistical analyses involving factor analysis, descriptive statistics, Pearson's correlation coefficient, and multiple regression.

#### 3.7.1 Data Preparation for Analyses

Prior to performing the statistical analyses, the data were checked and organised to ensure that the data were accurate and ready for analyses. The following subsections describe the data preparation process.

### *Data Coding*

Data coding refers to allocating a number to each nonnumeric category (Hinkle, Wiersma, & Jurs, 2003) in order to convert data into a readable computer format (Newton & Rudestam, 1999). Following the suggestions offered by Leech, Barrett and Morgan (2011), high numbers (codes) were assigned to response choices that had positive meaning and low numbers to negative responses; for example, in the TAIS questionnaire, answers were scored as: Unenthusiastic = 1, Somewhat Unenthusiastic = 2, Somewhat Enthusiastic = 3, Enthusiastic = 4. A codebook was developed to permit the allocation of numeric scores to responses (Rubin, 2012). An excerpt from the codebook used in the present study is presented in Table 3.2.

Table 3.3

*An Excerpt from the Questionnaire Codebook*

Variable Name	Level of measurement	Value label
Teacher's prior experience with a child with behavioural problems	Nominal	Yes = 1 No = 0
Teacher's gender	Nominal	Male = 1 Female = 2
Teacher's educational degree	Ordinal	Intermediate diploma = 1 Baccalaureate = 2 Higher Diploma = 3 Post graduate = 4

### ***Statistical Software Selection***

The next step, after coding the data was to select a statistical software package. Based on suggestion of Leedy and Ormrod (2012), version 20 of the Statistical Product and Service Solutions (SPSS) (SPSS Inc, 2011) was chosen for the present study for two main reasons. First, SPSS has wide spread use in the Social Science research, and the instructions for using this program are available in many statistical textbooks (e.g., Field, 2009; Hinton, Brownlow, McMurray, & Cozens, 2004; Morgan, Leech, Gloeckner, & Barrett, 2011). Second, SPSS included most of the statistical tests that were used in this study. The exception was with the method of Confirmatory Factor Analysis (CFA). Therefore, the Analysis of Moment Structures (AMOS), a statistical program for structural equation modeling, was used to perform CFA (Arbuckle, 2006).

### ***Data Entry***

After selecting the statistical programs, data were entered into computer files for the analyses. For the present study, data gathered from the completed questionnaires were first entered in an EXCEL file and then transformed into an SPSS data file. Data from respondents were entered in rows with columns assigned to the variables. Blanks were used when values were missing because SPSS treats blanks as missing data (Leech et al., 2011).

### **3.7.2 Statistical Analyses**

In order to test the validity and reliability of the questionnaire used in this study and to answer the research questions, a number of statistical treatments were applied to the quantitative data. These data were analysed by both descriptive and inferential analyses including factor analysis, descriptive statistics, Pearson's

correlation coefficient, and multiple regression. Discussions of these statistical procedures are presented below.

### ***Factor Analysis***

Two types of factor analysis, namely Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), were used in the present study in order to establish the construct validity of the scales of TAIS and TEBS. Once the factor structure was derived by the EFA procedure, the second step involved using CFA to provide confirmation of the instruments' factorial structures.

For a long time, factor analysis has been largely used in researchers' and psychometricians' attempts to establish construct validity (Goodwin, 1999), which concerns whether a number of items on a questionnaire actually represent the theoretical latent construct those items were developed to measure (Hair et al., 2010). Factor analysis is a statistical technique that is most commonly used to analyse the structure of the intercorrelations among a large number of variables (or items) by identifying groups of variables that are strongly intercorrelated, known as factors. The main objective of factor analysis is to determine the underlying factor structure among the variables in the data analysis (Hair et al., 2010). Establishing the factor structure of an instrument is an important consideration for theory development (Byrne, 1998; Peter, 1981). There are two main types of factor analysis, namely EFA and CFA, that can be used to achieve the primary purposes of factor analysis (Hair et al., 2010; Tabachnick & Fidell, 2007).

EFA is basically used for the situation where the correlations between the items (known as observed variables) and the underlying dimensions (known as latent variables or factors) are uncertain or unknown, and the analysis proceeds in an exploratory manner to determine how and to what degree the observed variables are

related to their associated latent factors (Byrne, 1998). With EFA, all observed variables are correlated with every factor, and these correlations are represented by factor loading estimates (Hair et al., 2010). EFA enables the researcher to reduce a set of variables to a smaller set of representative factors, which can then be used for further analysis (Hair et al., 2010; Ho, 2006). Although an EFA analysis does not give the verification needed to determine the construct validity (Miller et al., 2011), conducting EFA is recommended in order to provide a preliminary investigation of the number of factors prior to performing the CFA to test the measurement model (Hair et al., 2010).

Unlike EFA, CFA is performed with a strong prior knowledge about the structure of the factor model. In other words, before the analysis of CFA starts, it is already known which variables load on which factors (Lattin, Carroll, & Green, 2003). Thus, CFA is a technique that enables a researcher not to “explore” but to “confirm” or “reject” the prior knowledge regarding the factor structure. Specifically, it is a method for examining how well observed variables represent a smaller set of factors (Hair et al., 2010). The use of CFA serves multiple objectives, including but not limited to, assessing the psychometric properties of instruments, designing new instruments, and examining method effects (Harrington, 2009). CFA is also considered to be one of the most rigorous methodological techniques for assessing construct validity (Byrne, 2001; Harrington, 2009; Miller et al., 2011).

### ***Descriptive Analysis***

A number of Descriptive statistics were analysed to answer a number of the research questions in the current study. Specifically, the mean, standard deviation, and percentage were used to address the research sub-question #1.1, while frequency and percentage were used to address the research question #2. That is in order to

describe teachers' knowledge of AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. SPSS 20.0 was used to generate tables and graphs describing the data. Descriptive statistics are techniques that assist researchers in organising, summarizing, and simplifying the findings derived from the data set (Gravetter & Forzano, 2012). There are various types of Descriptive statistics, such as mean, standard deviation, frequency, percentage and mode. Mean and standard deviation, particularly, are the most frequently used measures for central tendency and variability (Gay et al., 2009).

### ***Pearson's Correlation Coefficient***

Pearson's correlation coefficient was conducted to answer the third research question of the present study. Specifically, this technique was used to examine the relationship between teachers' knowledge of AD/HD and their efficacy beliefs for teaching students with behavioural problems. SPSS 20.0 was used to perform a Pearson's correlation analysis.

Pearson's correlation coefficient, known as Pearson's  $r$ , is a parametric statistical technique developed to measure the linear relationship between two variables (Norusis, 2008). "Essentially, it works out a measure of how much the scores of the two variables vary together (their 'product') and then contrasts this with how much they vary on their own" (Hinton et al., 2004, p. 297). Pearson's  $r$  was the initial formal association measure (Lee Rodgers & Nicewander, 1988), and it remains one of the most frequently used correlation coefficients (Croux & Dehon, 2010; Lee Rodgers & Nicewander, 1988). Similar to other parametric methods, there are important assumptions underlying the Pearson's correlation coefficient. These assumptions include: (a) the variables are at an interval or ratio level; (b) the data are

normally distributed; (c) the variables are linearly related: and (d) homoscedasticity (Field, 2009; Hinton et al., 2004).

In Pearson's analyses, values of relationships can range from -1 to +1, and the direction of a relationship (positive or negative association) is indicated by the coefficient's sign. The strength of the association is represented by the size of the absolute value. A relationship of +1 or -1 indicates that there is a perfect relationship between two variables whereas a relationship of 0 means that there is no relationship between the variables (Pallant, 2011). For interpreting correlation coefficients, this study used the guidelines proposed by Cohen (1988) and shown in Table 3.3.

Table 3.4  
*Interpretation of Pearson's Correlation Coefficient*

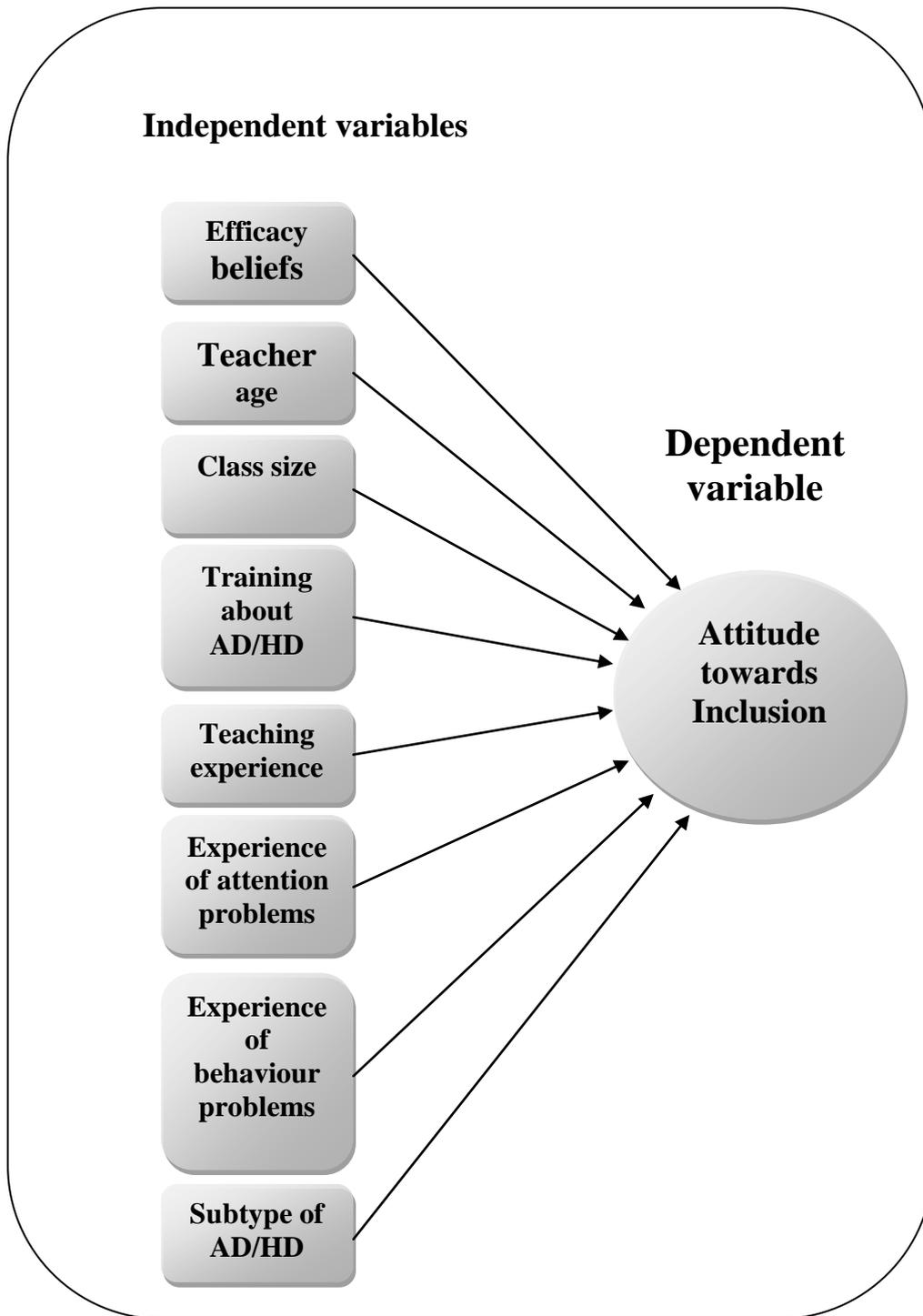
Small	$r = .10$ to $.29$ OR	$r = -.10$ to $.29$
Medium	$r = .30$ to $.49$ OR	$r = -.30$ to $.49$
Large	$r = .50$ to $1.0$ OR	$r = -.50$ to $1.0$

### ***Multiple Regression***

In order to answer the third research question, multiple regression was used. It was performed to determine whether the variances in teachers' attitude towards the inclusion of students with AD/HD-related behaviours can be explained by the independent variables, which included efficacy beliefs, teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD (see Figure 3.1). All experience variables besides the subtype of AD/HD were dummy coded for the regression analyses. All independent variables were entered into the analysis

simultaneously because these variables were chosen on a theoretical basis and the order of importance among these variables was not theoretically supported (Field, 2009). The multiple regression was performed using SPSS 20.0.

Multiple regression analysis is a statistical method that can be used to examine the relationship between one dependent variable and two or more independent variables (Tabachnick & Fidell, 2007). That is, “multiple-regression analysis can provide a scatterplot and equation for a situation in which two or more independent variables work collectively to predict scores on the dependent variable” (Wetcher-Hendricks, 2011, p. 245). Prior to performing a multiple regression analysis, there are several assumptions that should be met. These assumptions include the following: (a) the independent variables are measured at the quantitative or categorical (with two categories) level whereas the dependent variable is measured at the continuous level; (b) normality of the residuals distribution; (c) the absence of multicollinearity (a high relationship is present between the independent variables); (d) the relationship between the dependent variable and each of the independent variable is a linear one; (e) the errors are dependent; and (f) the variance of residual terms is equal (homoscedasticity) (Field, 2009).



*Figure 3.2.*The Multiple regression model.

### 3.8 THE PHASE TWO ANALYSES

Interview data analysis is an iterative process that begins from the moment the data are collected (Hesse-Biber & Leavy, 2011). In the current study, interview data were analysed and reported using the six phases of thematic analysis. Further, four

fundamental criteria, credibility, transferability, dependability, and confirmability, were used in order to ensure the trustworthiness of the qualitative data in the present study. The analysis phases and trustworthiness criteria will be discussed in detail in the following subsections.

### **3.8.1 Thematic Analysis**

Thematic analysis was used to interpret data collected from the semi-structured interviews. This method was selected because of its flexibility in using different theoretical frameworks to explore interview data (Braun & Clarke, 2006), and such flexibility was particularly important because the interview phase in the current study was based on a pre-existing theoretical framework representing key issues outlined in the literature and in the earlier questionnaire analysis. The main goals of the interview analysis were as follows: 1) to investigate teachers' attitude towards the inclusion of students with AD/HD-related behaviours and 2) to explore and elaborate on the key findings of the questionnaire analyses, and specifically the significant predictors of teachers' attitudes towards inclusion. Therefore, an analytical technique was needed that would allow the interview phase to identify themes which spoke to or expanded on the questionnaire data.

Themes or patterns within the data were identified by applying a theoretical thematic analysis; this was driven by a pre-existing theoretical framework or analytical interest in the area. This form of thematic analysis is more analyst driven and tends to present a more extensive analysis related to some aspects of the data (Braun & Clarke, 2006). One advantage of this approach is its flexibility, as it allows the researcher to establish themes in a number of ways. According to Braun and Clarke (2006), "a theme captures something important about the data in relation to the research question, and represents some level of patterned response or meaning

within the data set” (p. 82). This illustrates that the importance of a theme is not necessarily determined based on its repetitions, but rather in terms of its relevance to the research questions.

Braun and Clarke (2006) proposed a comprehensive framework for developing thematic analysis. This framework involves six basic phases: 1) establishing familiarity with the data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report. These phases of analysis may seem straightforward; however, it is important to recognise that thematic analysis is not a linear process of simply moving from one phase to another; rather, it is a recursive process of moving back and forth between the phases as needed (Braun & Clarke, 2006). It is also noteworthy that the guidelines for qualitative analysis are by no means steadfast rules; rather, guidelines that should be applied in a flexible manner to fit the research questions and data (Patton, 2002). Taking these considerations into account, Braun and Clarke’s (2006) framework was employed for the current study, as discussed in the following subsections.

### ***Establishing familiarity with the data***

First, the interviews were conducted and transcribed in Arabic, and then key quotes were translated into English to serve as illustrations in this research. The translation of the quotes was performed by a certified translator and then reviewed by the researcher and a PhD student, who is bilingual in English and Arabic. Once the interviews were transcribed into Arabic, the researcher immersed himself in the data through repeated readings of the interview transcripts for the purpose of becoming familiar with the data at this stage. The repeated readings were conducted in an “active way”, which involved searching for meanings and patterns within the dataset

(Braun & Clarke, 2006, p. 87). During this phase, notes were taken and key ideas were formulated in order to generate the initial codes used in the next phase of analysis (Braun & Clarke, 2006; Maxwell, 2005).

### ***Generating the initial codes***

At this stage, initial codes were generated by “coding interesting features of the data in a systematic fashion across the entire data set” and “collating data relevant to each code” (Braun & Clarke, 2006, p. 87). The purpose of coding at this phase was to “fracture” (Strauss, 1987, p. 29) the data and organise them into meaningful categories (Tuckett, 2005). Such coding allowed for comparisons between ideas in the same category, as well as aiding in the development of theoretical concepts (Maxwell, 2005). During this phase, to avoid overlooking any interesting details reported by the interview participants, as many potential patterns were coded as possible. Once the data were arranged and coded with preliminary categories, the data and supplementary notes were again reviewed. In order to facilitate the process of organising the data and generating initial codes, NVivo 10 was used. This is a software program designed for coding, organising, searching, and analysing qualitative data; this was developed by Richards and Richards (1994). This phase ended with a significant number of codes, which prepared the codes for use in the next phase – searching for themes.

### ***Searching for themes***

The initial codes generated in the previous phase were utilised to identify emergent themes that were common across the data. In particular, the initial codes were divided into potential themes and all data pertaining to each potential theme were collated (Braun & Clarke, 2006). These themes were identified by applying a theoretical thematic analysis. Using this approach, the researcher read and re-read all

coded data to identify any themes related to teachers' attitude towards the inclusion of students with AD/HD-related behaviours in regular classrooms, paying attention to key factors which emerged in the earlier questionnaire analysis, particularly the significant predictors of teachers' attitude towards inclusion. Through this activity, the researcher developed an interest in the way these key factors played out across the data. Thus, a number of themes emerged in relation to teaching students with AD/HD-related behaviours in inclusive classrooms which might speak to, explain or support the questionnaire findings.

### ***Reviewing the themes***

The aim of this phase was to determine the accuracy and consistency of the themes using a two-step procedure. First, all of the collated extracts for each theme were read to ascertain whether they presented a coherent pattern; if not, the themes were reworked and revised until it was determined that the coded data cohered meaningfully with the distinct themes. The second step in this phase involved re-reading the dataset to verify whether the themes “worked” in relation to the data and to code any additional data within the themes that had been overlooked in the initial coding stages (Braun & Clarke, 2006, p. 91).

### ***Defining and naming themes***

During this phase, the themes were defined and refined by identifying the ‘essence’ of what the individual themes and the themes overall were about and determining which aspect of the data each theme represented. Further, a detailed analysis was conducted and written in relation to the ‘story’ told by each individual theme and how this story connects to the broader story told by the data set as a whole in relation to the research questions (Braun & Clarke, 2006, p. 92). Thus, the themes were considered separately, as well as in relation to the others. As a part of the

refinement process, the themes were again carefully reviewed to determine whether or not they involved subthemes. Subthemes can be useful for structuring a detailed theme (Braun & Clarke, 2006); thus, some subthemes were included in the current study when needed. As this phase was terminating, it started to become possible to distinguish between themes and elements that were not themes. At the final stage of this phase, the themes were given concise, punchy labels in order to give the reader an immediate idea of their scope (Braun & Clarke, 2006).

### ***Producing the report***

The sixth and final phase of thematic analysis involved writing up. Before and during this process, a number of meaningful questions were posed to stimulate further thinking about the selected themes. These questions included the following:

What does this theme mean? What are the assumptions underpinning it?

What are the implications of this theme? What conditions are likely to have given rise to it? Why do people talk about this thing in this particular way (as opposed to other ways)? What is the overall story the different themes reveal about the topic? (Braun & Clarke, 2006, p. 94).

Thinking about these questions helped to clarify the main points related to each selected theme. In this phase, the themes emerging from the interview data were reported on and discussed, and vivid examples of participants' quotes were presented to illustrate teachers' perception concerning the inclusion of students with AD/HD-related behaviours in regular classrooms.

In summary, the data collected from eight participants in the semi-structured vignette-based interviews were analysed by using thematic analysis. This technique involved six phases: establishing familiarity with the data, generating the initial codes, searching for themes, reviewing the themes, defining and naming themes, and producing the report. As a final remark, it is important to remember that the previous

mentioned analysis phases were not conducted in a linear process, but a recursive process with a constant movement back and forth between the phases as needed (Braun & Clarke, 2006).

### **3.8.2 Trustworthiness**

Trustworthiness criteria for constructivist studies – credibility, transferability, dependability, and confirmability – proposed by Lincoln and Guba (1985) were adopted in the present study in order to ensure the trustworthiness of the qualitative data. Lincoln and Guba’s (1985) criteria were proposed as a response to the doubts expressed by positivists about the trustworthiness of qualitative studies, and these doubts arose possibly because their quantitative notions of validity and reliability cannot be established in the same way in the constructivist research paradigm (Shenton, 2004). The trustworthiness criteria will be discussed in detail in the next subsections.

#### ***Credibility***

Two approaches, peer debriefing and triangulation, were used in the present study to ensure the credibility of findings. Credibility has been identified as analogous to the quantitative idea of internal validity. It refers to the degree of isomorphism between the constructed meanings of participants and the reconstructions attributed to these meanings (Guba & Lincoln, 1989). In other words, to achieve credibility, it is necessary to represent participants’ perspectives accurately in the reported findings.

Peer debriefing is a “process of exposing oneself to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer’s mind” (Guba & Lincoln, 1985, p. 308). The aim of debriefing by peers is to minimise researcher

bias (Guba & Lincoln, 1985). This approach was employed in this study, in which an external peer reviewer acted in a quality assurance role. The reviewer is a PhD student in the faculty of education and specifically trained and experienced in the qualitative analysis process. The reviewer assisted in evaluating the progression of the data collection and analysis and was asked to verify the interview transcriptions by matching between the recordings and the transcriptions. Over the research process, frequent meetings were conducted with the reviewer to discuss the developing coding framework and reach a mutual agreement on broad themes. This procedure was extremely useful because it provided a different analytical perspective on the collected data.

Triangulation was the second approach employed in the present study to ensure credibility. This is a common, useful technique where multiple sources are used to enhance the validity of the research (Robson, 2011). The sources of data included a four-part questionnaire distributed to the entire study sample and in-depth interviews conducted with a sub-sample of those who responded to the questionnaire. The interview approach was used to follow up on the earlier questionnaire findings for the purpose of gaining an in-depth understanding of teachers' attitudes towards the inclusion of students with AD/HD-related behaviours and the significant predictors of teachers' attitudes identified in the initial questionnaire analyses. The combination of these two data sources in the study was particularly useful to enhance the interpretation of the data because both data sources helped to look at the research problem from different angles. This is particularly important for complex constructs such as attitude, as such constructs need to be explored using multiple approaches. This is because they cannot be well understood using either purely quantitative or purely qualitative approaches (Teddlie & Tashakkori, 2003).

### ***Transferability***

In the present study, transferability was established by providing thick description of the methodological procedures used in the study, the participants' demographic characteristics, and the setting in which the research took place. All of this information might permit a judgement to be formed about the transferability of the results to another context.

Transferability has been identified as analogous to the quantitative idea of external validity (Guba & Lincoln, 1989). The term refers to a judgment about whether the researcher's working hypothesis is applicable to different contexts (Zhang & Wildemuth, 2009). This evaluation, however, lies largely with the reader rather than the researcher. Mertens (2010) stated that "the burden of transferability is on the reader to determine the degree of similarity between the study site and the receiving context. The researcher's responsibility is to provide sufficient detail to enable the reader to make such a judgment" (p. 259).

### ***Dependability and Confirmability***

In the current study, dependability and confirmability were established by using an audit trail. The same reviewer who was consulted during peer debriefing in addition to the research supervisors served as auditors. Through regular meetings, the auditors assisted in the process of data analysis and iterative interpretation of findings during all stages of the research. They reviewed and critiqued the data, results, and interpretation; several revisions were then made based on their feedback. Dependability was also enhanced by providing sufficient information about the research process; this will allow other researchers to replicate the work. Confirmability was further ensured by explicitly specifying the logic used to interpret the data and by maintaining copies of the taped interviews, transcripts, and field

notes so that the study materials are available in an audit trail to establish the trustworthiness of the data.

Dependability and confirmability have respectively been identified as analogous to the quantitative concepts of reliability and objectivity (Guba & Lincoln, 1989). Dependability concerns “the coherence of the internal process and the way the researcher accounts for changing conditions in the phenomena”, while confirmability is concerned with “the extent to which the characteristics of the data, as posited by the researcher, can be confirmed by others who read or review the research results” (Bradley, 1993, p. 437). According to Guba and Lincoln (1985), dependability and confirmability can be accomplished through an audit trail, in which the auditor evaluates both the process (dependability) and the product (confirmability) of the study.

### **3.9 ETHICAL ISSUES**

Prior to commencing this research, approval was obtained from QUT’s University Human Research Ethics Committee (see Appendix I) and from the Saudi Ministry of Education (see Appendix J). All of the participants who took part in the study were voluntaries and were provided with enough information about the study to make an informed decision about whether or not to participate. The participants were given the choice to withdraw from the research at any time without penalty. The participants were also informed before each interview that they need only answer those questions that they feel comfortable about answering. The researcher always made sure to communicate the reasons for his actions and questions and strove to establish a safe and friendly environment for teacher interviews.

The teachers’ participation was confidential. The researcher is the only person with access to the teachers’ names, the questionnaires, and the audio tapes.

Transcripts of the interviews were made available to the researcher's supervisors. However, in these transcripts and in his writing, the researcher used pseudonyms for all participants. Also, pseudonyms were used when sharing and discussing findings in order to increase the anonymity of the participants.

### **3.10 SUMMARY**

An explanatory sequential mixed methods design was employed in the present study in order to facilitate the collection of rich and in-depth data about Saudi teachers' knowledge about AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. Questionnaire data were collected using a questionnaire booklet that included four measures. In-depth interviews were conducted with a selected sub-sample of the participants. To analyse the questionnaire and interview data, SPSS, AMOS, and NVivo analysis software programs were used.

This chapter has described and discussed the research methodology as well as procedures for collecting data and the approaches of analysing the data. The chapter began with a discussion about quantitative, qualitative, and mixed methods research paradigms and presented a rationale for the research design used in the study. The research questions were then restated in order to focus the discussion, followed by details of the population and the sampling techniques used. Next, a justification for the data collection methods chosen and a description of the procedures for translation, pilot testing, and the data collection were provided. Finally, a description of the data analysis techniques used for analysing both the questionnaire and interview data was provided, followed by a discussion about how the ethical issues were addressed. The results of the two phases of the study will be presented in the

following two chapters. Chapter Four will present results of the questionnaire data, while Chapter Five will present results of the interview data.



## Chapter 4: Results of the Phase One Analyses

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The present study was designed to examine Saudi mainstream primary teachers' knowledge about AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. It also aimed to explore the relationships among teachers' attitude towards inclusion, knowledge of AD/HD, efficacy beliefs for teaching students with behavioural problems, and a number of background factors including teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD.

This chapter describes results of the analyses of questionnaire data, while the next chapter describes results of the analyses of interview data. In this chapter, results of the analyses of questionnaire data are present in five sections. The first section (**4.1 Description of the Questionnaire Participants**) summarises the demographic characteristics of the participant teachers. The second section (**4.2 Preliminary Analyses**) reports on the accuracy of data including the treatment of missing values, checking for outliers, and examining the assumption of normality. The third section (**4.3 Establishing Instrument Validity and Reliability**) reports results relating to the validity and reliability of the questionnaire. The fourth section (**4.4 Results of Research Questions**) reports on analyses conducted to answer the four research questions guiding the study. The fifth and final section (**4.5 Summary of the Phase One Results**) presents an overall summary of the quantitative results.

#### **4.1 DESCRIPTION OF THE QUESTIONNAIRE PARTICIPANTS**

This section presents the demographic characteristics of the sample. The demographic information on the sample was collected from the final part of the questionnaire (see Appendix D). This part seeks information about the respondents including: gender, age, years of teaching experience, educational qualification, class size, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and training about students with AD/HD-related behaviours.

As already detailed in Chapter Three, the target population in this study consisted of the teachers employed in the primary inclusive schools of the Madinah administrative area of Saudi Arabia during the 2011–2012 school year. Of the two hundred and thirty (230) copies of the questionnaire distributed to the respondents, two hundred and ten (210) copies were returned. However, about 202 copies of the questionnaire were appropriately filled and usable for this research purpose, resulting in an overall response rate of 88.8%. The demographic data are summarised in Table 4.1 below.

Table 4.1

*Summary of Demographic Information of Questionnaire Participants*

<b>Variable</b>	<b>Categories</b>	<b>Frequency</b>	<b>Percent</b>
Gender	Male	152	75.2
	Female	50	24.8
Age	Under 30 Years	33	16.3
	30 – 39 Years	92	45.5
	40 – 49 Years	61	30.2
	Over 50 Years	16	7.9
Level of Education	Intermediate Diploma	46	22.8
	Baccalaureate	138	68.3
	Higher Diploma	13	6.4
	Post graduate	5	2.5
Years Teaching Experience	Under 6 Years	48	23.8
	6 – 10 Years	28	13.9
	11 – 15 Years	45	22.3
	16 – 20 Years	35	17.3
	Over 20 Years	46	22.8
Class size	1 – 20	60	29.7
	21 – 30	92	45.5
	More than 30	50	24.8
Have you had experience teaching a child with inattentive behaviours?	Yes	56	27.7
	No	146	72.3
Have you had experience teaching a child with hyperactive/impulsive behaviours?	Yes	55	27.2
	No	147	72.8
Have you ever taken any training about students with AD/HD-related behaviours?	Yes	5	2.5
	No	197	97.5
Have you had experience teaching a child who has been identified or diagnosed with AD/HD?	Yes	43	21.3
	No	159	78.7

Of the 202 participant teachers, 152 were males with a percentage of 75.2% and 50 were females. Most of the participants (153; 75.7%) were aged from 30 to 49 years. Thirty-three participants were under 30 years with a further 16 over 50 years. Over two thirds (68.3%) of the participants had a Bachelor's degree, while 22.8% had an Intermediate Diploma. Only 8.9% of the participants had an advanced degree; 13 had a Higher Diploma and five had a postgraduate degree. Almost two-thirds (60%) of the participants had less than 16 years of teaching experience while 17.3 had between 16 to 20 years teaching experience and 22.8% had over 20 years of teaching experience.

Close to half (45.5%) of the participants reported having from 21 to 30 students in their class, while 29.7% reported having less than 20 students and 24.8% reported having more than 30 students. A majority (72.3%) of the participants reported no prior experience with a student with attentional problems. Similarly, most of (72.8%) the participants reported no previous experience teaching a student with hyperactive/impulsive behaviours. The noticeable result is that over 97% of the participants had not undertaken any training regarding AD/HD although their teaching experience varied greatly. Finally, only 21.3% of the participants reported prior experience teaching a student who was identified or diagnosed with AD/HD.

## **4.2 PRELIMINARY ANALYSES**

An essential first step in any analysis of data is to examine the data (Hair et al., 2010). Therefore, before commencing statistical analyses, a series of preliminary analyses were carried out. These analyses included accounting for missing values, checking for outliers, and assessing assumptions of normality.

#### **4.2.1 Accounting for Missing Data**

In the current study, an investigation of missing data was performed using SPSS Missing Values Analysis 20.0. The percentage of missing values was found to be .27%. Thus, these missing values were imputed using Expectation Maximization (EM) imputation algorithm.

In the Social Sciences, missing data are a common issue (Allison, 2002) that needs to be dealt with appropriately (Fichman & Cummings, 2003). The first step in addressing missing data is to examine the possible pattern of missing values. Rubin (1976) introduced an important classification system to distinguish between different types of missing data mechanisms including missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR). These mechanisms have significant implications for choosing the method to be used in resolving the issue of missing data.

Traditionally, missing data have been addressed by several methods including listwise deletion, pairwise deletion, mean substitution, and regression predictions (Acock, 2005; Collins, Schafer, & Kam, 2001; Peugh & Enders, 2004). Although the traditional strategies are widely used (Acock, 2005), they “have been conclusively shown to perform poorly except under very restrictive or special conditions” (Collins et al., 2001, p. 330). These strategies can lead to biased estimates and yield Type II errors (Acock, 2005). As a result, traditional approaches, such as listwise and pairwise deletion, are not recommended by American Psychological Association (APA) report (Wilkinson & Task Force on Statistical Inference, 1999) which indicated that such approaches “are among the worst methods available for practical applications” (p. 598).

One modern missing-data approach that has become accepted as superior to the traditional missing-data methods is Expectation Maximization (EM) (Acock, 2005; Baraldi & Enders, 2010; Peugh & Enders, 2004). Peugh and Enders (2004) explained EM as “an iterative procedure that repeatedly cycles between two steps: the E, or expectation, step imputes missing values; and the M, or maximization, step estimates the covariance matrix and mean vector” (p. 533). This approach is preferable because it results in unbiased estimates when the data are missing completely at random (MCAR) and missing at random (MAR). Despite this, EM is not a perfect solution, as it too will produce biased estimates with MNAR data. However, the amount of bias introduced by EM appears to be smaller than the bias that arises when using the traditional approaches (Baraldi & Enders, 2010; Peugh & Enders, 2004).

Because of the presence of missing data in this study, the pattern of missing data was examined using Little's MCAR test, which is a chi-square test used to determine whether data are MCAR (Little, 1988). The findings of Little's MCAR test were non-significant which means that the data met the assumption of MCAR. Because the missingness pattern in the data was found to be MCAR based on the Little's test and the percentages of missing values were not large (.27%), SPSS Missing Values Analysis 20.0 EM algorithm was used to impute missing data. Thereby, a new data set with no missing values was utilised in subsequent analyses.

#### **4.2.2 Checking for Outliers**

An outlier is an observation with an extreme score on one variable (a univariate outlier) or an observation with a unique combination of values on two or more variables (multivariate outlier) (Hair et al., 2010; Tabachnick & Fidell, 2007). Many statistical techniques, including factor analysis, t-test, multiple regression, and

Pearson correlation coefficients, are sensitive to outliers, as the presence of outliers in a set of data can result in both Type I and Type II errors (Tabachnick & Fidell, 2007). Because of this, it is important to inspect for outliers in preliminary analyses of data.

In the present study, tests were conducted to detect the presence of any univariate and multivariate outliers. The data were first checked for univariate outliers by calculating Z-scores and looking for scores exceeding 4, as recommended by Hair et al (2010). There were no scores greater than 4, which confirmed the absence of univariate outliers in the data. Multivariate outliers can be detected by Mahalanobis D2, a multivariate method that measures “the distance of a case from the centroid of the remaining cases where the centroid is the point created at the intersection of the means of all the variables” (Tabachnick & Fidell, 2007, p. 74). A case is a multivariate outlier if its Mahalanobis distance value exceeds a critical value. This critical value is obtained by using a chi-square table, with the number of the study’s dependent variables that are used as degrees of freedom (df) value (Pallant, 2011). In the present data, there were no cases with Mahalanobis distance values greater than the critical value of 20.52, thus it can safely be assumed that there were no substantial multivariate outliers. Accordingly, the next step was to check another important assumption, that of normality of distributions.

#### **4.2.3 Assessing Normality**

Underlying most statistical techniques is the assumption of normal distribution of dependent variables. Normal distribution is characterized by a symmetrical, bell-shaped curve, which implies that the greatest frequency of values fall in the centre with lower frequencies towards the extremes (Field, 2009; Pallant, 2011). Skew and kurtosis are two ways in which a frequency distribution can deviate

from normal. A distribution is skewed when the most frequent values are grouped at one tail of the scale, while kurtosis refers to the extent to which values cluster at the tails of the distribution and how peaked a distribution is (Field, 2009).

The assumption of normality can be assessed by different methods. Two widely used methods to assess the normality are the Kolmogorov-Smirnov (K-S) test and  $z$ -scores to assess skewness and kurtosis. Based on these methods, the data is normally distributed, when the K-S test is non-significant ( $p > .05$ ) or when the  $z$ -scores of skewness and kurtosis have values between  $-1.96$  and  $+1.96$ . However, these two methods should not be used in large sample sizes (200 and more). An alternative to the  $z$ -scores is to visually inspect the shape of the distribution and to check the absolute values of skewness and kurtosis (Field, 2009; Harrington, 2009). These two steps complement each other when examining the assumption of normality (Hair et al., 2010). Consistent with this view, Kline (2010) suggests that in order to satisfy the assumption of normality, the absolute values of skewness and kurtosis should be less than 3.0 and 10.0 respectively.

In the current study, the distributions of continuous variables were tested for normality by inspecting histograms and probability plots and calculating skewness and kurtosis. Table 4.2 displays the latter, in addition to means of summed scores and standard deviations, and it demonstrates that the distributions of the variables were not significantly different from normal by showing the absolute values of skewness and kurtosis were below the cutoff value of 3.0 and 10.0 respectively. This interpretation was further supported by a visual inspection of Figures 4.1 – 4.3, which show histograms of the distribution of attitude towards inclusion, efficacy beliefs, and knowledge of AD/HD.

Table 4.2  
*Means, Standard Deviation, Skewness, Standard Error of Skewness, Kurtosis, and Standard Error of Kurtosis for measured variables*

	N	Mean	Std. Deviation	Skewness	Skewness Std. Error	Kurtosis	Kurtosis Std. Error
Attitude towards Inclusion	202	30.70	6.82	-.05	.17	-.22	.34
Efficacy Beliefs	202	26.98	6.08	-.47	.17	-.36	.34
Knowledge of AD/HD	202	9.82	3.89	-.42	.17	-.14	.34
Valid N (listwise)	202						

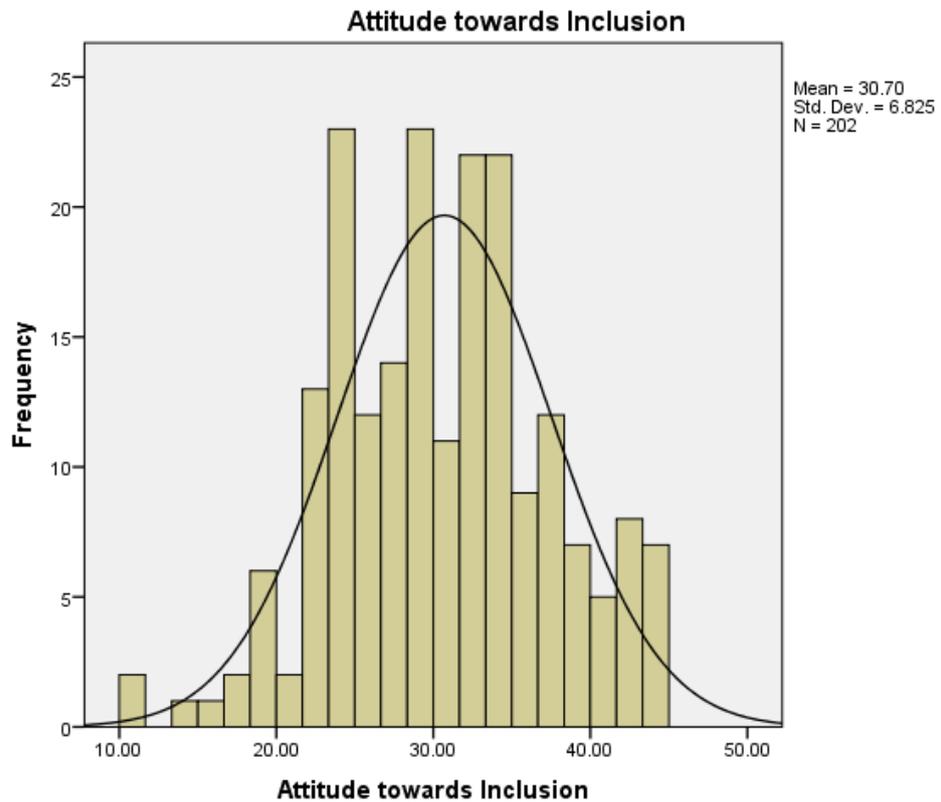


Figure 4.1. Histogram of the distribution of attitude towards inclusion with normal curve imposed.

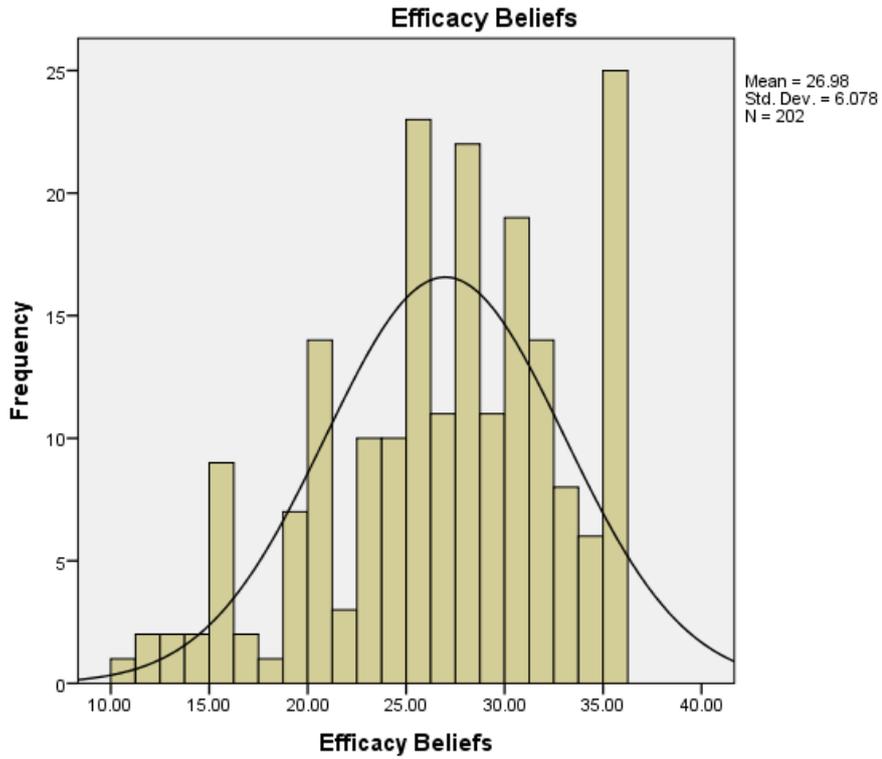


Figure 4.2. Histogram of the distribution of efficacy beliefs with normal curve imposed.

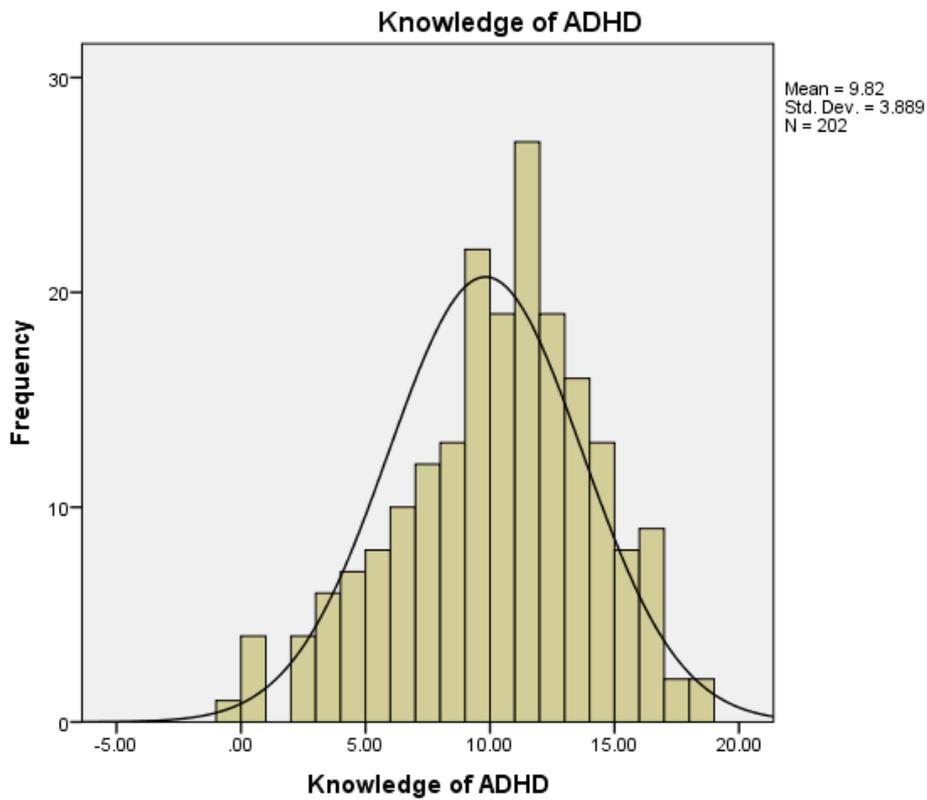


Figure 4.3. Histogram of the distribution of knowledge of AD/HD with normal curve imposed.

### **4.3 ESTABLISHING INSTRUMENT VALIDITY AND RELIABILITY**

Data for this study were collected using a self-report questionnaire, which included scales for measuring the following constructs: attitude towards inclusion, efficacy beliefs, and knowledge of AD/HD. All of these scales have been shown previously to have good reliability and validity properties. Nevertheless, it is important to examine whether the translated versions of these scales are suitable for the population included in this study because Social Science researchers should strive to use instruments with adequate reliability and validity that are suitable for application across different populations (Harrington, 2009).

The following subsections will present brief discussions about the scales included in the questionnaire, followed by descriptions of the process and the techniques used to establish the validity and reliability of each scale.

#### **4.3.1 Teacher Attitude towards Inclusion Scale (TAIS)**

The Teacher Attitude towards Inclusion Scale (TAIS) was utilised to investigate teachers' attitudes towards the inclusion of students with AD/HD-related behaviours in a regular classroom. The TAIS consists of 17 items, which, for analytical purposes were denoted as *attd\_1* to *attd\_17*.

The TAIS was tested for validity and reliability by using EFA and CFA. CFA is the most rigorous approach for establishing construct validity (Byrne, 2001; Harrington, 2009; Miller et al., 2011), however, it requires that data have been gathered by means of interval scales (Hair et al., 2010). The variable of attitude towards the inclusion was measured on a 4-point Likert-type scale. Even though this Likert-type scale appears to be an ordinal scale, Hair et al., (2010) suggest that indicators with at least a 4-point Likert-type scale can be treated as an interval scale. Kerlinger (1973), moreover, indicated that “though most psychological scales are

basically ordinal, we can with considerable assurance often assume equality of interval” (p. 440). Therefore, it was deemed adequate to use EFA and CFA with the Attitude towards Inclusion Scale.

The following subsections will present results relating to the EFA and CFA followed by findings relating to several additional measures of validity and reliability.

### ***Exploratory Factor Analysis (EFA)***

*Factorability of the correlation matrix.* Computing a correlation matrix, which demonstrates the relationships among the variables, is an important initial step when conducting EFA (Cramer, 2003; Field, 2009; Ho, 2006). Inter-correlations between items should be high ( $> .3$ ), because the items are supposed to be measuring the same construct. These inter-item correlations, however, should not be too high ( $> .8$ ) in order to avoid extreme multicollinearity which can cause problems in factor analysis. If any items have correlations  $< .3$  or  $> .8$ , then deleting them should be considered (Field, 2009; Pett et al., 2003). A visual examination of the correlation matrix for items in the TAIS revealed that six items (namely attd\_1, attd\_2, attd\_5, attd\_7, attd\_11, and attd\_15) had low inter-item correlations, thus these items were deleted from subsequent analyses. After deleting these items, the recalculated correlation matrix demonstrated that all inter-item correlations were above the cutoff of .3 and below the cutoff of .8, with 100% of the correlations significant ( $p < .01$ ) (see Table 4.3).

Table 4.3

*Correlation Matrix for TAIS items*

	attd_1	attd_3	attd_4	attd_5	attd_6	attd_10	attd_12	attd_13	attd_14	attd_16	attd_17
attd_1	1.00										
attd_3	.33	1.00									
attd_4	.57	.56	1.00								
attd_5	.32	.32	.37	1.00							
attd_6	.52	.44	.54	.45	1.00						
Correlation attd_10	.47	.40	.56	.40	.52	1.00					
attd_12	.36	.37	.36	.45	.51	.45	1.00				
attd_13	.60	.38	.57	.44	.56	.47	.39	1.00			
attd_14	.50	.42	.54	.41	.55	.47	.44	.65	1.00		
attd_16	.59	.40	.57	.50	.59	.62	.45	.66	.61	1.00	
attd_17	.46	.32	.38	.46	.44	.55	.47	.47	.42	.58	1.00

The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was then calculated to further check the factorability of the correlation matrix of the sample. KMO is a statistic representing “a ratio of the sum of squared correlations to the sum of squared correlations plus sum of squared partial correlation” (Tabachnick & Fidell, 2007, p. 614). The KMO ranges from 0 to 1, with value of zero implying that the total of partial correlations is high relative to the total of correlations, while a value around 1 suggests that patterns of correlations are comparatively compact (Field, 2009). Kaiser (1974) indicates that values of KMO should be greater than .50 to be considered suitable for EFA, however Tabachnick and Fidell (2007) recommend accepting values of .60 and higher for good EFA. Kaiser (1974), moreover, suggests that values below .60 are “mediocre,” “miserable,” or “unacceptable”, values in the .70s are “middling”, values in the .80’s are “meritorious” and values above .90 are “marvellous” (p. 35) . As shown in Table 4.4, the KMO measure of sampling adequacy was .93, which was considered excellent and justified proceeding with the EFA.

The next issue to be considered was Bartlett’s test of sphericity, which should reach a significance value in order to enhance the factorability of the correlation matrix computed from the items (Field, 2009; Pallant, 2011; Tabachnick & Fidell, 2007). Bartlett’s measure of sphericity is a test of the null hypothesis that the observed correlation matrix is an identity matrix (Field, 2009); that is, there is no correlation among the items. The result of the sphericity test yielded a statistically significant chi-square value of 1079.84 ( $p < .001$ ), which meant that the null hypothesis was rejected. It was concluded, therefore, that the factorability of the correlation matrix was adequate.

Table 4.4

*KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.93
	Approx. Chi-Square	1079.84
Bartlett's Test of Sphericity	df	55
	<i>p</i>	.00

*Factor Extraction.* There are several strategies that can be used to assist in determining the number of underlying factors to extract (or retain): a scree test; Kaiser’s criterion, and parallel analysis. The scree test is conducted by plotting each of the eigenvalues of the factors (Y-axis) against the factor with which it is related (X-axis). This test was advocated by Cattell (1966) who recommended that all factors above the point of inflexion, the point where the curve first starts to straighten out, should be retained. The scree test is considered a reasonably reliable approach for factor selection with a sample size of more than 200 (Stevens, 2002), however, it should not be used alone to select factors (Field, 2009). Another technique that can be used is Kaiser’s criterion (or the eigenvalue rule). This rule suggests retaining

only factors with eigenvalues of 1.0 or greater and disregarding all factors with eigenvalues less than 1.0 (Field, 2009; Ho, 2006; Pallant, 2011). Although Kaiser's criterion is widely used because of its theoretical basis and ease of use (Hayton, Allen, & Scarpello, 2004), it shows a tendency to overestimate the number of factors (Field, 2009). Thus, an additional approach named parallel analysis has received growing interest, especially in the Social Science research, because it has been reported to be one of the most accurate approaches for factor retention. Parallel analysis works by comparing the magnitudes of the actual eigenvalues with those gained from a randomly created data set of the same number of items and participants. Only factors with actual eigenvalues that exceed the randomly derived eigenvalues are retained (Hayton et al., 2004; Pallant, 2011).

To determine the factor structure, a Principal Components Analysis (PCA) was performed on the 11 remaining items from the Teacher Attitude towards Inclusion Scale (TAIS). The PCA revealed the existence of only one factor with an eigenvalue above 1. This factor explained 52.70% of the total variance among the items. An inspection of the scree plot also demonstrated the suitability of a single factor solution because the point of inflexion occurred at the second component. The single factor solution was further supported by the findings of Parallel Analysis, which revealed only one factor with an eigenvalue surpassing the corresponding criterion value for a randomly created data matrix of the same number of items and participants (11 items  $\times$  202 participants). Based on these results, it was determined to retain a single factor for further investigation.

Table 4.5

*Total Variance Explained Using Principal Component Analysis*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.80	52.70	52.70	5.80	52.70	52.70
2	.90	8.17	60.87			
3	.80	7.23	68.10			
4	.66	5.97	74.07			
5	.57	5.21	79.28			
6	.49	4.44	83.72			
7	.47	4.30	88.02			
8	.40	3.65	91.66			
9	.32	2.94	94.60			
10	.31	2.82	97.42			
11	.28	2.59	100.00			

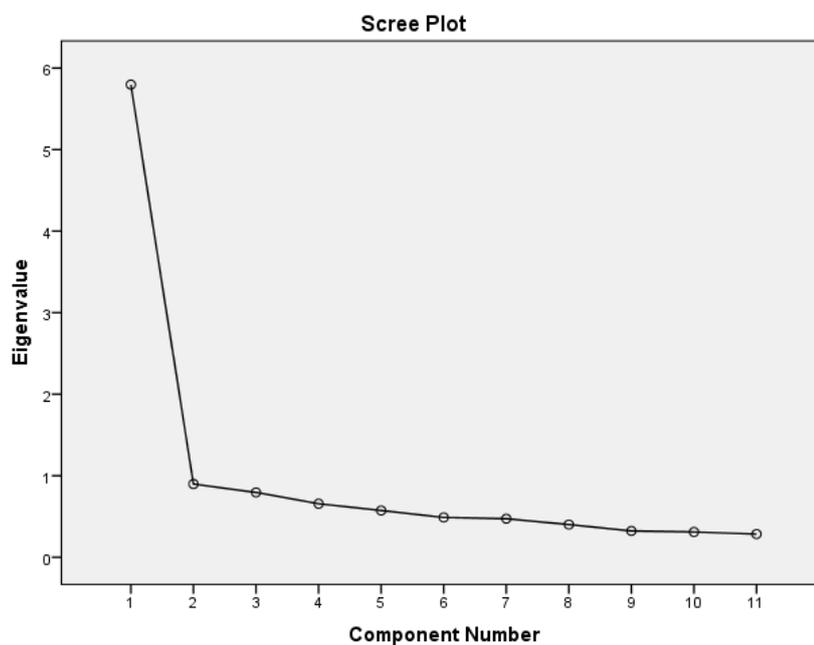


Figure 4.4. Scree plot of TAIS scale.

Table 4.6

*Comparison of Eigenvalues from PCA and the Corresponding Criterion Values Obtained from Parallel Analysis*

Factor Number	Actual Eigenvalue from PCA	Criterion Value from Parallel Analysis	Decision
1	5.80	1.39	accept
2	.90	1.28	reject
3	.80	1.19	reject
4	.66	1.12	reject
5	.57	1.05	reject

### ***Confirmatory Factor Analysis (CFA)***

*Assumption of normality.* Most of estimation methods used for confirmatory factor analysis (CFA) assume univariate and multivariate normality (Harrington, 2009; Tabachnick & Fidell, 2007). Univariate normality means that each individual variable is normally distributed having an approximately symmetric distribution. Univariate normality can be assessed by calculating skewness and kurtosis values (Field, 2009; Hair et al., 2010).

Prior to conducting the CFA to assess the model fit, the model was examined for univariate normality using AMOS 21.0. In Table 4.7, the absolute values of skewness and kurtosis range from -1.06 to 0.180 and from -1.01 to 0.49, respectively. According to Kline (2010), absolute values of skewness and kurtosis higher than 3.0 and 10.0, respectively, indicate a problem with normality. Based on this recommendation, no deviations from univariate normality were observed for any indicator within this model.

Multivariate normality was also checked using AMOS 21.0. Multivariate normality is the assumption that all variables are univariate normally distributed, and

that their combinations are also normal (Hair et al., 2010). Multivariate normality can be examined using Mardia's coefficient, a statistical test of multivariate kurtosis (Mardia, 1970). As shown in Table 4.7, the Mardia's coefficient was equal to 38.08. This indicated that the assumption of multivariate normality was met. The Mardia's coefficient was lower than the cutoff value of 143 suggested by the formula  $p(p+2)$ , where  $p$  is equal to the number of observed indicators (Bollen, 1989; Raykov & Marcoulides, 2008).

Table 4.7  
*Assessment of Normality*

Variable	min	max	skew	kurtosis
attd_17	1.00	4.00	-.59	.49
attd_16	1.00	4.00	-.06	-.83
attd_14	1.00	4.00	-.47	-.72
attd_13	1.00	4.00	-.24	-.87
attd_12	1.00	4.00	.18	-.97
attd_10	1.00	4.00	-.27	-.34
attd_6	1.00	4.00	-.34	-.68
attd_5	1.00	4.00	-1.06	.04
attd_4	1.00	4.00	-.08	-.89
attd_3	1.00	4.00	.17	-.66
attd_1	1.00	4.00	-.15	-1.01
Multivariate				38.08

*The measurement model.* After assessing the assumption of normality, a one-factor CFA model was estimated to examine whether the measurement indicators had adequate properties to represent the latent construct of attitude. This CFA measurement model was based on the results obtained from EFA discussed previously. Figure 4.2 demonstrates the factor model for the construct of Attitude which is measured by 11 remaining indicators (attd\_1, attd\_3, attd\_4, attd\_5, attd\_6,

attd\_10, attd\_12, attd\_13, attd\_14, attd\_16, and attd\_17). This measurement model, if needed and theoretically adequate, is modified until a reasonable fit is achieved.

As shown in Figure 4.2, standardised loadings (regression weight) for the 11 indicators on “Attitude” range from .58 (attd\_3) to .83 (attd\_16). The Standardised loadings are estimated correlations between an item (or indicator) and its associated latent construct. According to Albright and Park (2009), “ $R^2$  is a standardized factor loading squared that means the extent that a factor can explain the variance in a manifest variable”. To explain, the latent construct of attitude explains  $.70^2 = .49$ , or 49%, of the variance in the indicator “attd\_1”. Therefore, In general, the higher the standardised loadings, the more strongly the indicators relate to their associated constructs. As general guideline, standardised loading should be at least .5 and preferably .7 or greater (Hair et al., 2010). All standardised loadings from the latent construct to the observed indicators were .66 or greater. This suggested that all loadings fell within the acceptable range, which means that the indicators had good correlations with the latent variable (Hair et al., 2010).

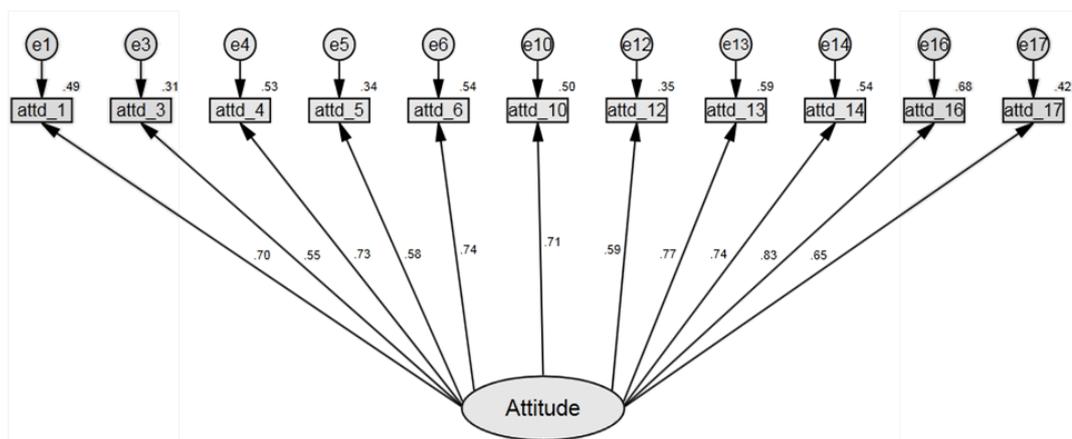


Figure 4.5. Measurement model for construct of attitude.

*The overall model fit.* In order to test the adequacy of a confirmatory factor model, there are many different goodness-of-fit indices that can be used. Each one of these indices presents different information about the fitness, or lack of fitness, of a

model. The question of which is the best fit index has no generally accepted answer among researchers (Hoyle, 1995); therefore, a combination of several goodness-of-fit indices were used. Taking into account several recommendations on which fit indices to report (Bentler, 1990; Brown, 2006; Hair et al., 2010; Kline, 2010), this study used the following indices: Chi-square ( $\chi^2$ ), RMSEA (Root Mean Square Error of Approximation), CFI (Comparative Fit Index), TLI (Tucker-Lewis Index), IFI (Incremental Fit Index), RFI (Relative Fit Index), and NFI (Normed Fit Index). These fit indices will be described in the next paragraphs, followed by results and interpretation of the measurement model for the construct of attitude.

The most fundamental absolute fit statistic is the model  $\chi^2$ , which is used to test the model fit (Hair et al., 2010; Harrington, 2009; Kline, 2010). A non-significant  $\chi^2$  indicates a good model fit to the data, whereas a significant  $\chi^2$  indicates a poor model fit to the data (Tabachnick & Fidell, 2007). The model  $\chi^2$  is a traditional fit index, but sample size often has substantial impact on it. As such, the model  $\chi^2$  will almost always be statistically significant with large sample sizes even if the model has a good fit to the data (Hair et al., 2010; Harrington, 2009). In addition, using  $\chi^2$  to evaluate the model fit becomes more difficult with more variables added to the model. Because of this, it is not recommended to use the  $\chi^2$  goodness-of-fit test as the sole measure of model fit (Hair et al., 2010).

Due to the limitations associated with the  $\chi^2$  goodness-of-fit test, many alternative measures of model fit have been developed, such as Root Mean Square Error of Approximation (RMSEA). RMSEA is a commonly used measure (Hair et al., 2010) that assesses approximate instead of exact fit to a model (Kline, 2010). RMSEA can be used to correct for the tendency of the  $\chi^2$  test to be statistically significant with large sample sizes. The lower the value of RMSEA, the better the

model fits the data (Hair et al., 2010). Values of RMSEA between .05 and .08 are interpretable as fair fit, and those greater than .10 are interpretable as poor fit (Browne & Cudeck, 1993). Similarly, MacCallum, Browne, and Sugawara (1996) consider values between 0.08 to 0.10 as indicative of mediocre fit.

Other goodness-of-fit indices used in this study are baseline comparisons indices including CFI, TLI, IFI, RFI, and NFI. These incremental fit measures might have different methods of calculation, however, all these fit indices can be performed to make comparisons between the researcher's model and a baseline model, typically the independence model, which is a model of independent variables. These indices, in particular, display the relative improvement achieved by a researcher's model over the baseline model (Ho, 2006; Kline, 2010). Indices range from 0 to 1, with greater values suggesting better fit (Hair et al., 2010; Ho, 2006). A cutoff value close to .90 is commonly applied for these incremental fit indices (Bentler, 1990; Ho, 2006).

In the case of a measurement model for the construct of Attitude, the chi-square goodness-of-fit test was 102.86 ( $df = 44$ ,  $p = .000$ ), indicating that the model did not fit the data well (see Table 4.8). Given the sensitivity of chi-square to large samples, however, alternative goodness-of-fit indices should also be relied on to evaluate the adequacy of the model (Hair et al., 2010; Harrington, 2009). As shown in Table 4.9, the RMSEA value of .08 was equal to the recommended value of  $\leq .08$  (Browne & Cudeck, 1993; MacCallum et al., 1996). The baseline comparisons fit indices of CFI, TLI, IFI, RFI, and NFI, moreover, were close to or higher than 0.9 (between .88 and .95) (see Table 4.10). Collectively, these goodness-of-fit indices suggested that the initial measurement model fit the data reasonably well, and that all 11 items were significant reflective indicators of the associated construct of attitude.

Table 4.8  
*Chi Square Fit Statistics*

Model	NPAR	CMIN	DF	<i>P</i>	CMIN/DF
Default model	22	102.86	44	.00	2.34
Saturated model	66	.00	0		
Independence model	11	1104.57	55	.00	20.08

Table 4.9  
*Root Mean Square Error of Approximation*

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.08	.06	.10	.01
Independence model	.31	.29	.32	.00

Table 4.10  
*Baseline Comparison Indices*

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.91	.88	.95	.93	.94
Saturated model	1.00		1.00		1.00
Independence model	.00	.00	.00	.00	.00

*Validity.* EFA and CFA provide a range of information that can be used in examining construct validity. Construct validity is the most important type of validity (Gay et al., 2009) because it indicates whether the items on a questionnaire actually represent the theoretical latent construct those items have been developed to measure (Hair et al., 2010). In other words, an assessment of construct validity indicates a measure's capability of confirming or denying a hypothesis or theoretical construct.

A basic prerequisite in establishing construct validity is to confirm unidimensionality, which refers to the presence of a single factor underlying a set of

indicators (Gerbing & Anderson, 1988; Hancock & Mueller, 2010). The unidimensionality of an instrument is demonstrated by the good model fit (Hair et al., 2010), which is in turn indicative of the construct validity. The construct validity of the Attitude scale was determined by confirming the unidimensionality and convergent validity. The measurement model for the construct of Attitude did fit the data well, which provided support for its construct validity. In addition to the model fit, the construct validity was further checked by assessing convergent validity.

Convergent validity is established when a set of items designed to measure the same construct converge or share a high proportion in common (Hair et al., 2010). It can be assessed by analysing the factor loading from latent constructs to the corresponding indicators. To satisfy the convergent validity, two criteria should be met. First, all unstandardised loadings should be statistically significant, and that standardised loadings should be .5 or greater, preferably .7 or greater. Second, the average variance extracted (AVE) should be .5 or greater.

In the current study, the results showed that all unstandardised loadings of all the indicators of the construct of Attitude were statistically significant (see Table 4.11) and the values of the standardised loadings, which have already been reported earlier in this chapter, were above the cutoff of .5. With regards to the second criterion, the AVE value for the construct of Attitude was equal to the cutoff value of .50. Clearly, all the criteria for convergent validity were met then it can be said that all the indicators of the construct of Attitude demonstrated a good convergent validity.

Table 4.11

*Regression Weights: (Group number 1 - Default model)*

			Estimate	S.E.	C.R.	<i>P</i>	Label
attd_1	<---	Attitude	1.00				
attd_3	<---	Attitude	.69	.09	7.37	***	par_1
attd_4	<---	Attitude	.98	.10	9.77	***	par_2
attd_5	<---	Attitude	.76	.10	7.72	***	par_3
attd_6	<---	Attitude	.98	.10	9.81	***	par_4
attd_10	<---	Attitude	.82	.09	9.37	***	par_5
attd_12	<---	Attitude	.76	.10	7.81	***	par_6
attd_13	<---	Attitude	1.03	.10	10.31	***	par_7
attd_14	<---	Attitude	1.00	.10	9.79	***	par_8
attd_16	<---	Attitude	1.02	.09	10.92	***	par_9
attd_17	<---	Attitude	.66	.08	8.65	***	par_10

Note: Three asterisks (\*\*\*) suggest that the *p*-value is smaller than .001.

*Reliability.* Validity is an essential, but not the only requirement for a good instrument. A second consideration is reliability, which is the capability of an instrument to yield the same findings under the same or similar conditions (Field, 2009). In addition to validity, reliability was evaluated for the Attitude scale by using two reliability measures; namely, variance extracted and coefficient H.

Fornell and Larcker (1981) recommend the use of the variance extracted in order to further evaluate the appropriateness of the measurement model. The variance extracted represents the proportion of total variance in the indicators explained by the latent construct. A general guideline is that variance extracted above 50% is desirable to obtain good reliability (Fornell & Larcker, 1981). The results of EFA, discussed earlier in this chapter, showed that the construct of Attitude explained 52.70% of total variance in the indicators. This suggested that the construct of Attitude and its associated indicators had adequate reliability.

The use of coefficient H in assessing construct reliability has become common practice. Coefficient H refers to “the squared correlation between the latent construct and the optimum linear composite formed from the measured indicators” (Hancock & Mueller, 2001, p. 203). Because the coefficient H is not influenced by the sign of the standardised loadings, it has become a useful alternative to conventional measures such as Cronbach's alpha. As suggested by Hancock and Mueller (2001), a coefficient H value of .70 is indicative of reasonable reliability, and for the calculation of the coefficient H, the following equation should be used.

$$H = 1 / \left[ 1 + \left( 1 / \sum_{i=1}^p [l_i^2 / (1 - l_i^2)] \right) \right]$$

In this equation,  $l$  is the standardised loading and  $p$  is the number of indicators. This equation was used to check the construct reliability of the Attitude scale, and it resulted in a coefficient H value of .92, which represented high construct reliability.

#### **4.3.2 Teacher Efficacy Beliefs Scale (TEBS)**

Teacher Efficacy Beliefs Scale (TEBS) was used to measure teachers' perceptions of their efficacy for instructing and managing students with behavioural difficulties. TEBS contains 8 items, which, for statistical purposes, were denoted as effi\_1 to effi\_8.

By using EFA and CFA, the efficacy beliefs scale was examined for validity and reliability. Procedures involving the use of the EFA followed by the CFA are recommended for establishing the construct validity (Hair et al., 2010). As discussed previously, although CFA assume that data are obtained from interval scales (Hair et al., 2010), Likert-type scale results can be treated as interval data especially when

there are more response options in this scale (Hair et al., 2010; Kerlinger, 1973; Zumbo & Zimmerman, 1993).

Efficacy Beliefs were measured by a 6-point Likert-type scale, thus, it can safely be assumed that the data were scaled at interval level. Accordingly, it was appropriate to carry out EFA and CFA approaches to test the validity and reliability of the scale. The results of the EFA and CFA analyses conducted to check the validity and reliability of the TEBS are discussed below.

### ***Exploratory Factor Analysis (EFA)***

*Factorability of the correlation matrix.* In the first step of EFA, the correlation matrix displaying the association among items is reviewed. As described earlier in this chapter, items with inter-item correlations below the cutoff value of .3 or above the cutoff value of .8 can be considered for removal from the analysis (Field, 2009; Pett et al., 2003).

A visual examination of the correlation matrix for items in the TEBS showed that two items (namely, effi\_1 and effi\_7) had low inter-item correlations. Thus, they were excluded from further analyses. After deleting these items, the correlation matrix demonstrated that all inter-item correlations were well above the cutoff of .3 and below the cutoff of .8 with 100% of the correlations significant at .00 level.

Table 4.12

*Correlation Matrix for TEBS items*

	effi_2	effi_3	effi_4	effi_5	effi_6	effi_8
Correlation	1.00					
	effi_2	.41				
	effi_3	.40	1.00			
	effi_4	.46	.44	1.00		
	effi_5	.39	.41	.37	1.00	
	effi_6	.31	.34	.46	.43	1.00
	effi_8					

To verify that the data set is appropriate for EFA, the value of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) should be .6 or greater (Tabachnick & Fidell, 2007) and the value of Bartlett's Test of Sphericity should be significant (Field, 2009; Pallant, 2011).

In the present analysis, the KMO value was .85 and Bartlett's test was significant ( $p = .000$ ). Accordingly, it was concluded that an EFA should reveal distinct and reliable factors.

Table 4.13

*KMO and Bartlett's Test*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.85
	Approx. Chi-Square	322.46
Bartlett's Test of Sphericity	df	15
	$p$	.00

*Factor Extraction.* A Principal Components Analysis (PCA) was conducted in order to investigate the factor structure of the 6-item Teacher Efficacy Beliefs Scale (TEBS). The PCA demonstrated the presence of only one factor with an eigenvalue above 1. This factor accounted for 51.15% of the total variance among the items. The scree plot also indicated that there was a single meaningful factor.

Evidence from the Parallel Analysis further supported one dominating component because only one factor had an eigenvalue that exceeded the corresponding criterion value for a randomly created data matrix of the same number of items and participants (6 items  $\times$  202 participants). Accordingly, it was decided to retain a single factor for further analyses.

Table 4.14  
*Total Variance Explained Using Principal Component Analysis*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative % Total	% Total	% of Variance	Cumulative %
1	3.07	51.15	51.15	3.07	51.15	51.15
2	.74	12.34	63.49			
3	.65	10.77	74.27			
4	.59	9.89	84.16			
5	.50	8.30	92.46			
6	.45	7.54	100.00			

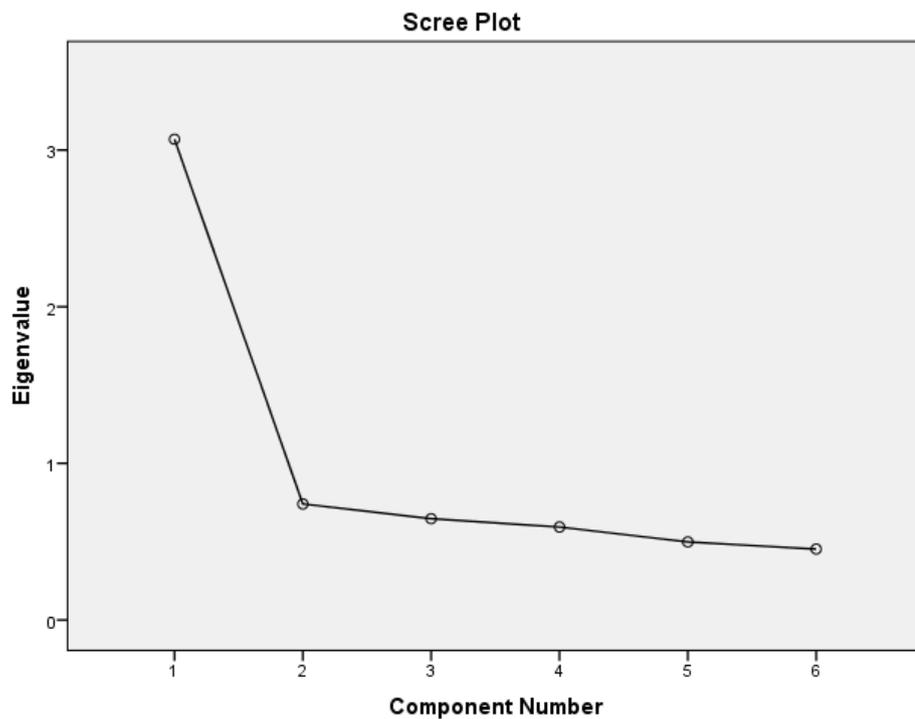


Figure 4.6. Scree plot of TEBS scale.

Table 4.15

*Comparison of Eigenvalues From PCA and the Corresponding Criterion Values Obtained from Parallel Analysis*

Factor Number	Actual Eigenvalue from PCA	Criterion Value from Parallel Analysis	Decision
1	3.07	1.23	accept
2	.74	1.12	reject
3	.65	1.03	reject
4	.59	.96	reject
5	.50	.78	reject

### ***Confirmatory Factor Analysis (CFA)***

*Assumption of normality.* Prior to performing CFA to evaluate the model fit, the assumptions of univariate and multivariate normality were assessed by calculating skewness, kurtosis, and Mardia's coefficients. As shown in Table 4.16, the absolute values of skewness and kurtosis range from -1.32 to -.34 and from -.90 to .75, respectively, and the Mardia's coefficient was 21.673. Based on the criteria suggested by Kline (2010), the values of skewness and kurtosis do not appear to demonstrate any concerns about univariate normality. Likewise, the assumption of multivariate normality was found to be satisfactory, as the Mardia's coefficient was lower than the cutoff value of 48 suggested by the formula  $p(p+2)$ , where  $p$  is equal to the number of observed indicators (Bollen, 1989; Raykov & Marcoulides, 2008).

Table 4.16

*Assessment of Normality*

Variable	min	max	skew	kurtosis
effi_8	1.00	6.00	-.34	-.90
effi_6	1.00	6.00	-.50	-.54
effi_5	1.00	6.00	-.48	-.64
effi_4	1.00	6.00	-1.06	.43
effi_3	1.00	6.00	-.70	-.55
effi_2	1.00	6.00	-1.32	.75
Multivariate				21.67

*The measurement model.* Based on the findings obtained from EFA, a one-factor measurement model for the construct of Efficacy was specified. The construct of Efficacy was modelled as a latent factor with six indicators (effi\_2, effi\_3, effi\_4, effi\_5, effi\_6, and effi\_8), as shown in Figure 4.4. This figure also displays the standardised loadings for the 6 indicators on Efficacy, which range from .61 (effi\_2 and effi\_3) to .72 (effi\_5). Generally, the higher the standardised loadings the better. Therefore, the estimates should be at least .5 and ideally .7 or greater (Hair et al., 2010). In this model, all values of standardised loadings were above the cutoff value of .5, indicating that the indicators are well related to their associated construct (Hair et al., 2010).

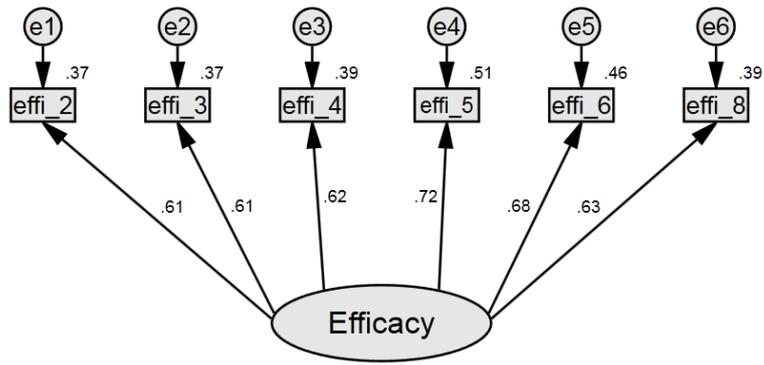


Figure 4.7. Measurement model for the construct of Efficacy.

*The overall model fit.* Based on the findings obtained from a number of different goodness-of-fit indices, the measurement model for the construct of Efficacy achieved a good fit to the data. The model showed a non-significant chi-square value of 12.40 ( $df = 9, p = .19$ ) (see Table 4.17). The RMSEA value of 0.04 was below the recommended value of  $\leq .08$  (Browne & Cudeck, 1993; MacCallum et al., 1996), and all values for baseline comparisons fit indices (CFI, TLI, IFI, RFI and NFI) were greater than 0.9 (between .94 and .99) (see Table 4.18 and Table 4.19). Collectively, these goodness-of-fit indices indicated that the measurement model fit the data and that all the six items were significant reflective indicators of their respective construct of Efficacy.

Table 4.17

*The Chi Square Fit Statistic*

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	12	12.40	9	.19	1.38
Saturated model	21	.00	0		
Independence model	6	327.07	15	.00	21.81

Table 4.18

*Root Mean Square Error of Approximation*

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.04	.00	.10	.52
Independence model	.32	.29	.35	.00

Table 4.19

*Baseline Comparison Indices*

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.96	.94	.99	.98	.99
Saturated model	1.00		1.00		1.00
Independence model	.00	.00	.00	.00	.00

*Validity.* One important reason for performing EFA and CFA is to examine construct validity. Construct validity of the Efficacy scale was determined by confirming the unidimensionality and the convergent validity of the scale. The unidimensionality of the Efficacy scale was supported as its measurement model had a satisfactory fit.

Convergent validity is established if the unstandardised loadings for each indicator are statistically significant and all standardised loadings are greater than .5. It is also established if the AVE values are .5 or higher (Hair et al., 2010). All unstandardised loadings of the indicators of the construct of Efficacy were statistically significant (see Table 4.20), and the values of the standardised loadings were above the cutoff .5. Likewise, the AVE value for Efficacy was equal to the cutoff value of .50. Taken together, these results support the convergent validity of the construct of Efficacy.

Table 4.20

*Regression Weights: (Group number 1 - Default model)*

			Estimate	S.E.	C.R.	<i>P</i>	Label
effi_2	<---	Efficacy	1.00				
effi_3	<---	Efficacy	1.15	.17	6.79	***	par_1
effi_4	<---	Efficacy	1.05	.16	6.80	***	par_2
effi_5	<---	Efficacy	1.34	.18	7.52	***	par_3
effi_6	<---	Efficacy	1.29	.18	7.08	***	par_4
effi_8	<---	Efficacy	1.22	.18	6.61	***	par_5

2. Note: Three asterisks (\*\*\*) suggest that the *p*-value is smaller than .001.

*Reliability.* In addition to validity, the reliability of the Efficacy scale was assessed by using two reliability measures; namely, the variance extracted and the coefficient H. Variance extracted, which represents the proportion of total variance in the indicators explained by the latent construct, was used to examine the reliability of Efficacy. As noted earlier, findings of EFA showed that the construct of Efficacy explained 51.15% of the total variance in its associated indicators. As this variance extracted surpasses the cutoff 50% (Fornell & Larcker, 1981), the reliability of the Efficacy scale was achieved.

Coefficient H was also used to assess the construct reliability of the Efficacy scale. A coefficient H value of .70 or higher is considered adequate (Hancock & Mueller, 2001). The coefficient H equation offered by Hancock and Mueller (2001) was used to examine the construct reliability of the Efficacy scale and resulted in a coefficient H value of .82. This indicated that all factors in the measurement model for the construct of Efficacy had adequate reliability.

### **4.3.3 Knowledge of Attention Deficit Disorders Scale (KADDS)**

The Knowledge of Attention Deficit Disorders Scale (KADDS) was used for obtaining data related to the teachers' knowledge of AD/HD. KADDS consists of 24 items, which, for analytical purposes, were denoted as know\_1 to know\_24.

The KADDS was tested for criterion validity and internal consistency reliability. Given that items in this scale are scored dichotomously (one point is given for correct answers while zero points are given for incorrect and "Don't Know" answers), EFA and CFA were not used with this scale. Factor analysis with dichotomous variables is problematic because it leads to artificial findings (Kubinger, 2003; Parry & McArdle, 1991). Another technique to establishing validity is criterion validity, which is used to assess the predictive validity of a scale. This approach was used to examine the validity of the KADDS. In order to measure the reliability of the KADDS, a method of inter-item consistency (Cronbach's alpha coefficient) was calculated.

The process of establishing the validity and reliability of the KADDS is described in detail in the following subsections.

#### ***Criterion Validity***

Criterion validity is of concern when using an instrument to estimate an "important form of behaviour that is external to the measuring instrument itself, the latter being referred to as the criterion" (Nunnally, 1978, p. 87). In other words, this type of validity is achieved by comparing the scores yielded by an instrument with some sort of performance on an external criterion, which can be a measure or a variable. The selection of the external criterion should be based on theory. Specifically, the external criterion should be correlated theoretically with the variable that the instrument is designed to measure (Groth-Marnat, 2009).

In order to determine the criterion validity of KADDS, the variable – teachers’ prior experience with children diagnosed with AD/HD – was used as an external criterion. Previous research findings indicated that more experience with AD/HD is related to higher levels of knowledge about AD/HD (Anderson et al., 2012; Kos et al., 2004; Sciotto et al., 2000). Generally, those teachers who have prior experience with children diagnosed with AD/HD, in comparison to those without such experience, could be expected to have more opportunities to observe AD/HD-related behaviours in children. Similarly, teachers with such experience are more likely to have a higher probability of accessing more sources of knowledge regarding AD/HD, such as contact with children diagnosed with AD/HD, information received from parents, training related to AD/HD, and information about diagnostic criteria (Sciotto et al., 2000). Prior experience with children diagnosed with AD/HD is, therefore, expected to lead to higher level of knowledge about AD/HD in teachers. Evidence from previous research suggests that teachers who have prior experience with a student diagnosed with AD/HD performed better on knowledge of AD/HD scales than those without such experience (Anderson et al., 2012; Kos et al., 2004; Sciotto et al., 2000). Based on this, it is assumed that KADDS has criterion validity, if teachers who had taught a student diagnosed with AD/HD scored significantly higher on the KADDS than those who had never taught a student diagnosed with AD/HD.

An independent-samples t-test was performed to compare the KADDS scores for teachers with and without prior experience of children diagnosed with AD/HD. The findings indicated that there was a significant difference between KADDS scores for teachers who reported having taught children diagnosed with AD/HD ( $M = 11.28$ ,  $SD = 3.03$ ) and the scores for those who reported not having taught children

diagnosed with AD/HD ( $M = 9.43$ ,  $SD = 4.01$ ;  $t(86.18) = 3.31$ ,  $p = .001$ , two-tailed).

This result supports the claim for the criterion validity of the KADDS.

### ***Internal Consistency Reliability***

Internal consistency reliability represents the consistency within the scale, indicating the degree to which the items in a scale measure the same construct. Items that are designed to measure the same construct should be intercorrelated in a consistent way (Ho, 2006). Internal consistency reliability is commonly measured by means of calculating Cronbach's alpha coefficient. In the present study, the Cronbach's alpha coefficient for the KADDS total scale (24 items) was .73, which represents good reliability (Kline, 2010).

When internal consistency was assessed for each of the subscales of KADDS, however, it was found that the Cronbach's alpha coefficient of the Associated Features subscale (15 items) was .60 and the Symptoms/Diagnosis subscale (9 items) was .61. It was concluded that although the KADDS scale had good overall reliability, the reliability of the subscales was somewhat low. This result could be due in part to the fact that the subscales had a limited number of items. Kline (2010) has suggested that a Cronbach's alpha value of .70 can be considered as good for reliability, but Nunnally (1978) and Hair et al. (2010) suggest that a value of .60 and greater is acceptable in exploratory research. Therefore, the internal consistency values of the KADDS scale have been interpreted as acceptable for this study.

#### **4.4 RESULTS OF RESEARCH QUESTIONS**

The four research questions addressed in the present study were:

##### **Research question #1:**

What perceptions and attitudes do Saudi teachers have about the inclusion of students with AD/HD-related behaviours?

**Sub-question 1.1:** What is the attitude of Saudi mainstream teachers towards the inclusion of students with AD/HD-related behaviours as measured by the Teacher Attitude towards Inclusion Scale (TAIS)?

**Sub-question 1.2:** How do Saudi mainstream teachers perceive the inclusion of students with AD/HD-related behaviours and the factors influencing their attitude towards inclusion?

##### **Research question #2:**

What is the knowledge of Saudi mainstream teachers with regard to AD/HD as measured by the Knowledge of Attention Deficit Disorders Scale (KADDS)?

##### **Research question # 3:**

How well does teachers' knowledge of AD/HD correlate with their efficacy beliefs for teaching students with behavioural problems?

##### **Research question # 4:**

How well do the independent variables – efficacy beliefs, teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD – predict teachers' attitude towards the inclusion of students with AD/HD-related behaviours? Which of these independent variables is the most important predictor of teachers' attitude towards the inclusion of students with AD/HD-related behaviours?

#### 4.4.1 Results for Research Question 1.1

*What is the attitude of Saudi mainstream teachers towards the inclusion of students with AD/HD-related behaviours as measured by the Teacher Attitude towards Inclusion Scale (TAIS)?*

The first question was addressed by examining descriptive statistics of the mean, standard deviation, and percentage for Attitude. The TAIS includes both positive and negative items. Therefore, prior to conducting any analysis, each negative item was reversed in order to provide a common direction on the scale. Thus, high scores on the negative items also represent positive attitude as a result of reversing the negative items. The TAIS consists of 11 items with a four category response scale; hence, mean scores were calculated for the Likert-scaled items, with 1 representing most negative attitude and 4 representing most positive attitude.

Table 4.21 presents the means and standard deviations of the teachers' attitude towards the inclusion of students with attentional problems ( $M = 2.73$ ,  $SD = .06$ ), students with hyperactive/impulsive problems ( $M = 2.86$ ,  $SD = .07$ ), and students with AD/HD-related behaviours in general ( $M = 2.79$ ,  $SD = .62$ ). For the interpretation of the mean values, the cutoff point was taken as 2.5. Any mean value less than 2.5 considered a negative attitude, and a mean value above 2.5 indicated positive attitudes.

Based on these cutoff points, Saudi primary teachers generally appeared to have positive attitude towards the inclusion of students with attentional problems, students with hyperactive/impulsive problems, and students with AD/HD-related behaviours in general because all the mean attitude values were above 2.5. Moreover, the percentage of teachers who exhibited positive attitudes was 63.9%, while 36.1% showed negative attitudes.

Table 4.21

*Means and Standard Deviations of Teachers' Attitude towards Inclusion*

Teachers' Attitude	<i>N</i>	<i>M</i>	<i>SD</i>
Students with attentional problems	107	2.73	.06
Students with hyperactive/impulsive problems	95	2.86	.07
Students with AD/HD-related behaviours (total)	202	2.79	.62

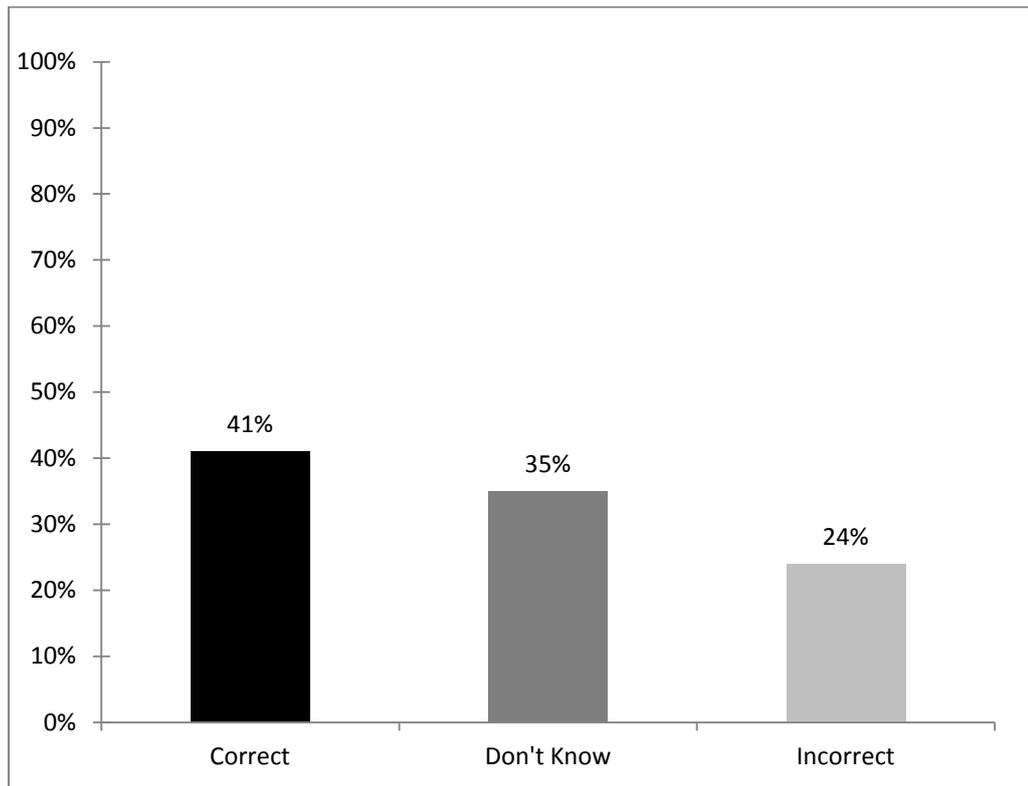
Because schools in Saudi Arabia are segregated by gender with only male teachers working with male students and female teachers with female students, it is possible that male and female teachers have been exposed to different experiences and therefore may have formed different attitudes towards the inclusion of students with AD/HD-related behaviours. Thus, it is useful to examine mean differences between male and female teachers on their attitudes towards inclusion. An independent-samples t-test was performed to compare the TAIS scores for male and female teachers. The results indicated that there was no significant difference between TAIS scores for male teachers ( $M = 30.71$ ,  $SD = 7.00$ ) and female teachers ( $M = 30.66$ ,  $SD = 6.35$ ;  $t(200) = 0.38$ ,  $p = .97$ , two-tailed). Accordingly, it was concluded that male and female teachers held similar attitudes towards the inclusion of students with AD/HD-related behaviours. While Q1.1 has been addressed in this subsection, it is important to note that Q1.2 is addressed in Chapter 5.

#### 4.4.2 Results for Research Question 2

*What is the knowledge of Saudi mainstream teachers with regard to AD/HD as measured by the Knowledge of Attention Deficit Disorders Scale (KADDS)?*

The second question was addressed by analysing the descriptive statistics of frequency and percentage for participants' scores on the KADDS. Participants answer each item by selecting from one of these options "True," "False," or "Don't

Know”. High scores in this instrument represent high knowledge regarding AD/HD. One point is given for correct answers while zero points are given for incorrect answers and “Don't Know” answers. The KADDS consists of 24 items, thus the possible minimum score is 0 and the possible maximum score is 24. The analyses of results on the KADDS scale indicated that there is a lack of knowledge regarding AD/HD among Saudi teachers in the mainstream primary schools of the Madinah administrative area of Saudi Arabia. Figure 4.8 presents the percentages of the items answered correctly, incorrectly, and those answered by a “Don't Know” response. Although 41% of the items were answered correctly, approximately 35% of the items were answered with a “Don't Know” response; these percentages suggest that teachers in general are not well informed about AD/HD. Of further concern is the fact that 24% of items were answered incorrectly suggesting not only a lack of knowledge about AD/HD but rather misperceptions about AD/HD.



*Figure 4.8.* The percentages of correct, incorrect, and unknown responses to the KADDS items.

In order to explain the Saudi teachers’ knowledge of AD/HD in a more detailed manner, most common correct, incorrect, and unknown responses were examined (see Tables 4.21 – 4.23). Table 4.22 presents the five KADDS items that were most commonly answered correctly. The items that tended to be answered correctly were those relating to the primary characteristics of AD/HD, behaviours that would be obvious in a classroom environment. The item with the most correct answers in the KADDS scale was Item 7, “Children with AD/HD often fidget or squirm in their seats”. This item was answered correctly by 86.1% of the participants. Item 2, “Children with AD/HD are frequently distracted by extraneous stimuli”, was also answered correctly by as many as 74.5% of the participants. Almost the same percentages of the participants (73.8% and 73.3%, respectively)

gave correct answers to Item 23, “The majority of children with AD/HD evidence some degree of poor school performance in the elementary school years”, and Item 14, “In order to be diagnosed with AD/HD, a child must exhibit relevant symptoms in two or more settings (e.g., home, school). Lastly, as many as 70.8% of the participants provided correct answers to Item 17, “Children with AD/HD often have difficulties organising tasks and activities”.

Table 4.22

*Items with Most Correct Responses*

Number	Content	%
7	Children with AD/HD often fidget or squirm in their seats [True].	86.1
2	Children with AD/HD are frequently distracted by extraneous stimuli [True].	74.5
23	The majority of children with AD/HD evidence some degree of poor school performance in the elementary school years [True].	73.8
14	In order to be diagnosed with AD/HD, a child must exhibit relevant symptoms in two or more settings (e.g., home, school) [True].	73.3
17	Children with AD/HD often have difficulties organising tasks and activities [True].	70.8

Words in square brackets stand for the correct answer to the item.

Table 4.23 summarises the KADDS items most frequently answered incorrectly, indicating misperceptions about AD/HD. In this study, 60.9% of the participants incorrectly believed that “Children with AD/HD generally experience more problems in novel situations than in familiar situations”, and almost half of them thought that being physically cruel to other people is one characteristic of children with AD/HD. Moreover, many of the teachers were unaware of diagnostic indicators relevant to AD/HD. For example, 42% of the teachers incorrectly thought that behaviour difficulties displayed by very young children with AD/HD are

distinctly different from age-appropriate behaviours of children without AD/HD and that “if a child with AD/HD is able to demonstrate sustained attention to video games or TV for over an hour, that child is also able to sustain attention for at least an hour of class or homework”.

Table 4.23

*Items with Most Incorrect Responses*

Number	Content	%
18	Children with AD/HD generally experience more problems in novel situations than in familiar situations [False].	60.9
6	One symptom of children with AD/HD is that they have been physically cruel to other people [False].	47.0
21	In very young children (less than 4 years old), the problem behaviours of children with AD/HD (e.g., hyperactivity, inattention) are distinctly different from age-appropriate behaviours of non-AD/HD children [False].	42.6
15	If a child with AD/HD is able to demonstrate sustained attention to video games or TV for over an hour, that child is also able to sustain attention for at least an hour of class or homework [False].	42.1
13	Most children with AD/HD "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood [False].	38.1

Words in square brackets stand for the correct answer to the item.

The inclusion of the “Don't Know” response in the KADDS scale allows for the differentiation between the teachers lack of knowledge and their misperceptions about AD/HD. The five KADDS items with the highest percentage of “Don't Know” responses are presented in Table 4.24. General information about AD/HD, such as that children with AD/HD are more compliant with their fathers than with their mothers, there are no specific physical features which can be identified by doctors in making a definitive diagnosis of AD/HD, boys are more likely than girls to be diagnosed with AD/HD, and that AD/HD is more common in the 1st degree biological relatives (i.e. mother, father) of children with AD/HD than in the general

population, were unknown by almost half of the participants in this study. Slightly less than half of the participants (47.5%) had no knowledge about whether or not most children with AD/HD can "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood.

Table 4.24

*Items with Most Don't Know Responses*

Number	Content	%
3	Children with AD/HD are typically more compliant with their fathers than with their mothers [True].	54.9
19	There are specific physical features which can be identified by medical doctors (e.g., pediatrician) in making a definitive diagnosis of AD/HD [False].	53.5
20	In school age children, the prevalence of AD/HD in males and females is equivalent [False].	53.5
5	AD/HD is more common in the 1st degree biological relatives (i.e. mother, father) of children with AD/HD than in the general population [True].	49.5
13	Most children with AD/HD "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood [False].	47.5

Words in square brackets stand for the correct answer to the item.

#### 4.4.3 Results for Research Question 3

*How well does teachers' knowledge of AD/HD correlate with their efficacy beliefs for teaching students with behavioural problems?*

This research question was addressed by examining the Pearson's correlation coefficient, which was produced by means of a parametric statistical analysis that measured the linear relationship between the two variables; Knowledge and Efficacy (Norusis, 2008). There are several assumptions underlying the calculation of a Pearson's correlation coefficient, including normality, absence of outliers, linearity, and homoscedasticity. These assumptions were checked to ensure there were no violations prior to conducting the correlation analysis. As discussed earlier in this

chapter, the assumptions of normality and absence of outliers were checked and none were found to have been violated (see the Preliminary Analyses). Assumptions in relation to linearity and homoscedasticity were also checked as discussed below.

Linearity and homoscedasticity represent common assumptions of parametric statistics. The linearity of the relationship between two variables represents the amount to which the change in one variable is correlated with the other variable. Homoscedasticity refers to the statistical assumption that the variability in values for the independent variable is roughly the same at all values of the dependent variable (Hair et al., 2010; Tabachnick & Fidell, 2007).

The assumptions of linearity and homoscedasticity can be examined in a number of ways, the most commonly recommended of which is to generate a scatterplot between the two variables (Pallant, 2011; Tabachnick & Fidell, 2007). If the scatterplot appears to show any sort of curve, then it is possible that the assumption of linearity is violated. Departures from homoscedasticity are shown when there is a random array of dots unevenly dispersed around the center; for example, a small number of dots dispersed at one side of the graph and large number of dots dispersed at the opposite side (Field, 2009; Hair et al., 2010). Figure 4.9 presents a scatterplot of teachers' knowledge of AD/HD versus their efficacy beliefs. This scatterplot does not show a clear or systematic pattern; thus, these two assumptions were satisfied.

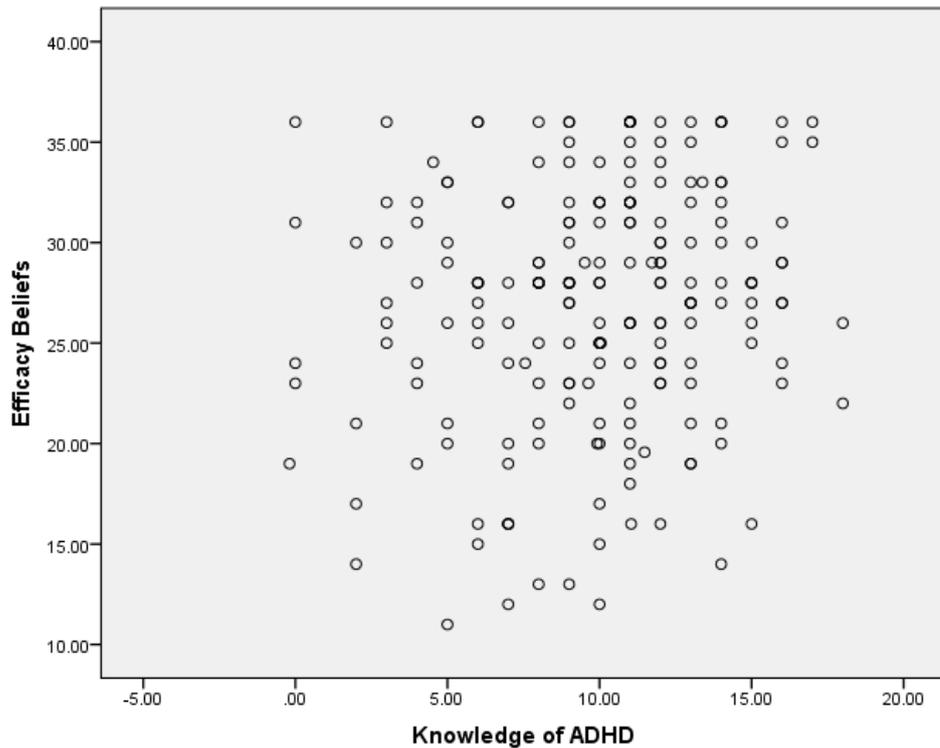


Figure 4.9. Scatterplot of relationship between Knowledge of AD/HD versus Efficacy Beliefs.

After checking the assumptions, a Pearson's correlation coefficient was computed to examine the relationship between teachers' knowledge of AD/HD (as measured by the the KADDS) and their efficacy beliefs (as measured by the TEBS). For determining the strength of the relationship, this study used the guidelines proposed by Cohen (1988), where coefficients between .10 and .29 reflect a small relationship, coefficients between .30 and .49 reflect a medium relationship, and coefficients above .50 reflect a large relationship.

As shown in Table 4.25, there was a small, positive correlation between teachers' knowledge of AD/HD and their efficacy beliefs for teaching students with behavioural problems,  $r = .15$ ,  $N = 202$ ,  $p < .05$ . This finding indicated that teachers with higher levels of AD/HD knowledge generally felt more efficacious for teaching



and multicollinearity, normality of the residuals distribution, linearity, and homoscedasticity. Therefore, the first procedure used in the multiple regression analysis included preliminary checking of data to ensure no violation of the assumptions. As noted earlier in this chapter, the assumption of absence of outliers was checked and met (see the preliminary analyses section). The rest of the assumptions necessary for conducting a valid multiple regression analysis will be discussed below, followed by interpretations of the results.

In order to test the assumptions for multiple regression, a number of graphs and inferential statistics were conducted. A histogram and probability plots of the residuals were created to check the normality of the residuals distribution. As shown in Figures 4.10 and 4.11, the residuals fit a normal distribution reasonably well. The assumptions of linearity and homoscedasticity were examined by creating a scatterplot. Figure 4.12 presents the scatterplot of the residuals versus the predicted values. This scatterplot does not show a clear or systematic pattern (e.g. curvilinear, or larger number of scores on one side of the 0 point than the other); thus, there were no major violations of the assumptions of linearity and homoscedasticity (Field, 2009; Hair et al., 2010; Pallant, 2011).

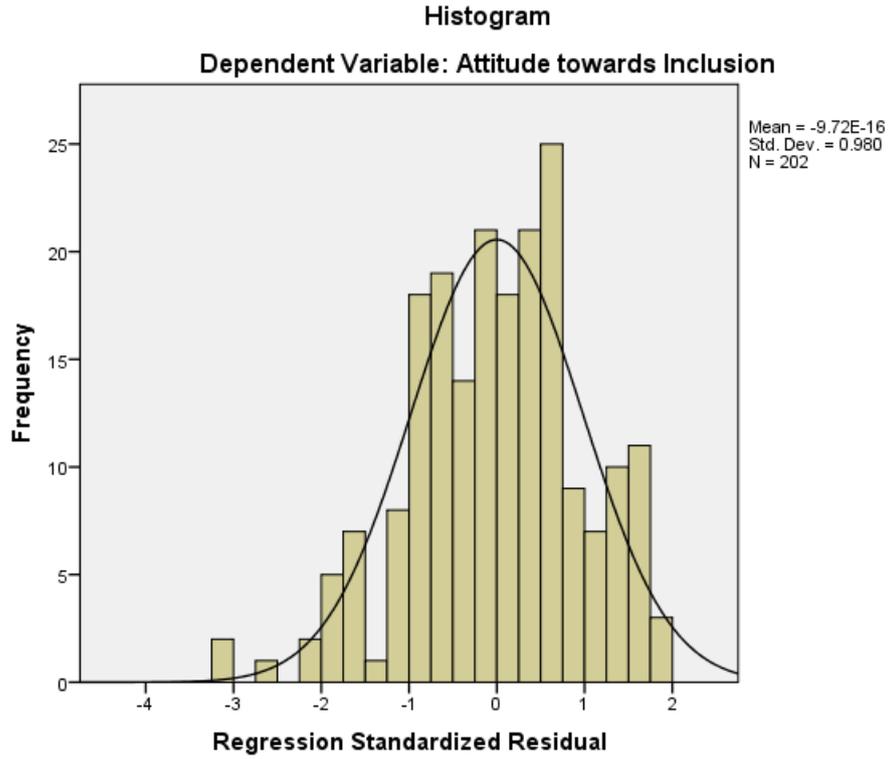


Figure 4.10. Histogram of the residuals.

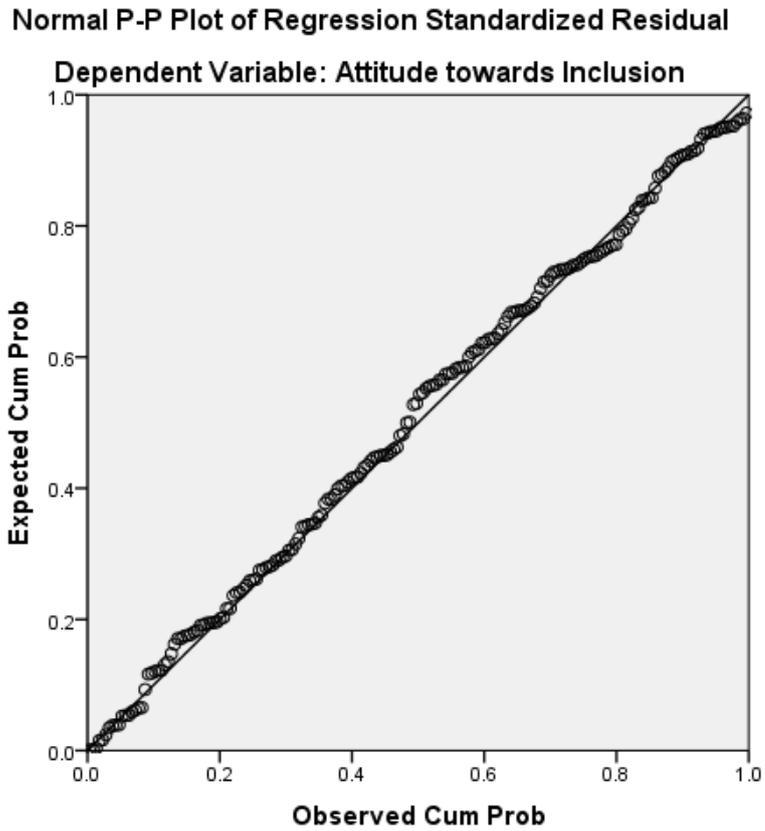
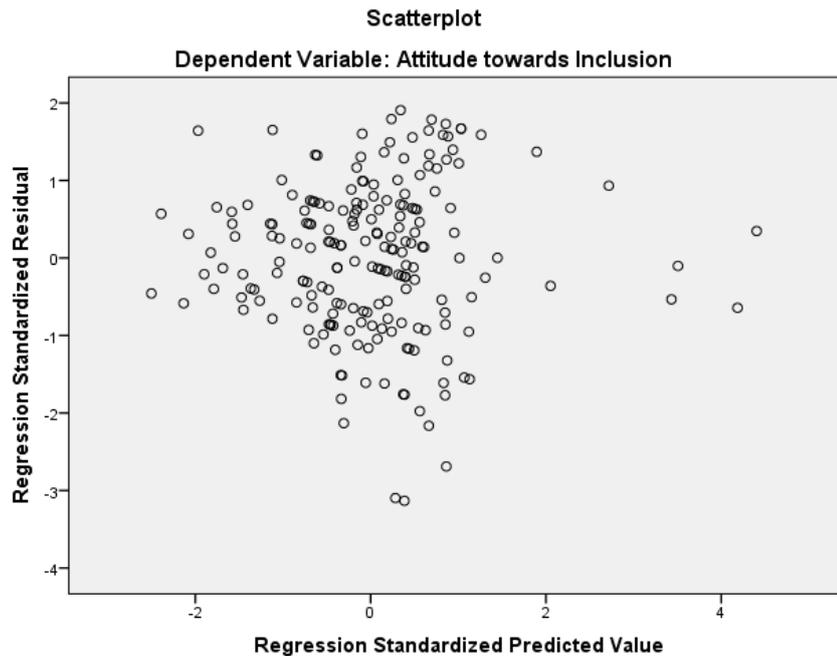


Figure 4.11. Probability plot of the residual.



*Figure 4.12.* Scatterplot of the residuals versus the predicted values.

Other assumptions underlying multiple regression are an absence of multicollinearity and independence of errors. Multicollinearity is a problem in regression analysis that occurs when a high relationship (e.g.,  $r = .90$ , or above) exists between two independent variables. Tolerance and variance inflation factor (VIF) values are used to detect the presence of multicollinearity. Generally, if the tolerance value is below 0.10 or the VIF value is above 10, then there is cause for concern about multicollinearity (Field, 2009; Pallant, 2011). In this study, all tolerance and values for independent variables were not less than 0.10; hence, the multicollinearity assumption was not violated. This was further supported by all VIF values, which were less than the cutoff value of 10 (see Table 4.28).

Multiple regression also assumes that the errors are independent. Specifically, this assumption implies that “for any two observations the residuals terms should be uncorrelated (or independent)” (Field, 2009, p. 220). The Durbin-Watson statistic can be used to examine this assumption. Generally, a Durbin-Watson value between

1.5 and 2.5 is considered acceptable. As shown in Table 4.26, the Durbin-Watson value for this study was 1.68 which falls within the acceptable range. Based on the results of the preliminary analyses discussed above, all assumptions necessary for conducting multiple regression were met within the current study.

In conducting the regression analysis, all independent variables were entered into the analysis simultaneously and not in any specific order because these variables were chosen on a theoretical basis. Further, no theoretical explanation was found in the literature supporting the order of importance among these variables (Field, 2009).

Tables 4.25 and 4.26 show the results of the multiple regression model. Based on the findings in the ANOVA table ( $F(8, 193) = 3.02, p < .003$ ), the result of the regression analysis was statistically significant because the probability of the  $F$  statistic ( $p < .003$ ) was smaller than the level of significance (.05). This result indicates that taken together the predictor variables – efficacy beliefs, teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD – significantly predict teachers' attitude towards inclusion. As shown in Table 4.27, the R square value for the relationship between the combined set of predictor variables and the dependent variable was found to be .11; that is, about 11% of the variance in the dependent variable (attitude towards inclusion) can be explained by the combination of the predictor variables.

Table 4.26

*ANOVA of the Multiple Regression Model*

Model	Sum of Squares	df	Mean Square	<i>F</i>	<i>p</i>
Regression	1040.89	8	130.11	3.02	.00 <sup>b</sup>
1 Residual	8320.80	193	43.11		
Total	9361.69	201			

a. Dependent Variable: Attitude towards inclusion

b. Predictors: (Constant), Age, Efficacy beliefs, Subtype of AD/HD, Training about AD/HD, Experience of behavioural problems, Class size, Experience of attentional problems, Teaching experience

Table 4.27

*The Multiple Regression Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.33 <sup>a</sup>	.11	.07	6.57	1.68

a. Predictors: (Constant), Age, Efficacy beliefs, Subtype of AD/HD, Training about AD/HD, Experience of behavioural problems, Class size, Experience of attentional problems, Teaching experience

b. Dependent Variable: Attitude towards inclusion

The final step in the process of interpreting the results of the multiple regression was to decide which of the independent variables included in the model was the best predictor of dependent variable; that is teachers' attitude towards inclusion. In order to assess the contribution of the independent variables, the standardised partial regression coefficients (Beta) were examined. Table 4.28 shows that the independent variables – teacher age, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD – were not statistically significant ( $p > .05$ ). In other words, these variables did not make a statistically significant unique contribution to the regression model. In contrast, the independent variables of efficacy beliefs, class size, and training about students with AD/HD-related

behaviours were statistically significant ( $p < .05$ ), which means that these variables made a statistically significant unique contribution to the model. The variable of efficacy beliefs was found to have the largest Beta value (Beta = .21,  $p = .003$ ), followed by training about students with AD/HD-related behaviours (Beta = .17,  $p = .022$ ) then class size (Beta = -.15,  $p = .048$ ). Based on this, the variable of efficacy beliefs was the best predictor of teachers' attitude towards the inclusion of students with AD/HD-related behaviours.

Table 4.28

*Summary of Multiple Regression for Variables Predicting Teachers' Attitude*

Model	B	Beta	t	p	Tolerance	VIF
(Constant)	24.94		5.35	.00		
Efficacy beliefs	.23	.21	2.99	.00	.96	1.04
Teaching experience	-.02	-.02	-.14	.89	.19	5.38
Class size	-.09	-.15	-1.99	.05	.83	1.21
Experience of attentional problems	-.48	-.03	-.39	.70	.68	1.47
Experience of behavioural problems	1.21	.08	.99	.33	.71	1.40
Training about AD/HD	7.26	.17	2.30	.02	.89	1.12
Subtype of AD/HD	-1.36	-.10	-1.46	.15	.99	1.01
Age	.06	.06	.41	.68	.19	5.40

#### 4.4.5 Summary of the Phase One Results

This chapter has presented the results of analyses of data collected during Phase One of the study. In this phase, the data were collected by a four-part questionnaire from 202 teachers employed in the mainstream primary schools of the Madinah administrative area of Saudi Arabia during the 2011–2012 school year. Data analyses began with preliminary analyses in which the issues of missing values,

outliers, and assumption of normality were addressed. Reliability and validity were then demonstrated using EFA and CFA for the TAIS and TEBS and criterion validity and internal consistency reliability for the KADDS.

With respect to Research sub-question #1.1, descriptive statistics of the mean, standard deviation, and percentage revealed that Saudi primary teachers generally appeared to have positive attitude towards the inclusion of students with attentional problems, students with hyperactive/impulsive problems, and students with AD/HD-related behaviours overall. The percentage of teachers who exhibited positive attitudes was 63.9% while about 36.1% showed negative attitudes. Further, the data analysis for the research question #2, using descriptive statistics of the frequency and percentage, indicated that there is a lack of knowledge regarding AD/HD among Saudi primary teachers.

To address the third research question, a Pearson's correlation coefficient was used after checking its assumptions. The Pearson's correlation analysis indicated a significant positive correlation between teachers' knowledge of AD/HD and their efficacy beliefs for teaching students with behavioural problems,  $r = .15$ ,  $N = 202$ ,  $p < .05$ . This finding suggested that the participants with higher levels of knowledge about AD/HD generally had higher levels of efficacy beliefs for teaching students with behavioural problems than those with lower level of knowledge of AD/HD though the relationship was weak.

To address the fourth research question, a multiple regression analysis was conducted after checking its assumptions. The multiple regression analysis indicated that the independent variables of efficacy beliefs, class size, and training about students with AD/HD-related behaviours significantly contributed to teachers' attitude towards inclusion, while the rest of the independent variables – teacher age,

years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD – did not make any significant contribution to the prediction of teachers' attitude. Further, the variable of efficacy beliefs was found to be the best predictor of teachers' attitude towards inclusion.

In addition to the questionnaire data, interview data were also collected for the purpose of seeking further clarification of the analysis of the questionnaire data in order to reach a clearer understanding of the research problem at hand. The interview findings will be discussed in the following chapter.



## Chapter 5: Results of the Phase Two Analyses

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The present study was designed to examine Saudi mainstream primary teachers' knowledge about AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. It also sought to explore the relationships among teachers' attitude towards inclusion, knowledge of AD/HD, efficacy beliefs for teaching students with behavioural problems, and a number of background factors including teacher age, class size, training about students with AD/HD-related behaviours, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD.

In this chapter, characteristics of the interview participants are presented first, and then results of the Phase Two analysis are discussed. This phase of the study included semi-structured interviews conducted with eight teachers employed in the mainstream primary schools of the Madinah administrative area of Saudi Arabia during the 2011–2012 school year. The findings of these analyses were used to address the research question #1.2 in relation to teachers' attitudes towards the inclusion of students with AD/HD-related behaviours and the contributions of significant predictors of teachers' attitudes. This chapter presents the findings derived from the follow-up interviews by identifying themes that emerged from the data and describing how these themes explain or expand on the Phase One questionnaire findings for the purpose of gaining a greater understanding of the questions presented in this study.

## **5.1 DESCRIPTION OF THE INTERVIEW PARTICIPANTS**

A total of eight participants were interviewed. For the purpose of providing a range of teaching experiences, the participants were selected based on their responses to the Teacher Attitude towards Inclusion Scale (TAIS), four participants who scored high and four who scored low. The sample included four male teachers and four female teachers. Most of the participants (5 of 8) had Bachelor degrees as their highest qualification, while two held an intermediate diploma (two years after high school) and one a Master's degree. The age of the participants ranged from 32 to 47 years, and their teaching experience ranged from 7 to 30 years. With regard to the number of students taught by the participants, nearly all teachers (7 of 8) currently taught between 20 and 35 students while the remaining teacher taught 47 students. The noticeable finding is that none of the participants had received training regarding AD/HD although their teaching experience ranged from 7 to 30 years. Table 5.1 presents information regarding the interview participants. Each participant was given a unique pseudonym to protect anonymity.

Table 5.1

*Summary of Demographic Information of Interview Participants*

Participant	TAIS Score	Gender	Age	Teaching experience	Class size	Qualification	AD/HD training
Amal	High	Female	47	30	25	Bachelor	No
Faisal	High	Male	35	11	25	Bachelor	No
Samar	High	Female	40	17	25	Intermediate Diploma	No
Majed	High	Male	34	10	32	Bachelor	No
Sara	Low	Female	38	15	20	Bachelor	No
Saleh	Low	Male	32	7	35	Bachelor	No
Hend	Low	Female	37	18	47	Intermediate Diploma	No
Tariq	Low	Male	39	18	29	Master	No

**5.2 RESULTS FOR RESEARCH QUESTION 1.2**

The purposes of the interviews were to: (1) investigate teachers' attitude towards the inclusion of students with AD/HD-related behaviours and (2) explore and elaborate on the key findings from the analyses of the questionnaires. In particular, the interview was designed to yield additional information about the three significant predictors of teachers' attitudes towards inclusion; namely, efficacy beliefs, teacher training, and class size.

In order to achieve these purposes, semi-structured interviews were conducted with eight Saudi primary teachers - four females and four males. Data collected from these interviews were transcribed and analysed using thematic analysis across six recursive phases.

The process of thematic analysis was described in detail in Chapter 3 (Methodology) and is summarised here in Table 5.2. Four major themes emerged from the analysis; namely, attitudes towards inclusion, efficacy beliefs, training, and class size. In the following discussion of the findings in relation to each of the four themes, salient excerpts illustrating the teachers' perspectives have been included.

Table 5.2

*Phases of Thematic Analysis*

Phase	Description of the process
Establishing familiarity with the data	Transcribing data, reading and re-reading the data, noting down initial ideas.
Generating the initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.
Reviewing the themes	Checking if the themes work in relation to the coded extracts (Step 1) and the entire data set (Step 2), generating a thematic 'map' of the analysis.
Defining and naming themes	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
Producing the report	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Adapted from (Braun & Clarke, 2006, p. 87).

### **5.2.1 Theme 1: Attitudes towards Inclusion**

While most of the interview participants had positive attitudes about including students with AD/HD-related behaviours in their regular classrooms, some had less positive attitudes. Interview data adds depth to questionnaire findings by detailing the personal experiences of teachers who work in inclusive settings. Accordingly, two groups of teachers were invited to participate in interviews. Four teachers had scored high and four had scored low on the TAIS, although no obvious pattern was observed for either group related to low or high on the interview. That is, high scores on the TAIS did not necessarily translate into positive attitudes in the interview data. The interview data revealed positive and less positive attitudes as will be discussed below.

Five of the eight interview participants (62.5%) expressed positive attitudes about including students with AD/HD-related behaviours in regular classrooms, where, as they stated, these students can gain substantial benefits. For example, Tariq stated that, “the activity of taking this student [with AD/HD-related behaviours] out from a regular classroom and pulling him away from his classmates is a big mistake. This student only has a behavioural problem, and he can be an excellent student.” When asked to elaborate on why he supported the inclusion of such students in a regular classroom, Tariq said, “I believe that a student learns things from his classmates better than from a teacher, and this strategy not only saves effort and time for teachers but also helps students to get information very easily.” Tariq considers behaviours that are usually associated with AD/HD as “normal behaviours” because “children in this age [primary school age] tend to play and move around.” Tariq also seemed to focus on a problem that potentially related to education instead of centring the problem on the child with AD/HD-related behaviours, as suggested by his

statement: “This is not the child’s fault because this is his nature, but the problem might be located on teachers’ ways of teaching, which do not provide spaces for children to play and move around.”

Tariq’s attitudes were supported by Saleh who believes that the inclusive setting is more beneficial for students with AD/HD-related behaviours. He indicated that:

A student with AD/HD-related behaviours can be taught in a regular classroom because students in primary classes get more benefits from their classmates than they do from their teacher. A teacher, for example, can ask an excellent student to teach his classmate who has AD/HD-related behaviours.

Consistent with this, Majed advocated for the inclusion of students with AD/HD-related behaviours in regular classrooms, as he sees these students as having outstanding abilities. Majed expressed that:

A regular classroom is the best setting for students with AD/HD-related behaviours. If a student displays such behaviours, this means that he possesses potential abilities that benefit him and his society, even if he is a low achiever, so this student must not be ignored. We must know what he likes, and let him do it, and not try in any way to diminish his motivation to do it, regardless of his academic performance.

When asked to comment on why he thought such students might have outstanding abilities, he stated “I expect these children to be creative in a specific field ... and by training and improving the skills of these students, their creativity will become more and more obvious.” Majed had two students who, in addition to having AD/HD-related behaviours, were described as “creative” in “drawing” and “playing soccer”;

thus, he urges teachers, “to take advantage of AD/HD-related behaviours by helping students to put their high energies onto things they are creative in.”

Consistent with the previous positive perspectives, Faisal and Amal made several statements supporting the inclusion of students with AD/HD-related behaviours in regular classrooms. For instance, Faisal stated that, “the regular classroom is the most appropriate placement for students with AD/HD-related behaviours because these students will negatively be affected if they are sent to resource rooms.” In order to show her support for inclusion, Amal expressed a concern about sending students with AD/HD-related behaviours to a resource room, which she considered the only alternative to the regular classroom. She remarked that:

Some students when referred to a resource room cry and say they are not lazy, because by doing this [referring students to the resource room] we make them feel that they are inferior to others. Putting this student [with AD/HD-related behaviours] in a regular classroom is a way to show we care about the students’ feelings. This is the best way.

Further, Amal, who has the most teaching experience (30 years) among the interview participants, said that:

I always tell teachers that each student in a classroom has a problem, so you need to look after all students and teach them sincerely. Unfortunately, however, most teachers don’t do that. Some teachers just want to teach a lesson and leave, they don’t even repeat the lesson or consider individual differences among students.

Amal described these teachers as “irresponsible”. When asked to estimate the percentage of such teachers, she stated that, “their percentage nowadays is about 50%.”

Three of the interview participants had less positive attitudes. Although these teachers agreed with including students with AD/HD-related behaviours in general education schools, they believe that students with such behaviours should be educated by special education teachers in resource rooms. For instance, Sara stated:

I agree that such a student [with AD/HD-related behaviours] should receive education in a regular school, but this should happen in a special classroom because excluding this student from the regular school has a large psychological impact on her.

She went on to state that:

I don't support excluding these students. We should rather place them in regular classrooms but not for a long time. For example, these students should remain in resource rooms and can participate in regular classrooms for a class or two, especially classes like art and family education, which involve interaction with others. We should do this in order to make these students feel they are normal and because the act of excluding them is not good at all.

Some of the latter statements appear to be positive, but the general tenor of Sara's discussion is considered less positive because she concluded that most of the education of students with AD/HD-related behaviours should occur outside the regular classroom.

Similarly, Hend and Samar placed the responsibility for teaching students with AD/HD-related behaviours on special education teachers in resource rooms. Although Hend mentioned the benefit for students with AD/HD-related behaviours of being with friends in a regular classroom, she stated that "going to a resource room is a solution satisfying both the student and the teacher, and this enables me to focus on normal students." She went on to say that:

A disadvantage with the placement of this student [with AD/HD-related behaviours] in a regular classroom is that no sufficient attention is given to her because of the large class size. However, when she is sent to a resources room, all a special education teacher's attention is focused on this student.

Hend's attitude was similar to Samar's: "I agree that placement in a regular school is preferable for such a student [with AD/HD-related behaviours], but it should be in a resource room. This helps a special education teacher pay more attention to this student and teach the student individually."

These interview findings are consistent with the questionnaire results, which suggested that Saudi primary teachers appear to have a generally positive attitude towards the inclusion of students with AD/HD-related behaviours. Further, 63.9% of the teachers rated themselves as having positive attitudes, while 36.1% rated themselves as having negative attitudes.

To summarise, five of the eight interview participants were positive about including students with AD/HD-related behaviours in regular classrooms; 37.5% were less positive. The participants with positive attitudes reported several benefits of teaching students with AD/HD-related behaviours in an inclusive setting, such as having students teach each other and ensuring that students with AD/HD-related behaviours feel equal – rather than inferior – to other students. Participants with less positive attitudes, however, supported resource room settings for students with AD/HD-related behaviours, believing that they need more attention from special education teachers. Some of the participants who scored high on the TAIS did not show positive attitudes in the interview data, and one teacher who scored low on the TAIS had a positive attitude during the interview. This contradiction is possibly because the teachers had more opportunities in the individual settings to explain their thinking about including students with AD/HD-related behaviours.

### 5.2.2 Theme 2: Efficacy Beliefs

The interview data indicated a positive relationship between teachers' attitudes towards the inclusion of students with AD/HD-related behaviours in regular classrooms and their efficacy beliefs for teaching students with AD/HD-related behaviours. That is, teachers who showed positive attitudes towards the inclusion of students with AD/HD-related behaviours also felt more efficacious about teaching these students, whereas those with less positive attitudes felt less efficacious. While reading the interview transcripts, the self-efficacy theory was used as an analytical lens by keeping in mind the characteristics associated with teachers' high and low levels of efficacy beliefs. The theme of Efficacy Beliefs was divided into two subthemes: efficacy beliefs and attitudes towards inclusion and sources of efficacy beliefs. This is discussed below.

*Efficacy Beliefs and Attitudes towards Inclusion.* The five participants, who reported positive attitudes towards the inclusion of students with AD/HD-related behaviours in the interviews, Amal, Faisal, Saleh, Majed, and Tariq, evidenced a high level of efficacy beliefs for teaching students with AD/HD-related behaviours. All these teachers appeared confident in managing difficult behaviours in their classrooms. Amal, for instance, stated that, "Alhamdulillah [praise be to God], I feel I have the ability to deal with students' behavioural problems in classrooms". Faisal, similarly, indicated that, "with regard to behavioural problems, I truly solve them. As long as a problem occurred in the classroom, I am very confident that I can manage and solve this problem." Moreover, Saleh who rarely sends students to the school counsellor said that, "when I have students with behavioural problems in my classroom, I try to solve all problems myself."

Especially when facing challenges, people with high self-efficacy are more willing to work harder and persist longer (Bandura, 1982b). Consistent with this, Tariq essentially paraphrased his willingness to support students with AD/HD-related behaviours and his persistence in the face of difficulties with his statements:

After long experience, I believe that good students are not as in need of my assistance as are those with AD/HD-related behaviours. So, the focus on students with such problems is high. I mean, I said to myself that these behaviours have to be changed, so I try all methods to do so.

Tariq went on to say that:

Each student has his or her unique needs. How do we meet these needs? We don't know until we try many times. We must try again, again, again, and again until we find strategies that help us to meet students' needs.

Amal, also, showed her high level of self-efficacy with the statements, "As teachers, we should not send this student [with AD/HD-related behaviours] to the principal's office. We should try harder with this student."

Samar, Sara, and Hend, who showed less positive thoughts about the inclusion of students with AD/HD-related behaviours in regular classrooms demonstrated a low sense of self-efficacy, which strongly impacts the choices individuals make, the effort they exert, the degree of their perseverance in the face of challenges and the level of anxiety they feel (Pajares & Miller, 1995). For example, a grade one teacher, Samar, said that:

I have difficulty in managing students with AD/HD-related behaviours ... I feel frustrated, and this makes me cry sometimes ... you know, other teachers don't accept to attend a waiting class [waiting class refers to a class that is covered by a substitute teacher when a teacher is absent] with grade one

students; how about a teacher who spends the whole year with these students.

After a little more prompting for details, she remarked that, “If it is possible for a student to benefit from my support, I might try to help her but not when she has AD/HD-related behaviours.” Sara’s response indicates that she was also not convinced that she had the capacity to be successful, “We try, but we can’t do it [educate and manage students with AD/HD-related behaviours]. We don’t know what to do.” Another participant, Henda, can be indifferent towards students with AD/HD-related behaviours as reflected in her statements, “When I have 25 lessons a week, I am not in the mood for this student [with AD/HD-related behaviours] even if her behaviours are exhausting and annoying ... so I probably ignore her and say that’s her problem.” These negative remarks are indicative that Samar, Sara, and Henda’s efficacy levels for teaching students with AD/HD-related behaviours are low.

As noted by Soodak and Podell (1993), teachers with a low sense of self-efficacy are more likely to refer students with learning and behavioural difficulties to special education services. In the current study, a similar trend was found for participants with less positive attitudes towards inclusion. For example, Sara told a story about a student with AD/HD-related behaviours who had a low IQ:

The student reported a lower IQ compared to her classmates and repeats any grade two or three times ... she also has problems such as inattention, talking excessively, aggression, and learning difficulties ... [So, as a school staff,] we made a decision that this student cannot be educated in general public schools, and it is better for her to be sent to Alfekriah School [a special school for people with intellectual disabilities], where she would make more progress.

Samar sometimes sent a student with AD/HD-related behaviours, “to the resources room, despite not being allowed to do so unless the student repeated the grade”.

Similarly, Hend stated that, “I’m having a student with AD/HD-related behaviours in Grade One, and some days ago we received a circular letter about referring students who have attentional problems [to the resources room], so I have written this student’s name for referral”.

*Sources of Efficacy Beliefs.* According to Bandura’s (1997) Theory of Self-efficacy, there are several sources to influence people’s beliefs concerning their efficacy including *mastery experiences* and *vicarious experiences*. Mastery experience, the most influential source of self-efficacy refers to successful performances in the past. People who have experienced success are more likely to persist longer in their efforts to accomplish similar new tasks (Tschannen-Moran et al., 1998). The second most powerful way of increasing efficacy beliefs is through vicarious experience, which involves observation of the successes and failures of others. Observing similar individuals presenting a successful behaviour allows the observers to believe that they too can accomplish success through persistence and effort (Bandura, 1995). During the interviews, the participants were asked several questions designed to examine their sources of efficacy beliefs.

All five participants, who appeared more efficacious about teaching students with AD/HD-related behaviours than their colleagues reported having experienced success in teaching these students in the past. For instance, Amal made the following statement:

I had a student in grade one who was moving a lot and underachieving in school ... I put this student in the front row, and she became an excellent student. I was always asking her questions, asking her to recite, etc., until

she became excellent. Thus, changing students' positions is an important and useful strategy.

Similarly, Majed had experienced success with students with AD/HD-related behaviours. He indicated that:

I provided my student [with AD/HD-related behaviours] with a special notebook, in which I wrote extra exercises for him. Once he completed the exercises in the book, I asked him to do extra exercises in the special notebook. These extra exercises were more challenging and related to our lesson. This strategy was very good for the student, because I perceived that the student was enthusiastic to learn and explore things.

Majed's strategy of keeping the student busy by doing extra exercises was "effective", because it prevented the student from "disturbing and distracting other students".

Tariq, who is a science teacher, has also experienced success in the past using a strategy that was useful for all students, particularly those who exhibited AD/HD-related behaviours. He stated that:

Some of the students' education should be practical and occur outside the classroom. Such an outside locations could be the lab, the street in front of the school, the school yard or wherever we want to go. By using this strategy [engaging students outside the classroom], all students acquire knowledge easily, including those who have problems. This strategy is especially useful for a student who exhibits AD/HD-related behaviours. I am saying this from personal knowledge and experience. It may be hard to manage students' behaviour in the classroom setting, but when you take them outside of it, you give them a chance to use their energy to do something positive and useful instead of doing something negative or annoying their classmates.

It seems that the past success Tariq experienced in the practice of taking students outside the classroom is an important factor influencing his efficacy beliefs for teaching students with AD/HD-related behaviours.

The experience of witnessing others' success (i.e., vicarious experience) was also reported by participants who showed a high level of efficacy beliefs. Participants were asked whether they had seen other teachers achieving success in dealing with students with AD/HD-related behaviours. For example, in response to this question, Tariq expressed that, "Yes, there are some teachers like that", and "in fact, I sometimes get help from these teachers to deal with some problems, especially behavioural problems". Amal also saw a number of teachers who were, "successful in teaching students with behavioural problems". Amal commented that, "the teachers were allocating a particular time out of the lesson to teach this student [with AD/HD-related behaviours] individually, when other students were busy doing something else ... and by using this method, students' performances improved greatly". Amal was "impressed" and "influenced" by these teachers. Amal stated that she was "the sort of person who imitates what other teachers do in their use of a particular strategy that was found to be effective in dealing with students". Amal went on to say that, "Human beings learn throughout all his or her life, and people 'seek knowledge from cradle to grave' [indicated originally by Prophet Mohammed (PBUH)]."

Majed also seemed to observe the successes and failures of other teachers. Majed described a teacher who was successful in working with students with AD/HD-related behaviours, as follows:

The teacher put a TV and a PlayStation at the corner of the classroom and placed a wood block between this corner and the other students. So, the

teacher tried to keep students with behavioural problems busy playing games. The teacher also had a computer connected to the Internet in the classroom; therefore, the students could access the Internet to study math, for example, online.

Majed characterized this teacher's strategies as, "really excellent in dealing with students with behavioural problems". Majed, however, "saw other teachers trying to keep students sitting still and not moving at all", and this method, as he said, "had a negative effect on students emotionally".

Samar, Sara, and Hend, who displayed a lower level of self-efficacy, seemed to lack prior success in working with students with AD/HD-related behaviours in regular classrooms. For example, Samar, who has a student who exhibits such behaviours, expressed the following: "I sometimes try to motivate the student by saying to her, if you sit in your seat, I will give you something, but she never sits still". It seems that Samar's difficulty or failure when it comes to gaining small successes in dealing with a student with AD/HD-related behaviours makes her feel "frustrated". As a result, she experiences "difficulty in managing students with AD/HD-related behaviours". Sara also illustrated her lack of prior success in teaching such students in the following statement: "We try, but we can't do it [educate and manage students with AD/HD-related behaviours]. We don't know what to do". Consistent with this, Hend commented that "I had a student [with AD/HD-related behaviours], and she raised my blood pressure [made me angry]. One day I actually beat her, because I had already tried all other methods with her."

Less efficacious participants also appeared to have had few vicarious experiences where they had been able to observe the success of others. As an answer to the question, "Have you seen others similar to yourself being successful in dealing with students with AD/HD-related behaviours?" Sara stated that: "I have never come

across general education teachers who were successful [in working with such students], but the special education teacher probably was somewhat successful.” Consistent with this view, Samar indicated that “it may be that the special education teacher was successful because her way of motivating students was excellent ... but I haven’t seen a general education teacher who was successful in this regard.”

As these participants with a low level of efficacy beliefs demonstrated, they did not seem to have taken advantage of witnessing others’ success. This might be because the successes they witnessed were demonstrated by special education teachers, who are perceived to be different from general education teachers. This supposition is supported by the statement made by Sara, that “a special education teacher is more specialised and is better able to deal with this group of students [with AD/HD-related behaviours] than a general education teacher”. Because of this, the less efficacious participants might think that they are not as capable as special education teachers and may therefore feel less willing to work hard and persist longer in striving to attain success in their teaching of students with AD/HD-related behaviours.

The questionnaire finding was supported by this interview result that teachers with high perceptions of self-efficacy for teaching students with AD/HD-related behaviours seemed to show positive attitudes when it comes to including these students in regular classrooms. In the questionnaire analysis, “efficacy beliefs” was found to be the best predictor of teachers’ attitude towards the inclusion of students with AD/HD-related behaviours.

In summary, findings from the interviews indicated that teachers’ efficacy beliefs for teaching students with AD/HD-related behaviours have a positive relationship with their attitudes towards the inclusion of students with AD/HD-

related behaviours in regular classrooms. More efficacious participants appeared to be more confident about managing students with AD/HD-related behaviours and more persistent in the face of a challenge. In contrast, teachers with low efficacy beliefs showed less confidence and commitment to teaching students with AD/HD-related behaviours. Similarly, the findings from the interviews indicated that mastery experiences as well as vicarious experiences were an important influence on participants' beliefs about their efficacy for teaching students with AD/HD-related behaviours. Finally, it is important to mention that the five participants who had scored high on the TEBS also showed a high level of efficacy beliefs for teaching students with AD/HD-related behaviours in the interviews. However, the negative remarks reported by Samar, Sara, and Hend during the interviews about their efficacy beliefs were not consistent with their TEBS scores. This contradiction is possibly because the teachers had more opportunities in the individual settings to explain their beliefs about their capabilities to teach and support students with AD/HD-related behaviours.

### **5.2.3 Theme 3: Training**

The interview results revealed that all interview participants perceived an absence of teacher training opportunities that would enable them to teach students with AD/HD-related behaviours effectively in the inclusive setting. They also expressed their need to be involved in formal training programs that would increase their level of knowledge about inclusive education, the nature of the behaviours characteristic of AD/HD and appropriate instructional strategies to address such students' behaviours. Participants' views about the issue of training, with examples, are discussed below.

All participants expressed their lack of formal training concerning students with AD/HD-related behaviours at both the pre-service and in-service levels. With regards to pre-service training, Faisal commented that, “When I was studying at university, I did not receive training or sufficient information that would help me to teach such a student [with AD/HD-related behaviours]”. Saleh supported this with the statement, “At university, we had scientific subjects that became useless once we entered the field of teaching.” In addition, all participants indicated that there is a lack of in-service teacher training. Sara, for example, remarked that:

I was not given any training about this [teaching students with AD/HD-related behaviours in the inclusive classroom]. I wish to have training that helps me deal with this group of students. The Ministry of Education has never provided training for general education teachers, but special education teachers may have received some training, I’m not sure.

Tariq, who appeared to have positive attitudes and high confidence about teaching students with AD/HD-related behaviours, attributed the proper information he has to his “personal efforts, as [he] always read[s] specialised books and watch[es] useful programs on YouTube about these students [with AD/HD-related behaviours], but [he] was not offered any training at all.”

A critical need for professional training about teaching and supporting students with AD/HD-related behaviours was realised by all interview participants. This need is evident in Sara’s statement, “Teachers are in great need for training. How it is possible to deal with this group of students [with AD/HD-related behaviours] without having training or knowledge? Some teachers try to be knowledgeable about these students, but others don’t have to.” Because of this, Sara went further to call for, “compulsory training for teachers, especially primary school teachers.” Moreover, Samar suggested that, “specialists should be sent to schools to

run some workshops [about teaching students with AD/HD-related behaviours in the inclusive classroom] for teachers, who are supposed to have such training.” Another participant, Saleh, stressed the importance of, “providing pre-service teachers with courses regarding these students [with AD/HD-related behaviours] and various teaching strategies and technologies during their time at university.”

Tariq, who holds a Master's degree in Education and has been teaching for 18 years, provided rich and detailed responses during his interview dialogue. He discussed the need for professional training for teachers and how its absence led to unawareness among teachers about students with AD/HD-related behaviours:

Many teachers know nothing about these behaviours [that are usually associated with AD/HD]. Many of them, for example, believe that a student with learning disabilities also has autism. Unfortunately, wallah [by God/in fact] I don't remember we had an offer from the Ministry of Education to attend a training session regarding AD/HD or learning disabilities. So, how we can ask a teacher to deal with these behaviours if there is basically no tendency to increase the level of teachers' knowledge about such behaviours. A teacher must be knowledgeable about the nature of these behaviours and their causes and able to distinguish between different behaviours. When a teacher can distinguish between these behaviours, they will have experience on how to deal with and address these behaviours properly. However, when teachers have no knowledge about these behavioural problems, they will make the student with such problems stand in the corner and ask him to come to school with a parent the next day, because these teachers think this student is “naughty”, “stupid”, “slow brain”, and “impolite”.

From the above discussion, it is clear that the participants believed pre-service and in-service teacher training are required to give teachers the knowledge they need to

deliver appropriate learning opportunities for students with AD/HD-related behaviours in the inclusive classroom.

Teachers' lack of knowledge about the nature of AD/HD-related behaviours and appropriate instructional strategies to address students' difficulties can lead to negative attitudes towards students with such behaviours and their inclusion in regular classrooms. As a final remark, Tariq made a valuable suggestion that offered a solution to this lack of knowledge. He indicated that:

If a teacher is encouraged to study a course for a year or two regarding learning disabilities or AD/HD, he or she will be a specialist in addressing students' difficulties in addition to teaching his general education subject such as math or language.

In the Phase One analysis, teacher training about students with AD/HD-related behaviours was found to contribute significantly to teachers' attitude towards the inclusion of students with AD/HD-related behaviours. This finding was validated by the interview data which indicated a need for teachers to receive appropriate training.

To sum up, the interview participants indicated that training opportunities for teachers remain limited. They stated that teachers should be provided with sufficient knowledge about inclusive education, the needs and abilities of students with AD/HD-related behaviours, and appropriate instructional accommodation for such students.

#### **5.2.4 Theme 4: Class Size**

Responses from the interview participants made it clear that large class sizes are an obstacle to effectively teaching students with AD/HD-related behaviours in inclusive classrooms. The negative effect of a large class size was noted in terms of

preventing teachers from using certain effective teaching strategies for students with AD/HD-related behaviours, such as individual instruction and teaching in groups. The theme of class size will be discussed below with some direct quotes from the interviewees' responses.

Some participants seemed to realise the need of students with AD/HD-related behaviours for individual instruction, however, they felt unable to apply this approach when their class was large. Hend, for instance, stated that, "when I have 45 students, I will not be able to pay attention to this student [with AD/HD-related behaviours]. Large class size is a barrier preventing me from being close to her." Tariq also commented about the issue of class size when he talked about other teachers who sometimes say that, "I have 35 or 37 students, so I can't waste my time to focus on a student or two who have behavioural problems." Another participant, Sara, identified large class size as a barrier to using individual instruction techniques with students with AD/HD-related behaviours.

Large class size has surely a negative impact on my teaching of this student [with AD/HD-related behaviours], because it doesn't give me a chance to focus more on her. If the number of students in my classroom is instead small, I will be able to allocate about 10 minutes out of my lesson to teach this student individually.

Other teachers claimed that a large class size was hindering them from utilising the useful method of placing and teaching students in groups. Saleh, for instance, has found group work effective for all students including those with AD/HD-related behaviours, however, he decided to stop using this method when his classes became too large. Saleh commented that:

In the current semester, I have been teaching students in groups, but from the next semester I will change my strategy because I will be having 42 students in my classroom, so there will be no way to put students in groups. You know, we have been doing very well with that strategy, because it helps a teacher to create competition among students. I have been placing students in small groups and giving awards to the winning groups by the end of each week. It has been useful even for a student with behavioural problems because other students in his group have been trying to prevent him from displaying behavioural problems so to not lose marks at group competitions. Samar also viewed “large class size as the biggest barrier to effective teaching”, because she felt “unable to teach a large number of students”. She appeared willing to change her traditional teaching methods and involve students in small groups, but only when a relatively small number of students were included in her classroom. She stated that:

If they [education decision makers] want teachings to happen the right way, they need to reduce the class size. Imagine if I had 20 students, including a student with AD/HD-related behaviours, I would probably place them in groups, bring some toys for them and sit with them at the same table, and that would help me to use modern teaching techniques, such as teaching through play and teaching through role-playing, which attract students' attention.

The questionnaire findings indicated that a large class size made a significant negative contribution to teachers' attitude towards the inclusion of students with AD/HD-related behaviours. This result was supported by findings from the interviews, which drew attention to the importance of class size in affecting the practice of inclusive education for students with AD/HD-related behaviours.

To summarise, interview participants stressed the negative impact of large class size on their teaching of students with AD/HD-related behaviours. Teaching strategies such as individual instruction, teaching in groups, teaching through play and teaching through role-playing were considered effective for all students including those with AD/HD-related behaviours, but their use in practice was hindered by the problem of large classes.

### **5.2.5 Summary of the Phase Two Results**

This chapter has presented the characteristics of the interview participants and results of analyses of data from the Phase Two. In this phase, the data were collected by semi-structured interviews with eight teachers employed in mainstream primary schools of the Madinah administrative area of Saudi Arabia during the 2011–2012 school year. The analysis of these data aimed to clarify and expand upon key findings of the questionnaire in relation to teachers' attitudes towards the inclusion of students with AD/HD-related behaviours; in particular, the three significant predictors of teachers' attitudes towards inclusion, efficacy beliefs, training, and class size.

The analyses of data yielded four themes: attitudes towards inclusion, efficacy beliefs, training, and class size. In the first theme, it was revealed that five out of eight participants expressed positive attitudes about including students with AD/HD-related behaviours in regular classrooms, identifying benefits of the regular classroom setting for both teachers and students. In contrast, three of the participants had less positive attitudes and supported resource room settings for students with AD/HD-related behaviours, believing they need more attention from special education teachers.

Two subthemes were discussed under the theme of efficacy beliefs. The first subtheme suggests a relationship between teachers' attitudes towards inclusion and their efficacy beliefs for teaching students with AD/HD-related behaviours. The second subtheme indicates that mastery experiences and vicarious experiences were important factors influencing participants' beliefs concerning their efficacy for teaching students with AD/HD-related behaviours.

The third emergent theme was training. Within this theme, all participants expressed their lack of formal training concerning students with AD/HD-related behaviours at both the pre-service and in-service levels and stressed their need for sufficient knowledge about inclusive education, the needs and abilities of students with AD/HD-related behaviours, and appropriate instructional accommodation for these students.

The final, fourth theme was class size. Throughout conversations about this theme, participants indicated that they felt unable to use beneficial teaching strategies, such as individual instruction, teaching in groups, teaching through play and teaching through role-playing, when their classes were too large.



## Chapter 6: Discussion and Conclusion

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The present study was designed to examine teachers' knowledge of AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. In addition, the study investigated the relationships among teachers' attitude towards inclusion, knowledge of AD/HD, efficacy beliefs for teaching students with behavioural problems, and a number of background factors including teacher age, class size, training about students with AD/HD-related behaviours, prior experience with a child diagnosed with AD/HD, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD.

The objectives of the study were addressed using an explanatory sequential mixed methods design encompassing two phases. Phase One involved surveying 202 mainstream primary teachers, while Phase Two involved semi-structured interviews with eight mainstream teachers. The results of the two phases were presented in the previous two chapters. Chapter Four presented results from questionnaire data while Chapter Five presented results from interview data.

This chapter discusses key issues that emerged from an examination of the findings in relation to the four research questions guiding the study. In this chapter, findings from both phases of the study are discussed in relation to previous empirical studies as well as relevant explanatory theories. This chapter also includes a consideration of the strengths and limitations of the study, implications for practice and future research as well as a conclusion.

## **6.1 KEY ISSUES**

In the following sub-sections, key issues that emerged from an examination of the findings from both phases of the study are discussed in relation to previous empirical research and explanatory theories. The first four key issues, (1) attitudes, (2) efficacy beliefs, (3) training, and (4) class size, are related to the first and fourth research questions and emerged from questionnaire and interview data. The remaining key issues, (5) knowledge of AD/HD, (6) knowledge and efficacy beliefs, and (7) non-significant predictors, are related to the second, third, and fourth research questions and emerged from the questionnaire data.

### **6.1.1 Key Issue 1: Attitudes**

In this study, the results from the questionnaire indicated that mainstream Saudi primary teachers have generally positive attitudes towards the inclusion of students with AD/HD-related behaviours. The majority (63.9%) of the teachers rated themselves as having a positive attitude while 36.1% rated themselves as having a negative attitude. These results were supported by the interview data, which suggested that most of the interview participants had positive attitudes about including students with AD/HD-related behaviours in their regular classrooms.

The finding that mainstream primary teachers in Saudi Arabia have generally positive attitudes towards inclusion conflicts with the findings of several recent studies, which have indicated that teachers have negative attitudes towards including students with AD/HD-related behaviours in mainstream classes (Brook et al., 2000; Ghanizadeh et al., 2006; Nur & Kavakci, 2010; Yoo et al., 2009; Yuen & Westwood, 2001). Brook and colleagues (2000) examined the attitudes of high school teachers towards the inclusion of students with AD/HD ( $n = 46$ ) and reported that 50% of respondents favoured mainstream education for these students. Similarly, Yuen and

Westwood (2001) examined the attitudes of 345 secondary school teachers in Hong Kong towards integration and found that the majority of the teachers had negative attitudes concerning the feasibility of integrating students with behavioural problems.

In Iran, Ghanizadeh et al. (2006) also examined teachers' attitudes towards children with AD/HD and found that 152 out of the 196 teachers (77.5%) believed that students with AD/HD should be placed in special education settings and that such a setting would be more favourable than a regular classroom.

The most negative attitudes towards including students with AD/HD in regular classrooms were yielded in a study conducted by Yoo et al. (2009) with 164 preschool teachers in South Korea. Their findings indicated that 97.6% of teachers thought children with AD/HD should be taught in special rather than regular education classrooms. Similarly, Nur and Kavakci (2010), who explored the attitudes towards inclusion of 87 elementary school teachers in Turkey, found that most respondents (93.1%) preferred special rather than general education placements for students with AD/HD.

Discrepancies between the results of this study and the findings of previous research may be attributable to three factors. First, discrepancies in findings may be a result of differences in the populations being studied. It has been suggested that teachers' attitudes towards students with AD/HD-related behaviours are influenced by the norms and values of the culture in which they live (Kakouros et al., 2004); thus, what is considered normal behaviour in one culture may be considered abnormal in another (Amaral, 2007; Pineda et al., 1999; Timimi, 2004). This perspective was supported by the findings from the present study. For example, the findings indicated a belief that students with AD/HD-related behaviours are often creative, and that their creativity should be encouraged and their behaviours

accommodated in order to enhance their learning. This belief differs from the findings of the research discussed above and may reflect a cultural value; that is, children's challenging behaviours are not necessarily seen as negative, but rather as signs of intelligence. This value is shared by some people in Saudi Arabia because it was rooted in a tradition of the Prophet Muhammad (peace be upon him) where he stated: "The naughtiness of a boy in his childhood is a sign of an excess of his intellect as an adult" (Alalbany, 1988, p. 541). Given this, a social perspective on AD/HD should be considered in Saudi Arabia when assessing a child who is experiencing difficulties with attention and behaviour, instead of unconditionally and uncritically accepting the concept of AD/HD as a medical problem.

Second, discrepant findings may result from methodological differences. Across all of the studies described above, teacher attitudes toward the inclusion of students with AD/HD in regular classrooms were assessed with only one item (or question). In contrast, the current study used a multiple-item measure of attitudes as recommended in the Theory of Planned Behaviour (Ajzen, 2005). As noted by Ajzen (2005) and DeVellis (2012), a single-item measure of attitude may produce unreliable data.

Finally, the discrepancy between the findings of the present study and the previous studies already described may be attributable to differences in use of the term, AD/HD, as well as specificity in describing behavioural functioning. To explain, all the previous studies mentioned above employed the term AD/HD without providing additional information about the 'student' referred to in the questionnaire. In contrast, the questionnaire in this study did not make use of the label AD/HD. Instead, descriptions of students (2 cases) presenting with characteristic AD/HD-related behaviours (either primarily inattentive or primarily hyperactive/impulsive)

were utilised. This researcher considered that use of the term AD/HD in the questionnaire, beyond an actual description of the child's behavioural characteristics, could lead to biased results because respondents might well have established opinions and assumptions about individuals with AD/HD. The possibility of such bias was examined by Tripp and Rizzo (2006), who noted that teachers' beliefs and attitudes were less positive towards teaching a pupil with a disability label than a pupil with identical characteristics but no label.

According to the Theory of Planned Behaviour (Ajzen & Fishbien, 1980), an attitude with respect to a given behaviour is formed by learning about the behaviour through direct or indirect experience and evaluating the experience (Fishbein & Ajzen, 2010). Once formed, an attitude is expected to predict and explain human behaviour. Positive attitudes are assumed to result in approach tendencies, while negative attitudes bring about the development of avoidance tendencies (Ajzen & Fishbein, 2000; Ajzen & Sexton, 1999). In an inclusive classroom, for example, a teacher's tendency to engage in approach or avoidance behaviours can be interpreted as inclusionary and exclusionary behaviours, respectively. This implies that, after having experiences with students with AD/HD-related behaviours, teachers are likely to associate these experiences with negative or positive attributes and then form an attitude with respect to including such students in regular classrooms. Teachers with a positive attitude towards the inclusion of students with AD/HD-related behaviours are more likely to display inclusionary behaviour towards these students, while those with a negative attitude are likely to display exclusionary behaviour.

Generally, the more positive the attitude towards a certain type of behaviour, the greater an individual's intention to carry out the behaviour in question (Ajzen, 1991). Research into inclusive education has also demonstrated that teachers'

attitudes towards inclusion are an important factor which correlates with the successful implementation of including students with special needs into regular classrooms (Avramidis & Norwich, 2002; Elhoweris & Alsheikh, 2006; Soodak et al., 1998). Based on these findings, it can be expected that the positive attitude the teachers had towards inclusion is more likely lead to positive behaviours towards students with AD/HD-related behaviours in regular classrooms. This is not to say, however, that attitudes determine human behaviour in an entirely predictable manner. In any situation, behaviour will be based on a variety of psychological and situational factors (Fishbein & Ajzen, 2010; Thomas, 1984).

In the present study, the use of mixed-methods – qualitative interviews to explore results from the quantitative questionnaire – was helpful because it facilitated an examination of the beliefs underlying the teachers' attitudes.

Participants with positive attitudes reported several benefits of teaching students with AD/HD-related behaviours in an inclusive setting, such as having students teach each other and ensuring that students with AD/HD-related behaviours feel equal – rather than inferior – to other students. Participants with less positive attitudes, however, supported resource room settings for students with AD/HD-related behaviours, believing that they needed more attention from special education teachers.

The Theory of Planned Behaviour (Ajzen & Fishbein, 1980) is useful in explaining the influence of teachers' beliefs on their attitudes towards inclusion. The theory posits that people's attitudes towards an object are directly based on their beliefs about the object (Ajzen & Fishbein, 2000; Fishbein & Ajzen, 2010). Specifically, people's beliefs about an object are formed by linking the object with certain attributes, qualities, and characteristics, which will result in the development

of an overall attitude towards the object (Fishbein & Ajzen, 2010). A teacher's attitude towards the inclusion of students with AD/HD-related behaviours, for instance, is a function of beliefs about teaching these students in regular classrooms. If those beliefs primarily link the inclusion with favourable characteristics, the teacher's attitude will more likely be positive; the opposite is true of beliefs that link inclusion with unfavourable characteristics.

### **6.1.2 Key Issue 2: Efficacy Beliefs**

The analysis of questionnaire data indicated that "efficacy beliefs" were the best predictor of teachers' attitude towards the inclusion of students with AD/HD-related behaviours. This result was supported by findings from the interviews, which indicated a positive relationship between teachers' attitudes towards the inclusion of students with AD/HD-related behaviours in regular classrooms and their efficacy beliefs for teaching such students. That is, teachers who showed positive attitudes towards the inclusion of students with AD/HD-related behaviours also felt more efficacious about teaching these students, whereas those with less positive attitudes felt less efficacious. For example, findings from the interview data indicated a belief that students with AD/HD-related behaviours should not be excluded from regular classrooms and that teachers need to work harder to meet these students' needs.

Similar findings have been reported in previous research (Meijer & Foster, 1988; Soodak & Podell, 1993; Soodak et al., 1998; Weisel & Dror, 2006). Meijer and Foster's (1988) study surveyed 230 Dutch primary school teachers to explore the relationships between teacher characteristics and their likelihood of referring students to special education. The findings suggested that teacher self-efficacy was a significant predictor of special education referral. In addition, Soodak and Podell (1993) examined the influence of teacher self-efficacy on teachers' placement and

referral decisions ( $N = 192$ ) and reported that regular and special educators were more likely to support regular classroom placement if they held high efficacy beliefs.

In a study investigating teachers' responses to including students with special needs in regular classrooms, Soodak and colleagues (1998) surveyed 188 general teachers and found that teachers who had low teaching efficacy were found to be less receptive to inclusion. In a later study, Weisel and Dror (2006) examined the effects of 139 primary teachers' self-efficacy on their attitudes towards inclusion. The authors found that teachers who were more efficacious had more favourable attitudes towards inclusion. Self-efficacy was found to be the most significant variable influencing these attitudes.

The relationship between attitudes and efficacy beliefs can be explained by Bandura's (1977) self-efficacy theory. This theory posits that perceptions of efficacy influence individuals' thought patterns, emotional reactions, and the choices they make (Bandura, 1982b). People with high levels of efficacy tend to approach difficult tasks with feelings of serenity. Conversely, people with low levels of efficacy tend to think that situations are tougher than they really are (Pajares, 1996) and thus may choose to avoid such challenging situations (Bandura, 1994). This implies that teachers who judge themselves as efficacious in dealing with and teaching students with AD/HD-related behaviours are more likely to be positive about the inclusion of these students in regular classrooms and that teachers who doubt their capabilities tend to believe that such interactions are difficult and demanding and thus may be less willing to accept such students in their classrooms.

According to Bandura (1994), individuals with high self-efficacy approach demanding tasks as challenges to be overcome rather than as threats to be avoided. This suggests that teachers with high self-efficacy tend to see AD/HD-related

behaviours as challenges to be addressed in inclusive settings. Conversely, teachers who have low self-efficacy tend to view AD/HD-related behaviours as threats to be avoided rather than confronted.

In the current study, qualitative interviews were also used to investigate the sources of teachers' self-efficacy beliefs. The interview findings indicated that all participants with high self-efficacy for teaching students with AD/HD-related behaviours have experienced past successes in teaching such students and have observed the successes of other teachers. Less efficacious participants, by contrast, reported a lack of prior success in teaching students with AD/HD-related behaviours and no experience of witnessing successes by other mainstream teachers.

The interview findings can be explained by the Theory of Self-efficacy, which postulates that there are several sources that influence self-efficacy (Bandura, 1977). Of these, mastery experiences and vicarious experiences are two major influences on the development of self-efficacy. Mastery experience refers to past personal successes in completing tasks. These successes build robust self-efficacy, which enables people to persevere in the face of obstacles. Vicarious experience refers to experiences of witnessing others' successes. When individuals observe similar people successfully completing tasks through sustained effort, they come to believe that they too possess the ability to succeed in completing comparable tasks (Bandura, 1994).

### **6.1.3 Key Issue 3: Training**

The questionnaire findings indicated that training regarding students with AD/HD-related behaviours made a significant contribution to teachers' attitude towards the inclusion of students with AD/HD-related behaviours. Specifically, the variable of training about students with AD/HD-related behaviours was found in the

questionnaire analyses to be the second best predictor, after efficacy beliefs, of teachers' attitude towards the inclusion of students with AD/HD-related behaviours. This finding is not surprising given that a growing body of research has consistently stressed the importance of training and its influences on teachers' attitudes towards inclusion (Avramidis et al., 2000; Avramidis & Kalyva, 2007; Kurniawati et al., 2012; Leyser et al., 1994; Van Reusen et al., 2000).

To illustrate, in a cross-cultural study of teachers' attitudes towards mainstreaming among 3,639 general education teachers, Leyser et al. (1994) found that knowledge about disabilities and mainstreaming was associated with more positive attitudes amongst teachers towards mainstreaming. Similarly, in a study of 81 primary and secondary teachers in England, Avramidis et al. (2000) found that teachers with substantial training in special education held significantly more positive attitudes towards inclusion than their counterparts with few or no training.

In another study examining the attitudes of 125 high school teachers towards the inclusion of students with disabilities in regular classrooms, Van Reusen et al. (2000) reported that teachers with more positive attitudes towards inclusion reported the highest level of training in special education. Similarly, Avramidis, and Kalyva's (2007) study, which involved 155 general education primary teachers in Greece, found that teachers with training in special educational needs and issues surrounding inclusion had significantly more positive attitudes towards the inclusion of students with special needs in regular classrooms than those with little or no training. More recently, it was also reported that teachers with special education training were more favourable concerning the inclusion of students with special needs in the regular setting compared to those without such training (Kurniawati et al., 2012).

The Theory of Planned Behaviour can explain the effect of training regarding students with AD/HD-related behaviours on teachers' attitudes towards the inclusion of such students. The theory suggests that salient beliefs reflect the information individuals have been exposed to in relation to a given behaviour (e.g., including students with AD/HD-related behaviours) and these beliefs provide the informational foundation for attitudes. When people are exposed to new information and this new information is accepted, their current beliefs will change or new beliefs will be acquired. This in turn will produce changes in their attitudes towards the behaviour of interest (Fishbein & Ajzen, 2010). The process described implies that after receiving information about students with AD/HD-related behaviours and/or inclusive education through training, teachers are more likely to form beliefs and attitudes that favour the inclusion of such students in regular classrooms. Nevertheless, as Fishbein and Ajzen (2010) suggested, the changes in people's attitudes will be consistent with the nature of the new information; thus, the content and objectives of teacher training regarding students with special needs and inclusive education would appear to be important factors affecting teachers' beliefs and attitudes concerning inclusion. The effects of specific content and objectives of teacher training deserve further examination in future research.

Another explanation of the relationship between teacher training and attitudes was offered by Jordan et al. (2009), who indicated that teachers' fear that they might lack specialised knowledge and skills to teach pupils with special needs in an inclusive classroom might be a cause of resistance to inclusion. Buell et al. (1999) suggested that increasing teachers' knowledge about inclusion is likely to enhance their confidence in working with students with special needs in a regular education classroom. Take together, the findings from the present study and previous research

suggest that the more training teachers receive regarding students with AD/HD-related behaviours and their teaching in inclusive settings, the more comfortable teachers will feel about interacting with and including such students in their regular classrooms.

Because of the importance of training and its effects on attitudes towards inclusion, this variable was further explored in the interview phase of this study. In the interviews, all participants stressed the absence of teacher training opportunities that would enable them to effectively teach students with AD/HD-related behaviours in an inclusive setting. The participants also expressed their need to be involved in formal training programs which would increase their level of knowledge about inclusive education, the nature of the behaviours that usually associated with AD/HD, and the appropriate instructional strategies to address such behaviours.

These findings are not surprising because previous research in many countries has illustrated that teachers often request additional training due to their lack of preparedness in teaching students with special educational needs in inclusive settings (Buell et al., 1999; Florian, 2009, 2011; Jenkins & Ornelles, 2009; Kershner, 2007; Pijl, 2010; Zarghami & Schnellert, 2004). Indeed, teachers' call for more training in inclusive education is justified because successful inclusion of students in regular classrooms depends on effective instruction and teachers' competency when it comes to adapting and modifying curricula and instructional strategies to ensure that the needs of all students are met (Stanovich & Jordan, 2002). Further, Carrington et al. (2012), who described the crucial importance of teacher preparation noted that, "teacher preparedness encompasses not only preparation in relation to professional learning, but preparedness in relation to an openness and willingness on the part of

teachers to take their place in inclusive education systems and work towards its goals” (pp. 10-11).

The results of the present study might reflect a general lack of preparedness of Saudi mainstream teachers to teach students with AD/HD-related behaviours in an inclusive setting. This raises questions about the roles of universities and the Ministry of Education in Saudi Arabia in providing teachers with adequate training to prepare them to meet the needs of the diverse students in present day classrooms. There should be opportunities for all teachers to engage with specialised training that equips them with the knowledge and skills needed in an inclusive setting. Such training may be important even for teachers who hold positive attitudes towards inclusion because they can also be challenged by the demanding needs and behaviours frequently demonstrated by students with AD/HD-related behaviours in classrooms. As specifically described in a frequently cited study (Buell et al., 1999), general education teachers want to develop their knowledge and skills regarding: program modification, assessment, adjustment of the curriculum, behavioural management, development of IEPs, and utilising supportive technology.

#### **6.1.4 Key Issue 4: Class Size**

In the Phase One analysis, class size was found to significantly contribute to teachers’ attitudes towards the inclusion of students with AD/HD-related behaviours in regular classrooms. More specifically, class size was negatively related to attitudes towards inclusion; that is, the larger the class size, the less positive the teachers’ attitudes towards inclusion. This result is consistent with previous studies, in which class size was reported to influence teachers’ perceptions of including students with additional needs in their classes (Alquraini, 2012; Davies & Green, 1998; Lynch et al., 2012; Smith & Smith, 2000; Vaughn et al., 1994).

Vaughn et al. (1994) interviewed 25 general education teachers in the United States and reported that most of them had a strong reluctance towards inclusion. This reluctance arose from concerns regarding the number of students per class, inadequate resources, the degree to which inclusion would benefit all students, and lack of teacher preparedness. In a study conducted in South Africa, Davies and Green (1998) utilised a mixed-methods approach and found that teachers with the least accepting attitudes towards mainstreaming of children with low to medium levels of special educational needs had specific concerns regarding the number of students in each class, lack of proficiency, and the increasing demands confronting teachers.

In a recent study in Saudi Arabia, Alquraini (2012) surveyed 303 general primary teachers about their perspectives regarding the inclusion of students with severe intellectual disabilities. Findings of the study suggested that class size was significantly correlated with teachers' perspectives concerning the inclusion of students with severe disabilities in Saudi Arabia. Similarly, Lynch et al. (2012) investigated the attitudes of 642 primary and secondary teachers in the Caribbean islands regarding the inclusion of students with disabilities. Their results suggested that teachers who taught fewer students in a class had more positive attitudes towards the inclusion of students with disabilities.

The effect of class size on teachers' attitude towards the inclusion of students with AD/HD-related behaviours can be explained by the difficulty of meeting the needs of such students in overcrowded classrooms. According to the Theory of Planned Behaviour, people's attitudes are expected to correlate with their perceived behavioural control (Fishbein & Ajzen, 2010), which is the perception of the ease or difficulty of performing a given behaviour (e.g., including students with AD/HD-related behaviours) (Ajzen, 1991). People are unlikely to have positive attitudes

towards performing behaviours they know are not under their control (Fishbein & Ajzen, 2010). Obviously, the more students there are in a class, the more demands and pressure will be placed upon a general education teacher. Consequently, the teacher might believe that it is difficult to accommodate a student with AD/HD-related behaviours in an overcrowded classroom, and he or she might therefore form a negative attitude towards including and teaching such students.

In the present study, findings from the questionnaire data were corroborated by findings from the interview data, which drew attention to the importance of class size in affecting the practice of inclusive education for students with AD/HD-related behaviours. In the interviews, participants indicated that a large class size was an obstacle to effectively teaching students with AD/HD-related behaviours in inclusive classrooms. The negative effect of large class size was noted in terms of preventing teachers from using certain effective teaching strategies for students with AD/HD-related behaviours, such as individual instruction and teaching in groups.

These results are hardly surprising, as there is a growing body of international research indicating that large class sizes are perceived by teachers as an obstacle to the inclusion of students with disabilities in the general classroom (Anati, 2012; Buell et al., 1999; Buysse, Wesley, & Keyes, 1998; Vaughn, Schumm, Jallad, Slusher, & Saumell, 1996; Vaughn et al., 1994; Wesley, Buysse, & Tyndall, 1997). For instance, in Buell et al.'s (1999) study, 79% of general education teachers reported needing but lacking adequate class sizes in order to successfully include students with special needs in regular classrooms. Larger classes put much more pressure on the general education teachers (Leyser et al., 1994) and raised the concern that students might not receive proper time or attention (Stoler, 1992). Another study suggested that the smaller the number of students in the class, the

more likely teachers were to rate themselves as successful in terms of inclusion (Smith & Smith, 2000). Obviously, an adequate class size is necessary for successful inclusive education.

Given these findings, Ministries of Education, including that in Saudi Arabia, are encouraged to consider the size of regular classes in which students with special needs are to be included. In a comprehensive research synthesis of the literature on teachers' perceptions of including students with disabilities in regular classrooms, Scruggs and Mastropieri (1996) analysed 28 studies conducted between 1958 and 1995. They concluded that teachers agreed that the number of students in a class should be reduced to fewer than 20 when it comes to including a student with disabilities in the class. In accordance with this, in Italy, there is a law (Law 517) stating that if a student with a disability is included in a class, the class size cannot exceed 20 students (Cornoldi et al., 1998). It is important to note however that if more teachers are hired in an attempt to reduce class size, they should be qualified and competent teachers. It has been suggested that having well-trained teachers rather than just adequate class sizes is a crucial factor in predicting pupil achievement (Zarghami & Schnellert, 2004).

### **6.1.5 Key Issue 5: Knowledge of AD/HD**

Analyses of the results according to the KADDS scale revealed that there is a lack of knowledge regarding AD/HD among teachers in Saudi Arabia's mainstream primary schools. Results demonstrated that Saudi teachers ( $N = 202$ ) had an overall correct knowledge rate of 41%. These findings were similar to those obtained in South Africa (Perold et al., 2010) and Spain (Jarque & Tárraga, 2009). All of these researchers, however, reported lower knowledge rates than those identified in Australia (Anderson et al., 2012; Kos et al., 2004; Ohan et al., 2008; West et al.,

2005), New Zealand (Curtis et al., 2006), North America (Jerome et al., 1994; Sciutto et al., 2000; Vereb & DiPerna, 2004), and South Korea (Kang et al., 2011; Yoo et al., 2009).

In a study conducted by Perold et al. (2010) employing Sciutto et al.'s (2000) scale (KADDS), 552 primary teachers in South Africa were surveyed regarding their knowledge and misperceptions of AD/HD. The study found that teachers had poor levels of overall knowledge about AD/HD (42.6%). In another study in Spain, Jarque and Tàrraga (2009) surveyed 193 primary school teachers from public and private schools; they observed that teachers had an overall correct knowledge score of 42.65%. Clearly, there is remarkable consistency between these two studies and the present one; an explanation for this is that all of these studies used the same measure (KADDS) and were conducted recently.

In comparison to the sample used in the present research, several Australian studies demonstrated that teachers had a higher level of knowledge of AD/HD. Kos et al. (2004), who developed a scale to measure teachers' knowledge concerning AD/HD based on the work of Jerome et al. (1994) and Sciutto et al. (2000), indicated that 60.7% of the items on the knowledge scale elicited correct responses in a sample of 120 primary teachers from Victoria, Australia. A very similar result was reported by Anderson et al. (2012), who surveyed 127 primary and secondary teachers from New South Wales (NSW), Australia and found that the teachers had an overall correct knowledge score of 60.2%. In a study conducted by West et al. (2005), Sciutto et al.'s (2000) KADDS scale was extended to 67 items, and the instrument was administered to 131 teachers from primary schools located in Perth, Western Australia. According to their study, Australian teachers had an overall correct knowledge score of 56%, which was consistent with Kos et al.'s (2004) results. In a

more recent Australian study of 140 primary school teachers, Ohan et al. (2008) assessed the overall average of teachers' AD/HD knowledge and reported scores as high as 76%. This finding is congruent with a study by Curtis et al. (2006), which showed that teachers in New Zealand possessed good levels of overall AD/HD knowledge (76%).

Based on the results of the present study, teachers in Saudi Arabia also appeared to have a lower level of knowledge about AD/HD compared to teachers in North America. For instance, 439 American and 850 Canadian teachers were surveyed using a 20-item true-false scale regarding their knowledge and attitudes concerning AD/HD. The overall correct knowledge scores were found to be 77% for American teachers and 78% for Canadian teachers (Jerome et al., 1994). These results are somewhat similar to the findings of Vereb and DiPerna (2004), who reported that American primary teachers in Pennsylvania and New Jersey had an overall correct knowledge rate of 69.6%. A lower percentage of correct responses was obtained from a sample of 149 primary teachers in another US study conducted by Sciutto et al. (2000), who developed the KADDS scale, which contains 36 items and a 'True,' 'False' or 'Don't Know' response format. In the researchers' results, the participants answered 47.8% of the KADDS items correctly.

In two recent studies conducted in South Korea, teachers appeared to have higher knowledge rates than the score obtained in the present study. Kang et al. (2011) used the KADDS scale to examine knowledge concerning children with AD/HD amongst 204 primary school teachers in Busan, South Korea. In their findings, 53.3% of the items on the KADDS scale were answered correctly by the participants. A higher percentage of correct responses (59.3%) was reported by another South Korean study conducted by Yoo et al. (2009), who surveyed 164

teachers using a questionnaire modelled from the scales employed by Jerome et al. (1994) and Ghanizadeh et al. (2006).

Overall, the findings from most international studies reviewed above were inconsistent with the findings of the current study, which suggests that teachers from many parts of the world may be more knowledgeable than Saudi teachers concerning AD/HD.

The discrepancies in teachers' average knowledge of AD/HD between the present study and previous studies may be attributable to two factors. First, there may be cultural differences in the populations being studied. For instance, there has been increased interest in the assessment and treatment of AD/HD in some countries, including the USA, Australia (Schlachter, 2008), and Canada (Charach, Cao, Schachar, & To, 2006), where teachers are expected to be actively involved in the identification of children with AD/HD and, therefore, generally knowledgeable about AD/HD. In contrast, the identification and treatment of AD/HD is still very much in its infancy in Saudi Arabia. This could mean that teachers in this country are less involved in assessment activities related to AD/HD and thus less exposed to extensive information about the disorder.

Another explanation for the discrepancies in findings is that there were methodological differences among the studies. Most of the previous studies examined teachers' knowledge of AD/HD using measures that were based on either Jerome et al.'s (1994) or Scitutto et al.'s (2000) scale. Because Jerome et al.'s scale uses a true/false response format, it is possible that the average knowledge rate has been overestimated. Considering this problem, Scitutto et al.'s scale was designed in a true/false/don't know response format to remedy the previous setup, in which teachers would have a 50% chance of giving correct answers simply by guessing.

The refined format means that they are not forced to guess if they are unsure of a response.

Despite the considerations mentioned above, the findings of the present study may reflect a situation wherein primary school teachers in Saudi Arabia have insufficient knowledge regarding children with AD/HD-related behaviours. This raises questions about the roles of universities and the Ministry of Education in Saudi Arabia when it comes to ensuring that teachers have the necessary knowledge and skills to accept and accommodate diverse students in inclusive classrooms. Sufficient knowledge about children with AD/HD-related behaviours is beneficial in that this will enable teachers to meet the needs of such students by adapting their teaching plans and strategies and exploiting students' strengths as the point of departure in educating them (Holz & Lessing, 2002). It also has been found that teachers with average or higher knowledge about AD/HD tend to provide more supportive and adaptive experiences for students compared to those with weaker knowledge (Ohan et al., 2008). Given these considerations, it appears that teachers in Saudi Arabia need to be better equipped with adequate knowledge about the needs and abilities of students with AD/HD-related behaviours and appropriate instructional accommodation for such students in order to meet the diverse needs of these students in regular classrooms.

#### **6.1.6 Key Issue 6: Knowledge and Efficacy Beliefs**

In this study, a significant and positive – albeit small – correlation was found between teachers' knowledge of AD/HD and their efficacy beliefs when it came to teaching students with behavioural problems ( $r = .151$ ,  $N = 202$ ,  $p < .05$ ). This finding generally indicated that participants with higher levels of AD/HD knowledge felt more efficacious in terms of teaching students with behavioural problems

compared to those with lower levels of AD/HD knowledge. This result is consistent with the findings of some previous studies (Perold et al., 2010; Sciotto et al., 2000), but conflicts with the findings reported by Ohan et al. (2008).

In Sciotto et al.'s (2000) study investigating teachers' knowledge and misperceptions concerning AD/HD, participants were asked to rate their confidence in their ability to effectively teach students with AD/HD on a 7-point scale. The researchers' findings showed a positive relationship between teachers' overall knowledge of AD/HD and their confidence in being able to teach children with AD/HD effectively. A similar positive correlation was reported by Perold et al. (2010), who used the same measure of self-confidence employed by the previous researchers (Sciotto et al., 2000). In apparent contrast to these results, Ohan et al. (2008) reported that teachers with average and high knowledge of AD/HD rated themselves less confident in managing students with AD/HD in their classrooms than teachers with low knowledge of AD/HD. This means that teachers' knowledge of AD/HD was negatively related to their confidence in managing children with AD/HD. Ohan et al. (2008) suggested that this result may reflect teachers' knowledge that children with AD/HD-related behaviours have serious problems that need a team to deal with effectively.

While the research outlined above highlighted the important influence of knowledge of AD/HD on self-efficacy beliefs, these studies exhibited some methodological limitations. First, previous studies generally relied on single-item measures of self-efficacy, which may have limited the reliability of their findings. According to Bandura (1997), single-item measures of self-efficacy assess only a single level of task demand; such a narrow scope has the effect of lowering the magnitude of the relationships identified. Another limitation is that some researchers

(e.g., Sciutto et al., 2000) used the terms *self-efficacy* and *confidence* synonymously. Bandura (1997), in contrast, distinguished between the construct of *self-efficacy* and the colloquial term *confidence*, noting that “confidence is a nondescript term that refers to strength of belief but does not necessarily specify what the certainty is about” (p. 382); thus, this term is considered as a catchword rather than a theoretical construct.

Taking into account the considerations described above, it can be expected that the inclusion of the variable of self-efficacy in the previous studies was of an exploratory nature, and its association with knowledge of AD/HD suggests the need for further research. Because of this, the present study incorporated further investigation into the links between teachers’ knowledge of AD/HD and their efficacy beliefs. This study used a multiple-item measure of self-efficacy and considered the logical and theoretical reasons for avoiding the interchangeable use of the terms *self-efficacy* and *confidence*. Given these considerations, the participants’ knowledge of AD/HD was found to be positively associated with self-efficacy beliefs in relation to teaching students with behavioural problems; a finding consistent with the findings reported by Sciutto et al. (2000) and Perold et al. (2010).

According to Bandura’s (1986) self-efficacy theory, knowledge, competence, and different aspects of self-knowledge and self-belief act together to produce appropriate explanations of action. This theory also suggests that self-efficacy is a mediator between knowledge and action. No amount of self-efficacy is sufficient to perform a competent behaviour if requisite skills and knowledge are lacking (Pajares, 2002). Instead, “competent functioning requires harmony between self beliefs on the one hand and possessed skills and knowledge on the other” (Pajares, 1997, p. 3). On this theoretical basis, the relationship between teachers’ knowledge of AD/HD and

their efficacy beliefs can be explained, as teachers with a better understanding of AD/HD and its associated behaviours, causes and appropriate accommodations are more likely to be able to maintain their sense of overall teaching competence compared to those with less knowledge of AD/HD. The present study, however, did not address teachers' knowledge about appropriate accommodations for children with AD/HD-related behaviours, and this may account for the relatively weak correlation found between teachers' knowledge of AD/HD and their efficacy beliefs. The effect that knowledge concerning appropriate accommodations for specific disabilities has on self-efficacy is a promising field for future research.

#### **6.1.7 Key Issue 7: Non-Significant Predictors of Attitudes**

Findings from the present study also showed that five other variables, namely teacher age, years of teaching experience, prior experience with a child with attentional problems, prior experience with a child with behavioural problems, and the subtype of AD/HD, had no significant effect on teachers' attitude towards the inclusion of students with AD/HD-related behaviours. Previous reports regarding the influence of these variables on teachers' attitudes towards inclusion have been inconsistent. In terms of age, although younger teachers were found to have a more positive attitude towards inclusion in some research (Center & Ward, 1987; Clough & Lindsay, 1991; Cornoldi et al., 1998; Leyser et al., 1994), other studies found no correlation between teacher age and attitude towards inclusion (Avramidis et al., 2000; Parasuram, 2006).

Similar to the findings related to the age variable, previous studies showed that teachers with less teaching experience had more positive attitudes towards inclusion than those with more years of teaching experience (Center & Ward, 1987; Clough & Lindsay, 1991; Leyser et al., 1994). On the other hand, other researchers

have reported that years of teaching experience did not correlate with teachers' attitudes towards inclusion (Alquraini, 2012; Avramidis et al., 2000; Batsiou et al., 2008; Kalyva et al., 2007; Memisevic & Hodzic, 2011; Parasuram, 2006; Van Reusen et al., 2000). It is important, however, to note that the research outlined above – that examined the effects of teacher age and teaching experience on attitudes – did not involve students with AD/HD-related behaviours. Rather, it focused on various other groups of students with additional needs. In the present study, the absence of significant effects of age and years of teaching experience on attitude may be explained the fact that neither experienced nor beginning teachers receive training concerning students with special needs and inclusive education in their professional preparation programs. Therefore, despite their different levels of experience, the teachers' attitudes towards inclusion may be the same. This suggests that additional research that examines the professional preparation of general education teachers in Saudi Arabia is warranted.

The lack of significant effects of prior experience with a child with attentional or behavioural problems on teachers' attitude towards inclusion in this study is consistent with Rae, Murray, and McKenzie's (2010) findings, but contradicts the results of other studies (Alquraini, 2012; Avramidis & Kalyva, 2007; Batsiou et al., 2008; Kalyva et al., 2007; Kurniawati et al., 2012; Leyser et al., 1994; Van Reusen et al., 2000). These previous studies generally identified a positive relationship between experience in working with students with special needs and teachers' attitudes towards inclusion, such that teachers with prior experience relating to such students were more accepting of inclusion. Nevertheless, none of these studies specifically focused on students with AD/HD-related behaviours; rather, they looked at various other groups of students with special needs. The

inconsistency between the results of this study and those of previous research may be ascribed to variation in the types of experiences educators have with special needs students according to the disability category (Praisner, 2003).

The absence of a significant correlation between prior experience with students with AD/HD-related behaviours and teachers' attitudes in the present study supports the view that having experience with persons with disabilities does not lead to positive attitudes on its own (Avramidis & Norwich, 2002; Hayashi & May, 2011; Shannon et al., 2009). In Saudi Arabia, a number of academic researchers in the field of disability studies have come to a consensus that even though students with AD/HD attend regular schools, most of these schools lack appropriate educational strategies to serve such students effectively (Allothman, 2011a). The current study also demonstrated that only a small fraction of the participants received training concerning students with AD/HD-related behaviours. This might result in a situation where students with AD/HD-related behaviours are only physically included in regular classrooms, with teachers unprepared to accommodate their learning needs. Under these circumstances, contact and interaction between the teachers and the students in the classroom may not be sufficiently positive to improve attitudes towards including and teaching such students. According to Yunker (1994), attitudes are influenced by role relationships and the context in which interaction takes place; therefore, "interaction with disabled people that is personal, rewarding, characterized by cooperation, intimacy, and equal status usually provides positive information and tends to result in positive attitudes" (p. 7). The present study did not examine the nature and type of contact the teachers had experienced with students with AD/HD-related behaviours. This is a relationship that warrants investigation.

In this study, the effect of the subtype of AD/HD-related behaviours (inattentional behaviours and hyperactive-impulsive behaviours) on teachers' attitudes towards inclusion was also investigated, but no significant relationship was identified. This finding is inconsistent with previous reports, which claimed that the child's type of disability influences teachers' perceptions when it comes to including students with special needs in regular classrooms (Çagran & Schmidt, 2011; Forlin, 1995; Moberg & Savolainen, 2003; Roll-Pettersson, 2008; Yuen & Westwood, 2001). However, previous studies have not examined the distinction between types of AD/HD-related behaviours and teachers' attitude towards inclusion; instead, they focused on other disabilities, such as physical disability, intellectual disability, learning disability, behavioural disorders, and visual impairment. Lahey and Carlson (1991) provided a possible explanation for the lack of significant correlation between the subtype of AD/HD-related behaviours and attitudes. According to their research, teachers rated both students with inattention behaviours and hyperactive-impulsive behaviours as experiencing greater difficulties in learning than students without disabilities, but the two groups with AD/HD-related behaviours did not differ significantly from each other.

## **6.2 STRENGTHS OF THE STUDY**

The present study has several strengths at conceptual, methodological, and empirical levels. Conceptually, the study provides important insights into mainstream primary teachers' understanding of AD/HD and perceptions related to the inclusion of students with AD/HD-related behaviours. In this study, some teachers considered students with AD/HD-related behaviours to have special abilities, putting forward the view that the difficulties these students tend to have in the classroom are not their fault; rather, the problem may have to do with teachers' ways of teaching. This is

consistent with Cooper's (2005) view that teachers should conceptualise AD/HD as a particular cognitive style rather than a deficit and that such a perspective will help them to start thinking about teaching strategies designed not to mitigate, but rather to exploit, characteristic AD/HD-related behaviours (Cooper, 2005). These may well provoke thought and discussion among teachers, teacher-educators, and administrators concerning the inclusion of children with AD/HD-related behaviours in regular classrooms. Such discussion has the potential to encourage teachers to consider ways in which they could make their classrooms more inclusive and supportive of the learning and needs of students with AD/HD-related behaviours.

A methodological strength of the study is that the findings have provided information in relation to the reliability and validity of Arabic versions of the three scales used to assess teachers' attitude towards inclusion, knowledge of AD/HD, and efficacy beliefs for teaching students with behavioural problems; specifically, the TAIS, the TEBS, and the KADDS. The construct validity and reliability of TAIS and TEBS were supported using EFA and CFA while the reliability and validity of the KADDS were demonstrated criterion validity and internal consistency techniques.

Another methodological strength is that the present study utilised an explanatory sequential mixed methods design to develop a rich and in-depth understanding about Saudi teachers' knowledge about AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. Knowledge and attitude are variables that are unlikely to be well understood by using either purely quantitative or qualitative approaches.

A final methodological strength is that the study accounted for a range of variables known to contribute to teachers' knowledge about AD/HD and their attitude towards the inclusion of students with AD/HD-related behaviours. Had these

factors not been taken into account, the findings of the present study could well have been curtailed.

At the empirical level, the present study contributes to the small but growing corpus of studies about AD/HD and the inclusion of students with additional needs in Arabic countries. The study provides unique insights into teachers' knowledge, attitudes, and efficacy beliefs at a time when increasing attention is being paid to AD/HD in Saudi Arabia. To date, debates about the diagnosis and treatment of AD/HD have been dominated by medical discourse. As a result, educational support for students with AD/HD-related behaviours has received scant attention. The findings of the present study, which was based on a consideration of previous empirical findings as well as discussions in Saudi media about AD/HD, provide an excellent foundation from which to consider other perspectives on AD/HD, including social understandings in the context of Saudi Arabia.

### **6.3 LIMITATIONS OF THE STUDY**

Despite the strengths of the present study, three limitations need to be acknowledged. First, the study was located in a single specific setting and explored the perspectives of teachers drawn from a number of inclusive primary schools in the Madinah administrative area of Saudi Arabia. Location and the choice of participants may limit the generalisability of the findings to teachers in other districts or in different educational contexts, such as secondary and high schools.

Second, the study relied on self-report data, which were collected through questionnaires. Data yielded by self-reports may be subject to social desirability bias. The study attempted to minimise this limitation by conducting individual interviews to follow up on the findings from the self-report questionnaires in order to gain a more in-depth understanding of teachers' perceptions of the inclusion of students

with AD/HD-related behaviours. In future studies, combining self-report data with classroom observation data would have the potential to develop a more complete picture of teachers' perceptions related to including and teaching students with AD/HD-related behaviours.

A third limitation is that attitudinal ambivalence was not measured in the present study. Attitudinal ambivalence refers to the degree to which an individual simultaneously evaluates an attitude object positively and negatively (Jonas, Broemer, & Diehl, 2000). The extent of ambivalence has been regarded as dimension of attitude strength, with low levels of ambivalence being related to a strong attitude (Armitage & Conner, 2004). In terms of future research, it might therefore be useful to take consequences of ambivalence into account when studying teachers' attitudes towards inclusion.

#### **6.4 IMPLICATIONS FOR PRACTICE**

The results of this study have seven practical implications for all those responsible for promoting inclusive education. First, teachers' attitudes should be taken into careful consideration. In the present study, the Saudi primary teachers had positive attitudes towards the inclusion of students with AD/HD-related behaviours. The majority of participants thought that students with such behaviours should be taught in a regular classroom where they could learn much from their non-disabled peers and feel equal – rather than inferior – to those without disabilities. It may be essential, therefore, for the government, the Ministry of Education, pre-service and in-service teacher training providers, administrators, and teachers themselves to acknowledge and capitalise on teachers' apparent enthusiasm towards and acceptance of inclusive education in Saudi Arabia. This can be done by developing

an education system that provides teachers with the required support and resources to meet the needs of all students, including those with AD/HD-related behaviours.

The findings of the present study also suggest that inclusive education for students with AD/HD-related behaviours should be designed to focus on students' interests, skills, and learning styles and emphasise their abilities instead of focusing on their deficits and disabilities. These findings indicated a relatively positive 'ability' rather than 'deficit' perspective of students with AD/HD-related behaviours. Pre-service and in-service teacher education providers may wish to consider this perspective and discuss the ramifications for education of students with AD/HD-related behaviours with their pre- and in-service teachers. It is possible that when teachers view students with AD/HD-related behaviours from this positive 'ability' rather than 'deficit' perspective; they will likely feel greater accountability for meeting the needs of the students and move away from blaming students for their failure to learn.

The findings from the present study also imply that opportunities for gaining successful experiences with students with AD/HD-related behaviours will increase teachers' self-efficacy. The results indicated that teachers with high self-efficacy beliefs in terms of their abilities to teach students with AD/HD-related behaviours had generally experienced past successes in teaching such students in regular classrooms. Such personal successes build robust self-efficacy, which strongly influences the choices individuals make, the effort they exert, the degree of perseverance they exhibit in the face of challenges, and the level of anxiety they feel (Pajares & Miller, 1995). Thus, teachers working in inclusive settings need learning environments and systems to be developed, which will allow them to experience successes in meeting the needs of diverse students. For instance, a student-centred

environment can help teachers to gain successful experiences when it comes to teaching students with AD/HD-related behaviours. Within a student-centred classroom, the teacher serves as a facilitator while the students interact, learn, and have discussions with each other to carry out critical thinking work and solve problems. In such an environment, students with AD/HD-related behaviours flourish because classroom activities have meaning and enable them to take more ownership of their learning (DeRuvo, 2009). Therefore, teachers should be provided with the necessary resources and support to design positive learning environments and implement approaches that will accommodate all learners.

Another implication from the findings of this study is the importance of collaborating with colleagues. The results indicated that teachers with high self-efficacy beliefs for teaching students with AD/HD-related behaviours had observed the successes of other teachers in dealing with students with behaviour difficulties. When individuals are able to observe similar people successfully completing tasks through sustained effort, these individuals will likely come to believe that they too possess the ability to succeed in completing comparable tasks (Bandura, 1994). Thus, there should be more opportunities for teachers to collaborate with and observe their colleagues teaching students, especially those reputed to be challenging. In such collaboration, novice or less experienced teachers could observe other more successful teachers in their inclusive classrooms while they implement teaching and behavioural strategies known to be effective for all learners, including those with AD/HD-related behaviours. Moreover, meaningful inclusive practices can be enhanced when general and special educators work together, as special educators are generally equipped with more knowledge and skills to accommodate the needs of diverse students. When teachers work together in this way, they are encouraged to

generate a shared commitment and vision of how to develop inclusive schooling in the future, thereby increasing their motivation to do so (Carrington, 1999). To improve inclusive education, it may be necessary for the government of Saudi Arabia to encourage and facilitate collaboration between all members of school staff.

A further significant implication of the study is that universities and the Ministry of Education in Saudi Arabia may wish to consider developing quality teacher training programs that focus on developing teachers' knowledge and skills to implement inclusive education. The present study found that teacher training about students with AD/HD-related behaviours contributed significantly to teachers' attitudes towards the inclusion of students with AD/HD-related behaviours. The participants stressed their lack of training opportunities and their belief that they should have greater opportunities to learn inclusive education, the needs and abilities of students with AD/HD-related behaviours, and appropriate instructional accommodation for such students. The findings suggest therefore that current teacher training programs, at both the pre-service and in-service levels, may need to focus more specifically on preparing general education teachers for teaching in inclusive classrooms and schools. To accomplish this, preparation programs for general education teachers may need to be expanded to incorporate courses about inclusive education and pedagogy and sufficient information about individuals with special learning needs, including those with AD/HD-related behaviours. Moreover, consideration may need to be given to providing in-service teachers with more opportunities to engage with professional development training which will foster their ability to effectively respond to the needs of all learners. Such training could be provided at the school or district level and be led by experienced teachers, community experts or outside experts.

The research findings also indicated that educational policymakers including those in Saudi Arabia may wish to consider ensuring that teachers have adequate class sizes when students with special needs are included in regular classrooms. The results indicated that class size significantly influences teachers' attitudes towards the inclusion of students with AD/HD-related behaviours. The participants thought that having large classes was a major barrier preventing them from teaching students with AD/HD-related behaviours effectively including using valuable approaches such as individual instruction and small-group teaching. The issue of class size has been discussed by many researchers and policy experts (Achilles, Kiser-Kling, Owen, & Aust, 1994; Cornoldi et al., 1998; Scruggs & Mastropieri, 1996), and it has been suggested that a class should not exceed 20 students when a student with disabilities has been included (Cornoldi et al., 1998; Scruggs & Mastropieri, 1996). Therefore, it is recommended for educational policymakers to give further consideration to the size of inclusive classrooms so that teachers can give individual attention to and respond to the needs of all students. It is important to remember however that having well-trained teachers rather than just adequate class sizes is a crucial factor in predicting pupil achievement (Zarghami & Schnellert, 2004).

A final implication of this study is that it appears that general education teachers in Saudi Arabia need to be provided with more information about the abilities and needs of children with AD/HD-related behaviours. The findings suggested that there is a lack of knowledge regarding AD/HD among regular teachers in Saudi Arabia and that knowledge is positively related to teachers' efficacy beliefs about teaching students with behavioural challenges. Given these findings, teachers in Saudi Arabia may need to have more opportunities to participate in training, which will help them to learn more about children with AD/HD-related

behaviours and about teaching practices that are effective for such students in an inclusive setting. Snider, Busch, and Arrowood (2003) affirm the need for pre-service and in-service teacher training that assists teachers to gain additional knowledge and broaden their perspectives about AD/HD. These suggestions include training teachers in educational strategies through which they can address a student's needs in the classroom without referring the student for AD/HD evaluation. An important part of this training involves helping teachers to understand that AD/HD-related behaviours might be explained by factors other than AD/HD (e.g., a child may behave hyperactively to get teachers' or peers' attention). Teacher training programs should also include information which fosters teachers' awareness of ambiguities associated with the diagnosis of AD/HD; in this way, unnecessary referrals for children with AD/HD-related behaviours can be avoided. Another suggestion is that teachers could be provided with opportunities to read and evaluate empirical studies about AD/HD (Snider et al., 2003).

## **6.5 IMPLICATIONS FOR FUTURE RESEARCH**

The present study raises seven important issues that could be investigated in future research. First, the present findings rely on a sample drawn from one city (Madinah) in Saudi Arabia. Therefore, research investigating teachers' attitudes towards inclusive education across a wider and more diverse selection of regions of the country is required if results are to be more generalisable.

Second, the present study focused only on the perspectives of classroom teachers. Given that the attitudes towards inclusive education of other school personnel, parents, and community members are also likely to have an impact on the education of students with AD/HD-related behaviours, the perspectives of these individuals is also important. Further to this, it is also important to gain an insight

into the lived experiences of students with AD/HD-related behaviours who are being educated in inclusive settings; that is, the voices of children with AD/HD-related behaviours themselves need to be heard. Such information may be used to support the development of inclusive education policies and practices at regional, national, and international levels.

Cultural differences in attitudes towards children with AD/HD-related behaviours deserve further research. The findings from the present study indicated that students with AD/HD-related behaviours are viewed as having special talents, and this is very different from cultures where individuals with AD/HD-related behaviours are seen as having a medical disorder. Research exploring cultural differences in people's attitudes and perceptions towards individuals with AD/HD-related behaviours is presently limited. Therefore, there is a need for additional research on how different cultural and social factors may impact on the attitudes and perceptions of people from different backgrounds towards children with AD/HD-related behaviours. Such research may contribute to a fuller understanding of AD/HD, as it will provide cross-cultural perspectives on children with AD/HD-related behaviours.

Another area that the findings suggest warrants additional research in the future is the further exploration of collaboration in inclusive educational settings and its influence on teachers' beliefs. In such settings, students with special needs may receive additional services from several educational support professionals, including general and special education teachers, social workers, speech and language pathologists, and psychologists. This study's interview results indicated that collaboration between different teachers strengthened their self-efficacy beliefs when it comes to teaching students with AD/HD-related behaviours. Thus, further research

is warranted to assess the effect of different types of collaboration between teachers and other school personnel on teachers' efficacy beliefs.

Additional investigation into the specific relationship between teacher training and attitudes towards inclusion is required. According to Planned Behaviour Theory, changes in people's attitudes will be consistent with the nature of the new information they receive (Fishbein & Ajzen, 2010). Based on this, the nature of teacher training regarding inclusive education and students with special needs seems to be an important factor affecting teachers' beliefs and attitudes concerning inclusion. The present study did not include questions on the content and length of teacher training. As a result, there is a need for further research to investigate the influence of different types of training on teachers' attitudes towards inclusive education.

The relationship between teachers' knowledge regarding AD/HD and their self-efficacy beliefs may be worthwhile to be further investigated in future studies. The theoretical basis of the present research suggests that when teachers have a better understanding of AD/HD, including its associated behaviours, causes, and appropriate accommodations, they are more likely to exhibit higher self-efficacy when it comes to teaching students with AD/HD-related behaviours compared to those who have less knowledge of such behaviours. However, the knowledge that teachers' have related to appropriate accommodations for these students was not addressed in the current study. Thus, future research might also usefully examine the effect of this knowledge on teachers' self-efficacy when it comes to teaching students with AD/HD-related behaviours in inclusive classrooms.

Finally, more detailed research may be needed to investigate the influence of prior contact with students with special needs on the general education teachers'

attitudes towards inclusive education. Previous research has suggested that prior contact with individuals with disabilities is not necessarily linked to positive attitudes (Avramidis & Norwich, 2002; Hayashi & May, 2011; Shannon et al., 2009); beyond mere experience, this contact needs to have been rewarding, intimate, equal status, and cooperative to lead to favourable attitudes towards those with disabilities (Yuker, 1994). This matter, however, was beyond the scope of this study. Hence, future studies may wish to investigate the effects of the quality and frequency of contact with students with special needs, including those with AD/HD-related behaviours, on teachers' attitudes towards inclusion.

## **6.6 CONCLUSION**

The present study is grounded in Saudi Arabia where there has been growing awareness of AD/HD by parents, educators, health professionals, and government agencies. To date, a medical rather than a sociological perspective on AD/HD has dominated the understanding and discussion about supporting children in managing their behaviours in education settings in the country. This is not surprising due to the abundance of international research and literature that assumes a medical perspective in regard to diagnosis and treatment. In light of these considerations, this mixed methods study was conducted to explore Saudi teachers' understandings and attitudes towards including and teaching students with AD/HD-related behaviours. Findings from questionnaire and interview data revealed positive attitudes when it comes to including these students in regular classrooms. Adopting a positive 'ability' rather than 'deficit' perspective, some teachers considered students with AD/HD-related behaviours to have special abilities, putting forward the view that the difficulties these students tend to have in the classroom are not their fault; rather, the problem may have to do with teachers' ways of teaching. Such findings may well

provide useful information for the Ministry of Education and teacher education providers in Saudi Arabia to support the development of inclusive education policies and practices at both regional and national levels.

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# Appendices

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**Appendix A**  
**Teacher Attitude towards Inclusion Scale (TAIS)**

**Questionnaire #1a: Teacher Attitudes**

*Directions: Please read this scenario:*

*Salem/Salma is a nine-year old student who is often easily distracted by external stimuli and has problems remembering and following through on instructions in the classroom. In addition, Salem/Salma seems not to listen to the teacher when spoken to and often fails to pay attention to details. He/she finds it difficult to finish schoolwork, often makes a lot of careless mistakes and frequently loses things such as assignments, books, pencils, etc. According to his/her parents, Salem/Salma also presents similar problems at home and has been like this for the past three years.*

*Suppose that your school decides to include Salem/Salma in your classroom.*

*After reading this scenario, please circle the adjectives that best describe your feeling.*

1.	Enthusiastic	Somewhat Enthusiastic	Somewhat Unenthusiatic	Unenthusiastic
2.	Scared	Somewhat Scared	Somewhat Fearless	Fearless
3.	Anxious	Somewhat Anxious	Somewhat Relaxed	Relaxed
4.	Comfortable	Somewhat Comfortable	Somewhat Uncomfortable	Uncomfortable
5.	Angry	Somewhat Angry	Somewhat Not Angry	Not Angry
6.	Unwilling	Somewhat Unwilling	Somewhat Willing	Willing
7.	Interested	Somewhat Interested	Somewhat Disinterested	Disinterested
8.	Confident	Somewhat Confident	Somewhat Insecure	Insecure
9.	Nervous	Somewhat Nervous	Somewhat Calm	Calm
10.	Pleased	Somewhat Pleased	Somewhat Displeased	Displeased
11.	Weak	Somewhat Weak	Somewhat Powerful	Powerful
12.	Annoyed	Somewhat Annoyed	Somewhat Indifferent	Indifferent
13.	Accepting	Somewhat Accepting	Somewhat Opposing	Opposing
14.	Prepared	Somewhat Prepared	Somewhat Unprepared	Unprepared
15.	Resistant	Somewhat Resistant	Somewhat Cooperative	Cooperative
16.	Happy	Somewhat Happy	Somewhat Unhappy	Unhappy
17.	Pessimistic	Somewhat Pessimistic	Somewhat Optimistic	Optimistic

(Adapted and used with permission from Soodak et al., 1998)

## Questionnaire #1b: Teacher Attitudes

*Directions: Please read this scenario:*

*Salem/Salma is a nine-year old student who often fidgets or squirms in his/her seat, and frequently runs around or climbs excessively. In addition, Salem/Salma often leaves his/her seat at inappropriate times and interrupts others in the classroom. Salem/Salma also tends to talk excessively in many situations and blurt out answers before questions have been completed. Salem/Salma seems to find it hard to wait his/her turn and to play quietly. According to his/her parents, Salem/Salma also presents similar problems at home and has been like this for the past three years.*

*Suppose that your school decides to include Salem/Salma in your classroom.*

*After reading this scenario, please circle the adjectives that best describe your feeling.*

1.	Enthusiastic	Somewhat Enthusiastic	Somewhat Unenthusiatic	Unenthusiastic
2.	Scared	Somewhat Scared	Somewhat Fearless	Fearless
3.	Anxious	Somewhat Anxious	Somewhat Relaxed	Relaxed
4.	Comfortable	Somewhat Comfortable	Somewhat Uncomfortable	Uncomfortable
5.	Angry	Somewhat Angry	Somewhat Not Angry	Not Angry
6.	Unwilling	Somewhat Unwilling	Somewhat Willing	Willing
7.	Interested	Somewhat Interested	Somewhat Disinterested	Disinterested
8.	Confident	Somewhat Confident	Somewhat Insecure	Insecure
9.	Nervous	Somewhat Nervous	Somewhat Calm	Calm
10.	Pleased	Somewhat Pleased	Somewhat Displeased	Displeased
11.	Weak	Somewhat Weak	Somewhat Powerful	Powerful
12.	Annoyed	Somewhat Annoyed	Somewhat Indifferent	Indifferent
13.	Accepting	Somewhat Accepting	Somewhat Opposing	Opposing
14.	Prepared	Somewhat Prepared	Somewhat Unprepared	Unprepared
15.	Resistant	Somewhat Resistant	Somewhat Cooperative	Cooperative
16.	Happy	Somewhat Happy	Somewhat Unhappy	Unhappy
17.	Pessimistic	Somewhat Pessimistic	Somewhat Optimistic	Optimistic

(Adapted and used with permission from Soodak et al., 1998)

**Appendix B**  
**Teacher Efficacy Beliefs Scale (TEBS)**

*Directions: Please think about your current teaching situation and responsibilities and respond to each of the questions below by circling a number from 1 (Nothing) to 6 (A Great Deal).*

Teacher Beliefs	How much can you do?					
Directions: Please circle the number that best describes your view with each statement	Nothing					A Great Deal
1. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)
2. How much can you do to manage disruptive behavioural in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)
3. How much can you do to prevent problem behavioural on the school grounds?	(1)	(2)	(3)	(4)	(5)	(6)
4. How much can you do to get through to students with the most behavioural problems?	(1)	(2)	(3)	(4)	(5)	(6)
5. How much can you do to keep students with behavioural problems on task with difficult assignments?	(1)	(2)	(3)	(4)	(5)	(6)
6. How much can you do to individualize learning for students with behavioural problems?	(1)	(2)	(3)	(4)	(5)	(6)
7. How much can you do to help special education students learn in a regular classroom?	(1)	(2)	(3)	(4)	(5)	(6)
8. How much can you do to overcome the influence of environment on students' learning and behavioural problems?	(1)	(2)	(3)	(4)	(5)	(6)

(Used with permission from Brownell & Pajares, 1999)

## Appendix C

### Knowledge of Attention Deficit Disorders Scale (KADDS)

*Directions: Please answer the following questions. If you are unsure of an answer, respond Don't Know (DK), DO NOT GUESS:*

*True (T), False (F), or Don't Know (DK) (circle one):*

1.	T	F	DK	Most estimates suggest that AD/HD occurs in approximately 15% of school age children.
2.	T	F	DK	Children with AD/HD are frequently distracted by extraneous stimuli.
3.	T	F	DK	Children with AD/HD are typically more compliant with their fathers than with their mothers.
4.	T	F	DK	In order to be diagnosed with AD/HD, the child's symptoms must have been present before age 7.
5.	T	F	DK	AD/HD is more common in the 1st degree biological relatives (i.e. mother, father) of children with AD/HD than in the general population.
6.	T	F	DK	One symptom of children with AD/HD is that they have been physically cruel to other people.
7.	T	F	DK	Children with AD/HD often fidget or squirm in their seats.
8.	T	F	DK	It is common for children with AD/HD to have an inflated sense of self-esteem or grandiosity.
9.	T	F	DK	It is possible for an adult to be diagnosed with AD/HD.
10.	T	F	DK	Children with AD/HD often have a history of stealing or destroying other people's things.
11.	T	F	DK	Current wisdom about AD/HD suggests two clusters of symptoms: One of inattention and another consisting of hyperactivity/impulsivity.
12.	T	F	DK	Symptoms of depression are found more frequently in children with AD/HD than in non-AD/HD children.
13.	T	F	DK	Most children with AD/HD "outgrow" their symptoms by the onset of puberty and subsequently function normally in adulthood.
14.	T	F	DK	In order to be diagnosed with AD/HD, a child must exhibit relevant symptoms in two or more settings (e.g., home, school).
15.	T	F	DK	If a child with AD/HD is able to demonstrate sustained attention to video games or TV for over an hour, that child is also able to sustain attention for at least an hour of class or homework.
16.	T	F	DK	A diagnosis of AD/HD by itself makes a child eligible for placement in special education.
17.	T	F	DK	Children with AD/HD often have difficulties organising tasks and activities.
18.	T	F	DK	Children with AD/HD generally experience more problems in novel situations than in familiar situations.
19.	T	F	DK	There are specific physical features which can be identified by medical doctors (e.g., pediatrician) in making a definitive diagnosis of AD/HD.
20.	T	F	DK	In school age children, the prevalence of AD/HD in males and females is equivalent.
21.	T	F	DK	In very young children (less than 4 years old), the problem behaviours of children with AD/HD (e.g., hyperactivity, inattention) are distinctly different from age-appropriate behaviours of non-AD/HD children.
22.	T	F	DK	Children with AD/HD are more distinguishable from normal children in a classroom setting than in a free play situation.
23.	T	F	DK	The majority of children with AD/HD evidence some degree of poor school performance in the elementary school years.
24.	T	F	DK	Symptoms of AD/HD are often seen in non-AD/HD children who come from inadequate and chaotic home environments.

(Used with permission from Scitutto et al., 2000)

**Appendix D**  
**Demographic Questionnaire (DQ)**

*Directions: please fill out the demographic information:*

1.	What is the name of your district? _____
2.	Are you male or female? (Check one) <input type="checkbox"/> Male <input type="checkbox"/> Female
3.	What is your age in years? _____
4.	What is your teaching experience in years? _____
5.	What is your highest academic qualification? (Check one) <input type="checkbox"/> intermediate diploma <input type="checkbox"/> Baccalaureate <input type="checkbox"/> Higher Diploma <input type="checkbox"/> Post graduate
6.	What is your education Area? (Check one) <input type="checkbox"/> Special Education <input type="checkbox"/> General education <input type="checkbox"/> other( specify) _____
7.	What is the average number of students in your classes? _____
8.	Have you had experience teaching a child who seems to have a lot more difficulty than other students in paying attention, listening to instructions, getting organised and completing tasks independently? (YES) or (NO) (please circle)
9.	Have you had experience teaching a child who seems to have a lot more difficulty than other students in sitting still, remaining in seat when expected, listening quietly, waiting patiently for his or her turn, and not interrupting others? (YES) or (NO) (please circle)
10.	Have you had experience teaching a child who has been identified or diagnosed with AD/HD? (YES) or (NO) (please circle)
11.	Have you ever taken any training about students with AD/HD-related behaviours? (YES) or (NO) (please circle)
12.	Would you be willing to meet with me at your convenience to participate in brief interview to discuss your responses to the questionnaire? (Yes) or (No) (please circle)  If YES, could you please give me a telephone number or email address so that I can contact you? Phone:  Email:

**YOU ARE DONE! THANK YOU!**

## Appendix E Permission to Use (KADDS) Scale

### Re: permission to use KADDS questionnaire

You replied on 12/08/2011 8:03 AM.

Mark Sciutto [[sciutto@muhlenberg.edu](mailto:sciutto@muhlenberg.edu)]

**Sent:** Thursday, 11 August 2011 12:04 AM

**To:** Saif Sarhan H Alamri

**Attachments:**  [KADDS Manual.pdf \(231 KB\)](#) [[Open as Web Page](#)]

---

Dear Saif,

Thank you for your interest in the KADDS. I have attached a copy of a brief manual, which includes the scale. We are in the process of updating the manual info, but this has some basic info that may help you make your decision. If you find the scale meets your needs, I would be glad grant permission for use in your research provided that you agree to send me a copy of the results when available.

Let me know if you have any questions.

Mark

---

Mark J. Sciutto, Ph.D.  
Department of Psychology  
Muhlenberg College  
Allentown, PA 18104  
(484) 664-3649  
[sciutto@muhlenberg.edu](mailto:sciutto@muhlenberg.edu)

**Appendix F**  
**Permission to Use (TEBS) Scale**

**Re: permission to use your questionnaire**

You replied on 12/08/2011 8:20 AM.

Brownell, Mary T [mbrownell@coe.ufl.edu]

**Sent:** Friday, 12 August 2011 3:47 AM

**To:** Saif Sarhan H Alamri

---

Hi Saif,

You may have permission to use the survey. I believe that psychometrics about the instrument were included in the article we published in 1999. It was in the Teacher Education and Special Education Journal. Do you have access to that?

Regards, Mary Brownell

**Appendix G**  
**Permission to Use (TAIS) Scale**

**Re: Permission to use the Response to Inclusion Survey**

You replied on 21/03/2012 10:49 PM.

Soodak, Dr. Leslie Carol [[lsoodak@pace.edu](mailto:lsoodak@pace.edu)]

**Sent:** Wednesday, 21 March 2012 10:06 PM

**To:** Saif Sarhan H Alamri

---

Hi Saif,

You certainly have my permission to use the scale in your study. Your work sounds quite interesting and I look forward to hearing of the results.

Best,  
Leslie

Leslie Soodak, Ph.D.  
Professor  
School of Education  
Pace University

## **Appendix H**

### **Interview Guide**

- **Attitudes towards the inclusion of students with AD/HD-related behaviours.**
  1. To begin, please tell me about you. (age, city of birth, subject area and number of experience years).
  2. Have you ever had a student like Salem/Salma in your classroom? How did you feel about that? How did you work with him/her?
  3. How did you support [the student] in the learning? What types of strategies did you use in the classroom to help the student to pay attention, get organised, complete tasks independently (or to sit still, remain in seat when expected, listen quietly, wait patiently for his or her turn, and not interrupt others)?
  4. Tell me about the challenges of teaching a child like Salem/Salma?
  5. How would you feel about working with a student who behaves like Salem/Salma in the regular classroom?
  6. Can you tell me, what do you believe to be the most appropriate placement for this student (Salem/Salma)? And why?
  7. What type of support does this student need to learn in your classroom?
- **Efficacy beliefs for teaching students with AD/HD-related behaviours.**
  8. Please tell me about your feelings when you face challenges in the classroom.
  9. During the semester, did you find yourself trying harder to manage student's behaviour problems? Why or why not?
  10. Have you seen other teachers were successful in teaching students like Salem/Salma? If so, how were things going? Did that affect you? Why or why not?

11. To what extent do you think you are successful in managing and teaching students like Salem/Salma? If so, how? Would you please give an example?

- **Training about students with AD/HD-related behaviours.**

12. Have you received any training program that prepared you to teach students like Salem/Salma effectively? If so, what type of training was it?

13. Is there need for specialized training of teachers in this area? What additional training would assist you in teaching students like Salem/Salma effectively?

- **Class size.**

14. What are the barriers that make it difficult for teachers to teach students like Salem/Salma in the regular classrooms?

15. To what extent, if any, do you think that class size affects your teaching practice for a student who behaves like Salem/Salma? If so, how?

## Appendix I Ethical Clearance

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### Ethics Application Approval -- 1200000234

QUT Research Ethics Unit

Sent: Friday, 11 May 2012 11:44 AM

To: Saif Sarhan H Alamri; Louise Mercer; Suzanne Carrington

Cc: Janette Lamb

Dear Mr Saif Sarhan H Alamri

Project Title:

Students with AD/HD-related behaviours: Saudi mainstream teachers knowledge and attitude towards inclusion

Approval Number: 1200000234  
Clearance Until: 10/05/2015  
Ethics Category: Human

As you are aware, your low risk application has been reviewed by your Faculty Research Ethics Advisor and confirmed as meeting the requirements of the National Statement on Ethical Conduct in Human Research.

Before data collection commences please ensure you attend to any changes requested by your Faculty Research Ethics Advisor.

Whilst the data collection of your project has received ethical clearance, the decision to commence and authority to commence may be dependent on factors beyond the remit of the ethics committee (eg ethics clearance / permission from another institute / organisation) and you should not commence the proposed work until you have satisfied these requirements.

This project has been awarded ethical clearance until 10/05/2015 and a progress report must be submitted for an active ethical clearance at least once every twelve months. Researchers who fail to submit an appropriate progress report when asked to do so may have their ethical clearance revoked and/or the ethical clearances of other projects suspended. When your project has been completed please advise us by email at your earliest convenience.

For information regarding the use of social media in research, please go to:  
<http://www.research.qut.edu.au/ethics/humans/faqs/index.jsp>

For variations, please complete and submit an online variation form:  
<http://www.research.qut.edu.au/ethics/humans/applications.jsp#amend>

Please do not hesitate to contact the unit if you have any queries.

Regards

Janette Lamb on behalf of the Faculty Research Ethics Advisor  
Research Ethics Unit | Office of Research  
Level 4 | 88 Musk Avenue | Kelvin Grove  
p: +61 7 3138 5123  
e: [ethicscontact@qut.edu.au](mailto:ethicscontact@qut.edu.au)  
w: <http://www.research.qut.edu.au/ethics/>

Appendix J  
Permission from the Saudi Ministry of Education

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

الرقم : ٢٧٠  
التاريخ : ١٤٢٦/١٢/٢٥  
المشغوعات :

وزارة التربية والتعليم  
Ministry of Education

الإدارة العامة للتربية والتعليم بمنطقة المدينة المنورة  
إدارة التخطيط والتطوير

الموضوع : تعبئة استبانة الباحث / سيف سرحان هدي العمري

**تعميم إلى جميع المدارس الحكومية والأهلية (بنين - بنات) داخل المدينة المنورة**

سعادة مدير مدرسة / وفقه الله  
سعادة مديرة مدرسة / وفقهها الله

السلام عليكم ورحمة الله وبركاته .

بناءً على خطاب سعادة الملحق الثقافي في استراليا رقم بدون وتاريخ بدون بشأن تسهيل مهمة الباحث/ سيف سرحان العمري في تطبيق أداة دراسته التي بعنوان " الطلاب ذوي سلوكيات فرط الحركة وتشتت الانتباه : مستوى معرفة المعلمين السعوديين واتجاهاتهم نحو الدمج " وذلك ضمن متطلبات الحصول على درجة الدكتوراه .

أمل استيفاء الاستبانة من قبل المعلمين والمعلمات ، ، لئيسنى للباحث استلام الاستبانات جميعاً من قبلكم، ونحن على ثقة من اهتمامكم بالبحث التربوي الذي يسهم في تطوير العملية التربوية والتعليمية.

وتقبلوا وافر التحية والتقدير.

المدير العام للتربية والتعليم بمنطقة المدينة المنورة  
د. سعود بن حسين الزهراني

صورة مكتبنا  
صورة للمساعد للشؤون التعليمية ( بنين - بنات ) .  
صورة للمساعد للشؤون المدرسية  
صورة لإدارة التخطيط والتطوير.  
صورة للباحث على البريد satwfi@hotmail.com  
صورة للاتصالات .

كلمة الخلفي

هاتف: ٨٣٧٦٥٠٦ فاكس: ٨٣٢٥٨٢ البريد الإلكتروني: pd@madinaedu.gov.sa

## Appendix K Information Sheet and Consent Form for Participants

	<b>PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT Interview &amp; Questionnaire</b>
Students with AD/HD-related Behaviours: Saudi Mainstream Teachers' Knowledge and Attitude towards Inclusion	

### RESEARCH TEAM

Principal Researcher: SAIF ALAMRI, PhD student, QUT  
Research Supervisors: [Dr Louise Mercer, Faculty of Education],  
[Professor Suzanne Carrington, Faculty of Education]

### DESCRIPTION

This project is being undertaken as part of PhD project for SAIF ALAMRI. This study will explore teachers' knowledge of AD/HD, their efficacy beliefs to instruct and manage students with behavioural difficulties and their attitude towards the inclusion of students with behavioural difficulties in their regular classrooms. The research team requests your assistance because you are a Saudi teacher working in public school of Madinah administrative area of Saudi Arabia.

### PARTICIPATION

Your participation in the study will involve you in:

- Determining whether you are willing to participate in the study and whether you are also willing to fill out anonymous and confidential four questionnaires that will take you approximately 32 minutes to complete.
- Determining whether you are willing to participate in an optional telephone interview with me for about 35 minutes to talk about your responses to the questionnaires.
- Signing an informed Consent Form including an agreement for me to audiotape our discussions.
- Knowing that you have the choice to withdraw from the research at any time without any penalties.
- Knowing that our discussions at the interview will be transcribed for the research team to review but your name and identity will never be revealed to anyone else in person or in writing.
- Knowing that your participation will in no way impact upon your current or future relationship with your school principal.
- Returning the questionnaire to the researcher when he revisits the school seven days after the distribution of the questionnaire.

### EXPECTED BENEFITS

This project will not directly benefit the participants. It is expected that the finding will

provide valuable information concerning Saudi teachers' knowledge of AD/HD and their attitude towards the inclusion of students with behavioural difficulties. In addition, the findings of this study could help the Ministry of Education and policy makers to improve inclusive education programs and offer comprehensive professional development for teachers in Saudi Arabia.

#### **RISKS**

The research team believes there are minimal risks beyond normal professional practice associated with your participation in this research. QUT provides for limited free counselling for research participants of QUT projects who may experience discomfort or distress as a result of their participation in the research. Should you wish to access this service please contact the Clinic Receptionist of the QUT Psychology Clinic on +61 7 3138 0999. Please indicate to the receptionist that you are a research participant.

#### **PRIVACY AND CONFIDENTIALITY**

All comments and responses are anonymous and will be treated confidentially. The names of individual persons are not required in any of the responses.

#### **CONSENT TO PARTICIPATE**

Once you understand what the project is about, and if you agree to participate, we ask that you sign the Consent Form (enclosed) to confirm your agreement to participate. The return of the completed questionnaire is accepted as an indication of your consent to participate in this project.

#### **QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT**

If have any questions or require any further information about the project please contact one of the research team members below.

Mr. Saif Alamri  
Faculty of Education  
Phone: +61423926948

Email: [saif.alamri@student.qut.edu.au](mailto:saif.alamri@student.qut.edu.au)

Dr. Louise Mercer  
Faculty of Education  
Phone: +61 7 3138 3233  
Email: [kl.mercer@qut.edu.au](mailto:kl.mercer@qut.edu.au)

Professor Suzanne Carrington  
Faculty of Education  
Phone: +61 7 3138 3725  
Email: [sx.carrington@qut.edu.au](mailto:sx.carrington@qut.edu.au)

## CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE PROJECT

QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on [+61 7] 3138 5123 or email [ethicscontact@qut.edu.au](mailto:ethicscontact@qut.edu.au). If you do not speak English, you may ask the English teacher in your school to help you contact the QUT Research Ethics Unit by phone or email. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.

***Thank you for helping with this research project. Please keep this sheet for your information.***



## CONSENT FORM FOR QUT RESEARCH PROJECT

### Students with AD/HD-related Behaviours: Saudi Mainstream Teachers' Knowledge, and Attitude towards Inclusion

#### RESEARCH TEAM CONTACTS

Mr. Saif Alamri  
Faculty of Education  
Phone: +61423926948

Email: [saif.alamri@student.qut.edu.au](mailto:saif.alamri@student.qut.edu.au)

Dr. Louise Mercer  
Faculty of Education  
Phone: +61 7 3138 3233  
Email: [kl.mercer@qut.edu.au](mailto:kl.mercer@qut.edu.au)

Professor Suzanne Carrington  
Faculty of Education  
Phone: +61 7 3138 3725  
Email: [sx.carrington@qut.edu.au](mailto:sx.carrington@qut.edu.au)

#### STATEMENT OF CONSENT

By signing below, you are indicating that you:

- have read and understood the information document regarding this project
- have had any questions answered to your satisfaction
- understand that if you have any additional questions you can contact the research team
- understand that you are free to withdraw at any time, without comment or penalty
- understand that you can contact the Research Ethics Unit on [+61 7] 3138 5123 or email [ethicscontact@qut.edu.au](mailto:ethicscontact@qut.edu.au) if you have concerns about the ethical conduct of the project
- understand that the project will include audio recording
- understand that non-identifiable data collected in this project may be used as comparative data in future projects
- agree to participate in the project

Name

.....

Signature

.....

Date

\_\_\_\_\_

***Please return this sheet to the investigator.***